

4

NATURE CONSERVATION AND BIODIVERSITY*

Features

- Forest protection and sustainable forestry
- Protection of agricultural landscape
- Nature protection at local level
- Shore protection

* The present chapter reviews progress in the last ten years, and particularly since the previous OECD Environmental Performance Review of 1996. It also reviews progress with respect to the objective “maintaining the integrity of ecosystems” of the 2001 OECD Environmental Strategy.

Recommendations

The following recommendations are part of the overall conclusions and recommendations of the environmental performance review of Sweden:

- further improve the *knowledge base* for nature conservation and biodiversity management (e.g. inventory of key habitats, indicators, economic analysis), especially regarding aquatic and marine ecosystems;
- further increase the extent of *protected areas* and their representativeness (e.g. non-mountain forests, marine and freshwater ecosystems);
- further develop *sustainable forest management* and monitor voluntary protection of forests;
- finalise and implement a programme for *integrated coastal zone management* and strengthen local planning authorities' capacity in coastal zone protection;
- strengthen the management and restoration of *streams, wetlands and meadow lands* within a broader landscape policy;
- further increase access to nature for all inhabitants and awareness of the *related health and well-being* benefits; encourage ecotourism.

Conclusions

Over the review period, Sweden gave nature conservation and biodiversity a considerably *higher priority* than before, as recommended in the previous OECD review. Funding contributing to nature conservation has strongly increased, with public funding doubling at national level and rising at local level and with considerable EU agri-environmental support to improve environmental performance in agriculture, combined with higher funding of forest protection and increased sustainable forestry practices. The area of *site protection* has increased to 8.1% of the national territory. More *environmentally sound forest management* practices have gained ground, and a comprehensive regulatory framework has been established to this effect. The National Forest Policy of 1998 sets environmental protection and wood production as the two equal, overarching priorities for forest management. Voluntary protection of forests has become more widespread. Large forest companies practice ecological landscape planning and green accounting, and over half of the country's productive forests now have certification from the Forest Stewardship Council or the Programme for the Endorsement of Forest Certification Schemes. The cutting of forests containing red-listed species has decreased significantly.

Despite these efforts, however, nature conservation and biodiversity face major challenges. *Biodiversity in the marine environment* has received insufficient attention: there are only eight exclusively marine nature reserves; species decline seems to be accelerating; the country lacks a coherent, integrated policy on marine issues; and co-ordination among the many institutions responsible for marine environment needs to be enhanced. *Coastal areas* in general, and archipelagos in particular, are subject to strong development pressures, and exemptions to coastal protection are sometimes granted too easily. *Overfishing* has reduced populations of cod and Baltic herring to well below sustainable limits, and inadequate control of releases of fish threaten local stocks, notably in freshwater environments. Statutory *protection of forests lags behind targets*, and the representativeness and permanence of voluntary protection are uncertain. Pressures for more intensive exploitation of productive forests jeopardise the achievement of protection targets. The vast majority of protected areas are still in the mountainous regions of the north-west, while southern areas and aquatic habitats remain under-represented. The *knowledge base* required for the development of protection measures, as well as for monitoring and follow-up of such measures, is insufficient, especially as regards aquatic environments. Progress in the establishment of *freshwater protected areas*, the protection and restoration of *wetlands* and the drawing up and implementation of *species protection programmes* has been slow. *County and municipal authorities* lack the personnel to carry out nature protection measures and related *cultural heritage* protection measures, and face tensions among stakeholders.



1. Policy Objectives

Several of Sweden's *environmental quality objectives* (EQOs) relate to nature conservation and biodiversity, most notably "Flourishing Lakes and Streams", "Thriving Wetlands", "Sustainable Forests", "A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos", "A Varied Agricultural Landscape", "A Magnificent Mountain Landscape" and "A Good Built Environment". In 2003, at the request of the government, the Swedish Environmental Protection Agency (SEPA) drew up a proposal for a 16th EQO, concerning the preservation of biodiversity, which is likely to be adopted by 2005. The proposed overall aim for biodiversity protection is to ensure that all species indigenous to the Swedish natural environment can continue to flourish in the long term without depletion or loss of genetic variation.

The 1996 OECD Environmental Performance Review (EPR) recommended that Sweden:

- accord higher priority to nature conservation;
- set quantitative targets in goals for protected areas in terms of total area and representativeness and minimum size of individual parks and reserves, and take steps to reach these goals;
- create marine protected areas in the Swedish part of the Baltic Sea;
- implement the biodiversity action plan and make biodiversity protection a basic principle of the proposed Environmental Code;
- further integrate environmental concerns in forestry policies and ensure that forestry practices evolve further towards a sustainable and environmentally conscious approach, with appropriate goal setting and monitoring of performance.

“A *Comprehensive Policy on Nature Conservation*”, a government communication submitted to the parliament in March 2002, is a key element in efforts to protect outdoor recreation amenities and biodiversity. It stresses:

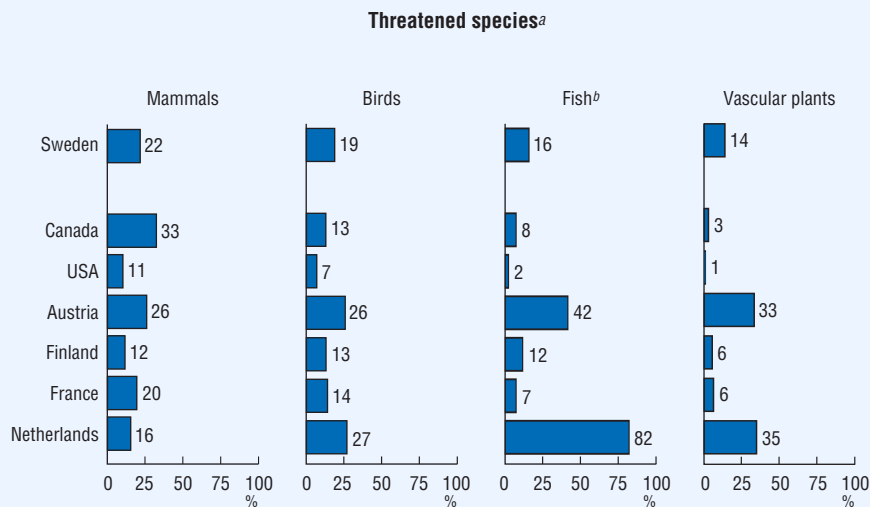
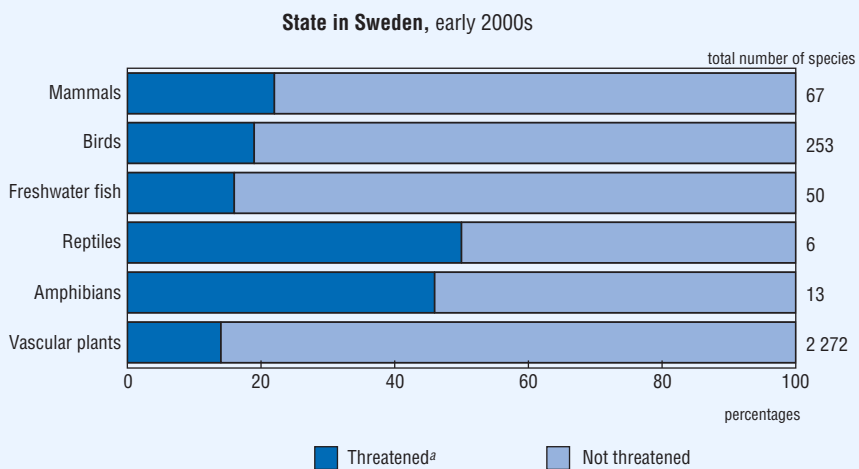
- the strengthening of local nature conservation activities, especially in urban areas;
- links between nature conservation, outdoor activities and public health;
- nature conservation in aquatic environments;
- increased linking of nature protection with other policy areas (e.g. preservation of cultural heritage);
- stakeholder involvement, information and education concerning biodiversity and nature conservation;
- international aspects of nature conservation.

2. State of Nature and Biodiversity

2.1 Species

The number of living species in Sweden is estimated at 58 000. Of the 20 000 species whose status was examined in the latest assessment of threatened Swedish species in 2000, 4 120 (21%) belong to one of the six red list categories. Some 14% of vascular plants, almost 50% of reptiles and amphibians and 22% of mammals are classified as critically endangered or vulnerable (Figure 4.1). More taxa have been assessed since the previous assessments in the mid-1990s, resulting in an 18% rise in the number of red-listed species. In 2001, the *Species Information Centre*,

Figure 4.1 **Fauna and flora**



a) IUCN categories "critically endangered", "endangered" and "vulnerable" in % of know species.

b) Freshwater fish only in Sweden, Austria and the Netherlands.

Source: OECD.

run jointly by Swedish Agricultural University and SEPA, was assigned the task of describing the country's living species, a project expected to take at least 20 years. Voluntary organisations have an important role providing basic data, particularly concerning bird populations.

The decline in populations of *forest species* (i.e. species with forest as habitat) continues, but at a slower pace than previously; 2 101 appear on the red list. About 20% of species with habitats in the Swedish *agricultural landscape* (notably pastures and meadows) are threatened by extinction. Among *freshwater species*, some are recovering thanks to liming of lakes, while increasing hydropower development of small rivers threatens others; 15 species living in lakes and streams are on the red list. *Marine species'* decline continues, due to eutrophication, overfishing and damage from trawling. Among the approximately 5 000 marine species, 202 (mostly molluscs) appear on the red list. Roughly 270 *wetland species* are threatened.

In 2003, there were an estimated 2 000 brown bears, 60-80 wolves, 1 200 lynx and 350 wolverines in Sweden. *Action plans*, last updated in 2003, are in force for all four species. The brown bear population is stable or increasing. The lynx population has decreased in the reindeer herding areas, but may be slightly increasing in more southern areas. The wolf and wolverine populations are not increasing. Illegal hunting is a major problem for lynx, wolf and wolverine. Measures should be taken to eliminate illegal hunting, to supply information so as to increase public acceptance of large predators, to prevent predator damage to livestock and to make it easier to obtain economic compensation for damage.

2.2 Habitats

Productive *forest* covers 55% of Sweden's land area. Two-thirds of the forests are within the boreal belt; consequently, 84% of the growing stock consists of conifers. About 95% of productive forests are managed for timber. Over several decades, Swedish forestry methods have reduced the area of suitable habitats for many forest species, but the forest area itself has not decreased. The mixed forests of central and southern Sweden and the deciduous woodlands of the far south tend to be richer in biodiversity than the coniferous forests.

Lakes cover 9% (42 000 km²) of Sweden's total area. They range from clear, low-nutrient mountain lakes to high-nutrient lowland waters. Some 2 000 phytoplankton species, 50 zooplankton species and 40 fish species are found in Swedish lakes. Many low-nutrient lakes are exposed to acidification, while lakes in high-nutrient areas often suffer from eutrophication. Many lakes and streams have also been subject to physical disruption through drainage, logging and exploitation for hydroelectric power. The

country has some 60 000 km of streams and rivers. In the north these are an important repository of biodiversity in an otherwise species-poor landscape.

Wetlands cover almost 25% of the land area (100 000 km²). Since subsidies for drainage were abolished about 15 years ago, the rate of decline in wetland area has decreased considerably. *Mountains* (in the north and west) and farmland cover 10% and 8.6% of the land area, respectively.

The *Baltic Sea* is the world's largest brackish-water sea. The waters and archipelagos along its coasts constitute a unique ecosystem, hosting a number of species not found elsewhere. Eutrophication (Chapter 3) and the accumulation in the food chain of toxins such as DDE, DDT, PCBs and other chlorinated hydrocarbons (Chapter 7) continue to threaten biodiversity in the Baltic.

Sweden lacks a comprehensive national system to identify and classify habitats and biotopes; existing systems need to be streamlined to provide transparency, alleviate conflicts and improve public support. This lack is particularly acute for aquatic and marine habitats. By contrast, national inventories of wetlands and wet forests, as well as grazed and mowed grasslands, have provided a good knowledge base in those areas.

3. Policy Responses

Together with laws such as the Forestry Act, the Environmental Code contains the main legislative elements governing nature protection in Sweden. SEPA plays a key role in fostering implementation of policies for nature conservation and biodiversity. The National Forestry Board, the Board of Agriculture, the National Board of Fisheries, the National Heritage Board and the National Board of Housing, Building and Planning also have responsibilities in the protection of nature, biodiversity and cultural heritage. *County administrative boards* and ten *regional forestry boards* exercise overall responsibility at regional level. The role of *municipalities* has been strengthened; they directly influence nature conservation and biodiversity through physical planning and the designation and management of protected areas, as well as projects in the local investment programmes of 1998-2002.

Sweden gave higher priority to nature conservation in the review period, in line with the recommendation of the 1996 EPR, and has clearly translated this priority into funding. *National funding* for nature conservation doubled from SEK 704 million in 1994-95 to SEK 1.4 million in 2004. While no quantitative estimates of funding by local authorities and county councils are available, the *local investment programmes* (Chapters 5 and 6) covering nature conservation have contributed to local funding. The government's recent decision to allocate SEK 300 million for local nature protection measures in 2002-04 will assure the

continuity of local conservation efforts. Central government funding for the establishment of forest protection areas reached about SEK 600 million in 2001. Moreover, forest owners may be compensated for opportunity costs as a result of requirements to set aside 500 000 hectares of productive forest and to increase the share of broadleaved trees and dead hardwood being left in forests. The Environmental and Rural Development Programme represents a further major contribution (about SEK 750 million a year) to agri-environmental measures. In addition, increased funds have been allocated to biodiversity research in recent years.

Responsibilities for setting up targets derived from the EQOs and for implementing and evaluating policies are assigned to public agencies, private companies and other organisations in various sectors, notably agriculture, fishing, forestry, energy, transport, tourism, development co-operation and cultural heritage.

3.1 Protected areas

Protected areas in Sweden now total about 50 000 km², compared with 35 000 km² in 1995. Accordingly to the IUCN, about 8% of the country's land area (a relatively small share, compared to the OECD average of 14.6%) is under some form of protection, half of it in IUCN categories I and II (Figure 4.2). Nature reserves, which constitute more than 80% of the protected area, account for most of the increase (Table 4.1 and Box 4.1). Four national parks were established in the review period, in southern and central Sweden, bringing the total to 28. The European Natura 2000 network currently includes 3 991 sites in Sweden, of which about 60% are already protected.

Table 4.1 Types of protected areas, 2002

	Number	Area (000 ha)	Area (% of total)
National Parks	28	692.5	13.8
Nature Reserves ^a	2 519	4 200.5	83.8
Cultural Reserves	4	2.8	0.06
Fauna Protection Areas	1 040	107.5	2.1
Biotope Protection Areas	2 986	8.8	0.2
Natural Monuments	1 436	–	–
Total		5 012.1	

a) Includes Environmental Conservation Areas established before the Environmental Code entered into force.

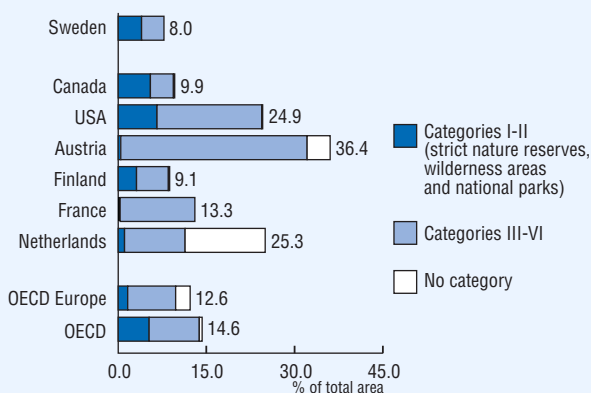
Source: Statistics Sweden; SEPA.

Box 4.1 Major types of protected areas

The parliament can establish *national parks* on state land, and a county administrative board or a municipality can designate areas as *nature reserves*, *cultural reserves* or *natural monuments*. To provide special protection for specific plants or animals, a county board or municipality can establish *fauna or flora protection areas* in which hunting or fishing rights, or the rights of the public or a landowner to stay in the area, are limited. The National Forestry Board and county administrative boards can designate habitats of threatened species and otherwise especially valuable areas as *biotope protection areas* (Table 4.1).

Shore protection generally covers all land and water up to 100 metres from the shoreline, but in individual cases can be extended to as much as 300 metres. *Nature protection agreements* are concluded under civil law between a forest owner and the regional forestry board for a specified period, usually 50 years. The forest owner receives compensation for part of the commercial benefit he loses in deciding to stop harvesting trees. *Voluntarily protected forest* is defined as a contiguous area of at least 0.5 hectares of productive forest land in which no forestry or other activities that can damage natural and cultural assets are permissible.

Figure 4.2 Protected areas,^a 2003



a) IUCN management categories I-IV and protected areas without IUCN category assignment; national classifications may differ.

Source: IUCN.

Municipal authorities can initiate the designation of nature reserves and other nature protection actions (Box 4.2). Under the local investment programmes, an average of SEK 317 million per year, or 6% of the funds provided, went to nature and biodiversity protection, which is seen as going hand in hand with human health and well-being. This funding is no longer available now that climate investment programmes have replaced local investment programmes (Chapter 5). However, SEK 300 million in national funding will go to municipal nature conservation projects for 2004-06, and is to constitute no more than half the total funding of each project.

Box 4.2 Nature protection at local level

Increasing public health problems related to inactivity and the disappearance of natural areas around urban agglomerations have led the government to pay more attention to nature protection at local level. About 13% of the nature reserves designated between 1991 and 2001 were declared at local level, though efforts vary greatly by municipality. Some 30% of the country's municipalities have drawn up special *nature conservation programmes*. The fact that municipalities own most of the land in urban areas gives them a good opportunity to establish protected areas.

National government support for nature protection and biodiversity preservation amounted to SEK 317 million a year or about 6% of total financing in the *local investment programmes*. At least 50% of financing for an individual project had to come from sources other than the central government. It was not easy for local actors to develop good nature protection projects that would also meet the other programme criteria. This difficulty stemmed partly from a lack of any real tradition of nature protection work within municipalities and partly from trouble with quantification of environmental impacts, which was a selection criterion for nature protection measures. In partial replacement of local investment programme financing, the government is making SEK 300 million available in 2004-06 for municipal nature protection projects aimed at combining biodiversity protection with promotion of human health and well-being.

Sweden so far has seven *foundations for nature protection and recreation*. Such foundations may be regional in scope or aim at protection of a specific habitat. The foundations can acquire financing for their projects (for instance, from EU structural funds) and mobilise actors at local level. The government has proposed making national aid available for establishing such foundations.

Stockholm's *national urban park* is an important recreation area for residents and tourists. Other urban parks have been proposed in the vicinity of the country's largest cities.

3.2 Forestry

Forest-related products have represented 13% of Sweden's total export value and 5% of GDP in recent years. A downward trend for mature forests with a large deciduous element was halted in the mid-1990s, and such forests are expected to expand by some 10% by 2010. However, harvesting practices (e.g. clear-cutting), logging of valuable natural forests, drainage and use of fertiliser and pesticides have put pressures on forest ecosystems. The diversity of forest species such as lichens, fungi and invertebrates has diminished. Insufficient attention is given to preserving dead wood, small habitats, red-listed species and buffer zones along water bodies. Forestry operations often damage elements of the cultural heritage, largely through a lack of knowledge concerning such sites. Forest road building can harm wetlands that represent significant natural or cultural assets.

About 75% of the Swedish forest area is in private *ownership*. The state-owned forest company, Sveaskog, is the largest public owner with 3.5 million hectares. In addition, about 20 state authorities or state enterprises manage some 2.2 million hectares. While state forest management can serve as an example of sustainable forest management for the whole sector, the fragmented character of state forest management may hamper further efficiency gains.

The 1993 *National Forest Policy* established sustainable forest production and environmental protection as two equal, overarching objectives for forestry. These aims were confirmed in the 1998 Forest Policy, which set *environmental objectives for the forest sector* for five years. The "Sustainable Forests" EQO set concrete interim environmental targets for 2010: protecting more productive forest land of high conservation value (+900 000 hectares); increasing the amount of dead hardwood (+40%) and the area of mature highly deciduous forest (+10%) and old forest (+5%) as well as areas regenerated with deciduous forest; avoiding damage to ancient monuments; and initiating action programmes for threatened species in need of targeted measures. The county administrative boards and regional forestry boards have proposed regional targets.

By the end of 2002, 3.97% of productive forest land was protected as national parks, nature reserves, biotope protection areas or through nature protection agreements (Table 4.2). Most of the new protected forests are in central and southern Sweden, which have generally had the weakest protection. Despite this increase, however, only about 1% of forests outside mountainous regions are protected. Progress in statutory protection has been slow: in the four years to 2002 only 15% of the target for 2010 was protected. Identification of key forest biotopes and other valuable sites remains incomplete. The management of protected areas is still insufficient, though funding for management more than doubled in the review period.

Sveaskog has ambitious environmental targets (notably to set aside 20% of productive forest for protection and for sustainable forest practices) and aims to set a good example for the private forest sector in sustainable forest management. The company seems, however, to have difficulties achieving its environmental targets and combining production objectives with those relating to environmental protection. Increased attention must be paid to ensuring that protection is targeted at the areas with the highest conservation value, especially outside mountainous regions.

Voluntary protection has progressed rapidly: some 810 000 hectares of forest has been set aside voluntarily since 1996, about half of it on land owned by the eight largest forest companies. Much of the voluntary protection involves *forest certification* through the Forest Stewardship Council or the Programme for the Endorsement of Forest Certification Schemes, which together cover more than half of Sweden's productive forest. However, most of the areas set aside voluntarily are in northern Sweden and other mountainous areas, and it is estimated that only one-fourth of them contain key biotopes. A significant share of the protected area lacks documentation, especially on small forest owners' land.

The prospects of meeting the interim targets to *increase the quantity of dead hardwood, mature forest and old-growth forest* seem good, despite the considerable uncertainties involved. The regional forestry boards provide advice programmes promoting forest management that would allow the targets to be met. The National Forestry Board, together with SEPA and the relevant county administrative boards and regional forestry boards, is identifying key ecological landscape areas where

Table 4.2 **Protected forest areas, 2002**

	000 ha	% of productive forest
National Parks and Nature Reserves	872.4 ^a	3.86 ^a
Nature Protection Agreements	16.6	0.07
Biotope Protection Areas	8.4	0.04
Voluntarily Protected Forests	990.0	4.38
Total	1 707.4 ^b	8.87

a) 2000.

b) Includes long-term and short-term set-asides within certification standards and nature reserves owned by forest companies, about 25% of estimated area with key habitat quality. The degree of permanence cannot be guaranteed.

Source: SEPA; National Forestry Board.

green forest management plans would constitute the basis for multiple use of forest land. In 2000, such plans covered about 600 000 hectares of private land. Large forest companies generally apply ecological landscape planning and green accounting. The government forest management organisation uses an *ISO 14001 certified environmental management system*.

In 2001, the *central government spent* some SEK 600 million on forest protection under the Environmental Code. In 2002, it allocated SEK 665 million to increase protection in non-mountainous areas (e.g. in the south): SEK 500 million to establish nature reserves and SEK 165 million to set up biotope protection areas and conservation agreements. SEPA and the National Forestry Board estimate that some SEK 1.4 billion a year will be needed for forest protection in 2003-10, including compensation payments and capacity building in forest reserve designation and management for county administrative boards.

3.3 Agriculture

Since EU accession in 1995, Swedish agriculture has undergone significant *structural changes*. Between 1996 and 1999 the number of farms dropped by 11%, from 90 488 to 80 199, and the number of farms of more than 100 hectares increased by 10%, from 4 697 to 5 181. This has entailed some negative trends for biological diversity and cultural heritage, but overall these trends now seem to have at least slowed, and there are cases of improvement.

The *Swedish Environmental and Rural Development Programme for 2000-06*, based on the EU Rural Development Regulation (1257/99), is the centrepiece of policies integrating environmental concerns with agricultural policy. The Board of Agriculture is responsible for the general implementation while the county administrative boards manage the programme at their level. Measures under the programme are financed jointly by the Swedish government and the EU. The emphasis is on compensatory payments to farmers for measures such as preservation and restoration of pastures and meadows; preservation of valuable natural and cultural environments in the agricultural landscape and reindeer herding areas; protection of threatened breeds of domestic animals; reduction of nitrogen leakage; restoration and creation of wetlands; and environmentally sound production methods. For 2000-06, SEK 14.7 billion is being allocated for sustainable development in rural areas, including SEK 9.6 billion for environmental support per se. More than half of all farmers receive agri-environmental support.

Support payments have helped *reverse the declining trend of meadow and pasture land in most of the country*. The area of grazing land has increased in coastal

and archipelago areas since 1995, especially in remote areas. While quantitative targets are being met, the quality of the measures is uncertain, partly because a broader landscape perspective is lacking and sometimes because of outright management errors. Better information is needed to orient measures to the most valuable features and types of pasture. Payments may not be sufficient to retain farming in areas where there is pressure from such social and demographic factors as isolation, long distances to services and lack of alternative employment for other family members.

The disappearance of *small-scale habitats on farmland* and *culturally significant landscape features* seems to have halted; such habitats and features are increasingly covered by agri-environmental measures and protected under the Environmental Code. Progress varies widely by region, however.

Sweden has a target of expanding the area under *organic farming* to 20% of the total arable area by 2005 (from 16% in 2002); by 2002 it had already met its target of increasing the share of organic dairy and beef cattle and lamb production to 10% of total production. Support for organic farming amounted to SEK 462 million in 2002. The government has decided to significantly increase support for marketing and research on organic production.

3.4 Freshwater fishing and ecosystems

Overfishing, the disappearance of small fishing villages and by-catches are the main pressures from marine fisheries on nature, biodiversity and cultural heritage (Chapter 8). The increasing value of the fish catch has more than compensated for a slight decline in total catch and a significant drop in the number of fishers (Table 8.4). Small-scale fishing remains an important livelihood in sparsely populated areas, and about one in five Swedes practices recreational fishing, with a total catch of nearly 60 000 tonnes in 2000, or about 20% of the total marine catch.

Fish are released into freshwater to improve fishing and to conserve threatened species and stocks. The policy of the National Board of Fisheries is to minimise such releases, and local stocks are given preference in releases. The control and supervision of large-scale releases to inland waters are often inadequate, posing a threat to aquatic biodiversity. Moreover, illegal stocking is assumed to be relatively common.

Aquatic environments have long received relatively low priority in nature and biodiversity conservation. Although recent progress should be noted, much remains to be done. Some 750 freshwater habitat types have been incorporated into the Natura 2000 network. In addition, 28 water bodies have been designated as areas to be

protected under the 2001 Ordinance on Environmental Quality Standards for Fish and Shellfish Waters. Among other measures for long-term conservation, the authorities are working to acquire land and/or hydroelectric rights for the protection of streams of particularly high conservation value. *Government grants for small-scale hydropower*, available since 1997 but now abolished, often led to conflicts of interest between nature/heritage conservation and electricity production. Overall, 70 of Sweden's roughly 2 500 nature reserves have freshwater conservation among their aims. Six of the 21 counties draw attention to lakes and/or rivers in their *cultural environment profiles*.

Streams and rivers are currently being restored, mostly through one-off projects in the framework of the liming programme, fishery conservation programmes or municipal initiatives. National funding for river and stream restoration is limited, though the local investment programmes helped many municipalities enhance sustainability in aquatic environments. The National Board of Fisheries is analysing the effects of *leisure and subsistence fishing* on fishery resources in mountain areas.

3.5 Shore protection, land use changes

Structural changes in the fishing, shipping and agriculture sectors have adversely affected the *cultural heritage* in coastal and archipelago areas. Traditional open farming landscapes (especially pastures) become overgrown and farm buildings are demolished or converted to new uses. Property price increases have forced out permanent residents in some places; second homes now dominate some coastal communities. Coastal areas, especially those with nature and recreation value in the south, are under increasing pressure from *construction*, but it is difficult to obtain a comprehensive picture of areas that are still accessible to the public, and of development in coastal zones. *Urban green areas* are being built upon, most rapidly in communities of more than 10 000 inhabitants.

Seashores and all shores of water bodies are protected under the Environmental Code by a *buffer zone* extending up to 100 metres on both sides of the shoreline. County administrative boards often delegate to municipalities the power to grant *exemptions to shore protection*. Confronted with development pressures and economic difficulties, local authorities often grant such exemptions too easily. Several single exemptions, which individually would not have major impact, often add up to a major loss of natural and recreation values. Moreover, the local building committees responsible for deciding on the exemptions often have insufficient knowledge and experience in matters relating to protection. The county boards do not have enough resources to follow up, supervise and guide municipalities in implementing Environmental Code provisions and in granting exemptions. In recent years planning resources have decreased in many municipalities. Strategies are being

prepared to address these issues in line with the EU recommendation on integrated coastal zone management.

3.6 *Wetland protection*

The 1994 *Mire Protection Plan* now covers 502 sites with mire area of 3 920 km², or 6% of the country's remaining mire area (peat bogs). The number of fully or partly protected sites has increased from 150 to 246 since 1994 and the share of the protected areas included in the plan has grown from 62% to 70% of the total area. The present rate of protection is insufficient to achieve the interim target set by the parliament. One-fourth of the sites in the protection plan are not yet included in the Natura 2000 network. The interim target of building or restoring at least 120 km² of wetlands on farmland between 2000 and 2010 will also be hard to achieve, given the present rate of restoration. Sources of financing have included the Environmental and Rural Development Programme, the local investment programmes, the Swedish Wetlands Fund and WWF Sweden. Support for wetland restoration and protection should be increased, and co-ordination between the agricultural and environmental authorities improved, to enable more comprehensive and planned protection and restoration measures. Peat should no longer be exempt from the CO₂ tax, given the significant (albeit local) harmful impact of peat abstraction on wetland ecosystems.

The country's 51 *Ramsar sites* cover 5 280 km², the third-largest area among Ramsar countries (after Australia and the UK). In 2001, 21 sites were added and ten enlarged. An inventory of Swedish wetlands, begun in the 1980s, is to be finalised in 2004.

The development of a *national strategy for wetland protection* was initiated in the autumn of 2003. On the initiative of WWF Sweden, NGOs are preparing their own wetland protection strategy, which could become part of the national strategy.

3.7 *International co-operation in nature conservation*

In 1999 Sweden ratified the agreement on conservation of African-Eurasian migratory birds under the *Bonn Convention*. The use of *lead* in bullets used in hunting in wetlands was banned in 2002. Sweden is working on a *bat* conservation action plan as outlined in the agreement on conservation of populations of European bats.

Sweden ratified the *biodiversity convention* in 1994 and has provided two national reports to the convention secretariat. The *national action plan for biodiversity* contains 68 proposals, most of which have been at least partly implemented. Sweden's implementation of the convention is expected to be evaluated soon.

REFERENCES

- I.A Selected environmental data
- I.B Selected economic data
- I.C Selected social data
- II.A Selected multilateral agreements (worldwide)
- II.B Selected multilateral agreements (regional)
- III. Abbreviations
- IV. Physical context
- V. Selected environmental events (1996-2003)
- VI. Selected environmental Web sites

I.A: SELECTED ENVIRONMENTAL DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	
LAND													
Total area (1000 km ²)		9971	1958	9629	378	99	7713	270	84	31	79	43	338
Major protected areas (% of total area)	2	9.9	9.2	24.9	17.2	7.1	9.9	29.6	36.4	3.4	15.9	37.2	9.1
Nitrogenous fertiliser use (t/km ² of arable land)		3.7	5.0	6.1	11.3	19.5	1.9	65.6	8.5	17.6	9.3	8.7	6.7
Pesticide use (t/km ² of arable land)		0.10	0.14	0.18	1.52	1.44	0.06	0.82	0.21	1.10	0.14	0.12	0.07
FOREST													
Forest area (% of land area)		45.3	33.4	32.6	66.8	65.2	19.4	29.5	47.6	22.2	34.1	10.5	75.5
Use of forest resources (harvest/growth)		0.4	0.2	0.6	0.3	0.1	0.6	0.6	0.7	0.9	0.7	0.6	0.8
Tropical wood imports (USD/cap.)	3	1.6	0.2	2.2	10.7	6.1	4.0	3.4	0.4	24.2	0.3	3.8	1.4
THREATENED SPECIES													
Mammals (% of species known)		32.6	33.2	10.5	24.0	17.0	23.2	15.2	26.2	31.6	33.3	22.0	11.9
Birds (% of species known)		13.1	16.9	7.2	12.9	14.1	12.1	25.3	26.0	27.5	55.9	13.2	13.3
Fish (% of species known)		7.5	5.7	2.4	24.0	1.3	0.7	0.8	41.7	54.3	29.2	15.8	11.8
WATER													
Water withdrawal (% of gross annual availability)		1.5	15.5	19.0	20.3	33.9	6.2	..	4.2	45.1	11.9	4.4	2.1
Public waste water treatment (% of population served)		72	25	71	64	70	..	80	86	38	70	89	81
Fish catches (% of world catches)		1.0	1.4	5.0	5.3	1.9	0.2	0.6	-	-	-	1.6	0.2
AIR													
Emissions of sulphur oxides (kg/cap.)		80.0	12.2	62.7	6.9	24.8	95.7	11.5	5.0	20.1	25.8	5.2	14.6
(kg/1000 USD GDP)	4	2.9	1.6	2.0	0.3	2.1	4.1	0.7	0.2	0.9	2.0	0.2	0.6
% change (1990-late 1990s)		-22	..	-20	-3	-29	-4	20	-55	-37	-86	-85	-71
Emissions of nitrogen oxides (kg/cap.)		89.7	12.0	84.4	13.1	23.4	135.1	53.1	22.6	35.7	38.6	38.9	45.6
(kg/1000 USD GDP)	4	3.3	1.6	2.7	0.5	2.0	5.7	3.1	0.9	1.5	2.9	1.5	1.9
% change (1990-late 1990s)		-6	18	5	-	17	17	18	-9	16	-47	-25	-21
Emissions of carbon dioxide (t/cap.)	5	16.5	3.7	19.9	9.3	9.4	18.0	8.7	8.4	11.8	12.0	9.6	11.5
(t./1000 USD GDP)	4	0.61	0.45	0.63	0.37	0.66	0.74	0.46	0.34	0.47	0.88	0.37	0.49
% change (1990-2001)		22	24	17	13	88	34	45	17	14	-18	4	12
WASTE GENERATED													
Industrial waste (kg/1000 USD GDP)	4, 6	..	50	..	40	60	110	30	80	60	70	20	150
Municipal waste (kg/cap.)	7	350	310	760	410	360	690	380	560	550	330	660	460
Nuclear waste (t./Mtoe of TPES)	8	5.0	0.3	0.9	1.9	3.2	-	-	-	2.3	0.9	-	2.1

.. not available. - nil or negligible. x data included under Belgium.

1) Data refer to the latest available year. They include provisional figures and Secretariat estimates.

Partial totals are underlined. Varying definitions can limit comparability across countries.

2) IUCN management categories I-VI and protected areas without IUCN category assignment; national classifications may differ.

3) Total imports of cork and wood from non-OECD tropical countries.

4) GDP at 1995 prices and purchasing power parities.

Source: OECD Environmental Data Compendium.

OECD EPR / SECOND CYCLE

FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD*	OECD*
549	357	132	93	103	70	301	3	42	324	313	92	49	506	450	41	779	245	35042
13.3	35.7	5.2	8.9	9.5	2.4	12.1	17.1	25.3	6.5	23.6	7.3	22.4	9.6	8.0	28.7	4.1	10.9	14.6
12.8	14.9	6.6	4.2	9.8	38.6	7.6	x	29.5	11.2	6.0	4.0	5.1	5.8	7.1	10.4	4.2	19.1	6.3
0.44	0.24	0.30	0.15	-	0.24	0.70	0.63	0.89	0.09	0.07	0.53	0.25	0.21	0.06	0.33	0.09	<i>0.52</i>	<i>0.20</i>
31.4	30.1	22.8	18.9	1.3	8.8	23.3	34.4	9.2	39.2	29.7	37.9	42.2	32.3	73.5	31.7	26.9	10.5	33.9
0.7	0.4	0.6	0.6	-	0.6	0.3	0.5	0.6	0.5	0.6	0.8	0.5	0.5	0.7	0.5	0.4	0.7	<u>0.5</u>
6.8	1.8	2.8	0.1	2.8	11.2	7.1	-	15.6	3.6	0.3	17.6	0.1	6.2	2.2	0.6	0.5	2.7	4.0
19.7	36.7	37.9	71.1	-	6.5	40.7	51.6	15.6	3.4	14.6	17.3	22.2	21.2	22.4	34.2	22.2	<i>21.9</i>	..
14.3	29.2	13.0	18.8	34.7	21.8	18.4	50.0	27.1	7.7	14.7	13.7	14.4	14.1	19.1	42.6	6.7	<i>6.4</i>	..
7.5	68.2	24.3	32.1	-	33.3	31.8	27.9	82.1	-	9.6	18.6	23.8	29.4	16.4	44.7	9.9	<i>11.1</i>	..
16.2	20.2	14.7	4.7	0.1	..	32.1	3.7	9.9	0.7	18.6	15.1	1.4	34.7	1.5	4.8	17.0	<i>20.8</i>	<i>11.4</i>
77	93	56	32	33	73	63	95	98	73	55	42	53	55	86	96	17	<i>95</i>	<u>64</u>
0.6	0.2	0.1	-	2.1	0.3	0.3	-	0.5	2.9	0.2	0.2	-	1.0	0.4	-	0.5	0.8	27.4
14.3	10.1	51.4	57.6	33.4	42.2	16.0	7.1	5.7	6.4	39.1	37.0	33.2	35.4	6.8	3.9	33.0	19.9	32.6
0.7	0.4	3.7	5.7	1.3	1.7	0.8	0.2	0.2	0.2	4.3	2.4	3.2	1.9	0.3	0.1	5.3	1.0	1.5
-34	-84	7	-41	14	-14	-46	-79	-55	-46	-53	4	-67	-35	-43	-35	..	-68	-34
28.3	19.9	36.3	21.6	91.7	32.2	25.8	38.8	26.6	53.7	21.7	36.5	24.1	34.5	28.2	14.8	14.1	26.9	41.0
1.3	0.9	2.6	2.1	3.5	1.4	1.2	0.9	1.1	2.0	2.4	2.4	2.3	1.9	1.2	0.6	2.3	1.3	1.9
-12	-40	17	-7	-2	3	-24	-27	-27	6	-35	17	-43	11	-25	-32	48	-42	-4
6.3	10.5	8.2	5.5	7.4	11.0	7.3	19.0	11.0	7.8	7.7	5.7	7.5	7.1	5.4	6.3	2.8	9.3	11.1
0.27	0.45	0.53	0.48	0.27	0.38	0.33	0.44	0.44	0.28	0.85	0.35	0.67	0.39	0.22	0.23	0.49	0.43	0.51
2	-11	27	-17	5	31	7	-19	13	24	-16	48	-28	35	-	6	38	-2	13
80	30	50	20	1	60	20	130	30	30	160	80	80	40	100	10	30	40	70
510	540	430	450	700	560	500	640	610	620	290	440	320	650	450	650	390	560	540
4.3	1.2	-	1.5	-	-	-	-	0.2	-	-	-	3.1	1.1	4.4	2.2	-	3.5	1.5

UKD: pesticides and threatened species: Great Britain; water withdrawal and public waste water treatment plants: England and Wales.

5) CO₂ from energy use only; international marine and aviation bunkers are excluded.

6) Waste from manufacturing industries.

7) CAN, NZL: household waste only.

8) Waste from spent fuel arising in nuclear power plants, in tonnes of heavy metal, per million tonnes of oil equivalent of total primary energy supply.

I.B: SELECTED ECONOMIC DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK
GROSS DOMESTIC PRODUCT											
GDP, 2002 (billion USD at 1995 prices and PPPs)	845	808	9039	3159	675	475	73	199	256	140	139
% change (1990-2002)	38.8	41.3	40.7	16.3	99.2	49.3	40.9	29.0	25.6	6.4	29.7
per capita, 2002 (1000 USD/cap.)	27.8	8.0	32.1	24.9	15.1	25.0	19.5	24.7	25.1	14.0	26.3
Exports, 2002 (% of GDP)	41.2	27.2	9.7	11.1	40.0	20.6	34.0	52.1	81.5	65.2	44.2
INDUSTRY 2											
Value added in industry (% of GDP)	32	27	23	31	43	26	25	32	27	40	27
Industrial production: % change (1990-2002)	37.3	42.5	42.6	-7.7	152.4	30.3	24.4	46.6	14.1	-11.1	35.8
AGRICULTURE											
Value added in agriculture (% of GDP)	3	3	4	2	1	4	4	7	2	1	4
Agricultural production: % change (1990-2002)	9.7	34.7	18.5	-9.8	32.7	10.7	35.2	6.5	20.2	..	2.2
Livestock population, 2002 (million head of sheep eq.)	109	279	790	54	27	283	99	17	30	14	25
ENERGY											
Total supply, 2001 (Mtoe)	248	152	2281	521	195	116	18	31	59	41	20
% change (1990-2001)	18.7	22.8	18.4	19.3	110.4	32.1	30.5	22.7	21.2	-12.7	12.3
Energy intensity, 2001 (toe/1000 USD GDP)	0.29	0.19	0.25	0.16	0.29	0.24	0.25	0.15	0.23	0.30	0.14
% change (1990-2001)	-11.6	-12.3	-13.8	2.9	12.3	-8.4	-3.0	-3.9	-2.9	-16.3	-12.0
Structure of energy supply, 2001 (%)	4										
Solid fuels	12.3	5.1	23.9	19.2	22.1	47.9	7.0	12.2	13.2	49.9	21.2
Oil	35.5	60.8	39.6	49.2	51.9	28.7	34.3	42.8	41.7	19.9	44.0
Gas	28.6	22.4	22.7	12.4	9.6	17.6	29.1	22.6	22.6	19.0	23.3
Nuclear	8.0	1.5	9.2	16.0	15.0	-	-	-	20.7	9.1	-
Hydro, etc.	15.6	10.2	4.5	3.1	1.4	5.8	29.7	22.4	1.7	2.1	11.5
ROAD TRANSPORT 5											
Road traffic volumes per capita, 1999 (1000 veh.-km/cap.)	9.4	0.6	15.8	6.0	1.8	9.3	7.9	7.8	8.7	3.1	8.4
Road vehicle stock, 1999 (10 000 vehicles)	1784	1459	21533	7003	1116	1199	231	485	512	373	223
% change (1990-1999)	7.8	47.7	14.1	24.0	228.9	22.7	25.2	31.3	20.2	43.7	17.9
per capita (veh./100 inh.)	58	15	79	55	24	63	60	60	50	36	42

.. not available. - nil or negligible. x data included under Belgium.

- 1) Data may include provisional figures and Secretariat estimates. Partial totals are underlined.
- 2) Value added: includes mining and quarrying, manufacturing, gas, electricity and water and construction; production: excludes construction.

Source: OECD Environmental Data Compendium.

OECD EPR / SECOND CYCLE

FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	OECD
123	1401	1922	165	117	8	110	1292	19	399	125	352	168	59	740	216	199	390	1295	24908
25.1	24.1	21.9	36.2	15.8	32.1	125.2	19.8	70.8	35.4	47.7	46.3	34.6	23.0	36.2	25.0	10.0	41.7	30.8	33.0
24.0	23.8	23.3	16.1	11.9	26.4	30.0	22.3	43.5	24.9	27.8	9.2	16.2	11.5	18.6	24.7	27.4	6.0	21.9	22.1
38.1	27.3	35.5	20.5	54.9	39.7	93.7	26.9	146.6	61.7	41.8	29.6	30.1	72.8	28.5	43.3	42.7	28.8	25.8	21.4
32	25	30	23	31	27	42	29	20	26	38	30	29	32	30	28	27	31	26	29
68.5	18.0	12.7	14.6	67.8	..	284.4	12.6	30.1	20.3	40.7	66.6	22.3	8.1	21.5	36.2	19.1	52.6	6.2	<u>24.0</u>
4	3	1	7	4	9	3	3	1	3	2	3	4	5	3	2	1	12	1	3
-9.9	5.4	-5.9	13.6	-22.6	9.5	4.1	5.3	x	-4.9	-14.3	-14.3	0.7	..	15.0	-10.4	-6.0	12.9	-7.9	..
8	162	123	20	13	1	54	72	x	43	9	58	19	7	99	13	12	112	114	2667
34	266	351	29	25	3	15	172	4	77	27	91	25	19	127	51	28	72	235	5333
15.9	16.9	-1.4	29.4	-11.0	54.8	41.7	12.7	7.4	16.1	23.8	-9.3	44.1	-12.6	39.7	9.4	11.6	36.7	10.8	18.1
0.27	0.19	0.18	0.17	0.22	0.44	0.14	0.13	0.20	0.19	0.21	0.26	0.15	0.31	0.17	0.24	0.14	0.19	0.18	0.21
-5.8	-4.7	-19.0	-1.3	-20.6	16.4	-33.3	-5.6	-36.8	-14.0	-15.3	-37.2	7.6	-25.9	4.6	-10.8	1.5	4.0	-13.7	-9.6
18.5	4.7	24.2	32.7	14.4	2.7	17.5	8.0	3.3	11.0	3.6	61.1	12.9	23.3	14.7	5.4	0.5	28.4	17.0	20.8
28.6	34.5	38.3	56.7	26.4	24.4	56.9	51.6	74.2	38.9	30.7	22.5	64.2	16.4	52.8	27.3	48.0	40.1	34.8	40.8
11.2	13.5	21.5	5.9	42.7	-	23.9	34.6	20.7	46.9	20.6	11.4	9.1	32.4	12.9	1.5	8.8	18.5	37.1	21.3
18.0	40.4	12.7	-	14.7	-	-	-	-	1.4	-	-	-	23.7	13.1	36.5	24.2	-	10.0	11.2
23.6	6.8	3.1	4.8	1.7	72.9	1.7	5.9	1.8	1.8	45.0	5.0	13.7	4.3	6.5	29.2	18.5	13.0	1.2	5.9
8.9	8.4	7.4	7.3	3.4	6.5	8.3	8.0	8.9	7.0	7.2	4.5	5.6	2.2	4.2	8.4	7.2	0.8	7.8	8.0
240	3309	4503	389	271	17	148	3545	31	675	225	1104	461	141	2048	424	376	548	2909	57281
7.6	16.3	20.7	54.1	12.7	27.3	55.8	15.9	40.2	17.7	16.0	72.6	109.5	..	41.8	7.9	13.9	132.1	15.4	<u>21.7</u>
47	56	55	37	26	62	39	61	71	43	51	29	45	26	52	48	53	8	49	51

3) Agriculture, forestry, hunting, fishery, etc.

4) Breakdown excludes electricity trade.

5) Refers to motor vehicles with four or more wheels, except for Italy, which include three-wheeled goods vehicles.

I.C: SELECTED SOCIAL DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK
POPULATION											
Total population, 2002 (100 000 inh.)	311	1001	2855	1273	473	195	39	81	103	103	54
% change (1990-2002)	13.4	24.8	15.5	3.2	11.1	15.2	17.1	5.5	3.0	-1.6	4.5
Population density, 2002 (inh./km ²)	3.2	51.8	30.0	337.3	480.0	2.5	14.6	97.1	335.8	129.3	124.7
Ageing index, 2001 (over 64/under 15)	67.1	17.0	58.4	125.1	36.3	61.0	52.4	92.5	94.5	84.4	79.3
HEALTH											
Women life expectancy at birth, 2001 (years)	82.0	77.1	79.5	84.9	79.2	82.4	80.8	81.7	80.8	78.5	79.0
Infant mortality, 2001 (deaths /1 000 live births)	5.3	21.4	6.9	3.1	6.2	5.3	5.8	4.8	5.0	4.0	4.9
Expenditure, 2001 (% of GDP)	9.7	6.6	13.9	7.6	5.9	8.9	8.1	7.9	9.0	7.3	8.6
INCOME AND POVERTY											
GDP per capita, 2002 (1000 USD/cap.)	27.8	8.0	32.1	24.9	15.1	25.0	19.5	24.7	25.1	14.0	26.3
Poverty (% pop. < 50% median income)	10.3	21.9	17.0	8.1	..	9.3	..	7.4	7.8	..	5.0
Inequality (Gini levels)	2	28.5	52.6	34.4	26.0	..	30.5	25.6	26.1	27.2	..
Minimum to median wages, 2000	3	42.5	21.1	36.4	32.7	25.2	57.7	46.3	x	49.2	32.3
EMPLOYMENT											
Unemployment rate, 2002 (% of total labour force)	7.7	2.7	5.8	5.4	3.0	6.3	5.2	5.3	7.3	7.3	4.5
Labour force participation rate, 2002 (% 15-64 year-olds)	78.6	55.6	76.1	77.5	65.9	75.5	76.7	77.5	66.9	71.6	79.9
Employment in agriculture, 2001 (%)	4	2.9	17.6	2.4	4.9	10.3	4.9	9.1	5.7	2.2	4.8
EDUCATION											
Education, 2001 (% 25-64 year-olds)	5	81.9	21.6	87.7	83.1	68.0	58.9	75.7	77.0	59.5	86.2
Expenditure, 2000 (% of GDP)	6	6.4	5.5	7.0	4.6	7.1	6.0	5.8	5.7	5.5	4.6
OFFICIAL DEVELOPMENT ASSISTANCE											
ODA, 2002 (% of GNI)	7	0.28	..	0.13	0.23	..	0.26	0.22	0.26	0.43	..
ODA, 2002 (USD/cap.)	64	..	46	73	..	50	31	64	104	..	306

.. not available. - nil or negligible. x not applicable.

1) Data may include provisional figures and Secretariat estimates. Partial totals are underlined.

2) Ranging from 0 (equal) to 100 (inequal) income distribution; figures relate to total disposable income (including all incomes, taxes and benefits) for the entire population.

3) Minimum wage as a percentage of median earnings including overtime pay and bonuses.

Source: OECD.

OECD EPR / SECOND CYCLE

FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	OECD
52	592	823	106	102	3	38	579	4	160	45	386	103	54	403	89	72	686	600	11386
4.3	4.9	3.9	5.6	-1.9	12.9	11.2	2.4	15.5	7.7	7.0	1.3	5.1	1.5	4.4	4.3	8.6	24.0	4.7	10.1
15.4	108.3	231.0	80.7	109.3	2.8	55.4	192.7	171.7	387.8	14.0	123.5	112.8	109.7	80.1	19.8	176.6	89.4	246.0	32.7
84.4	86.2	116.3	111.9	92.4	50.0	52.2	124.9	74.6	73.0	75.0	67.0	90.7	60.2	116.3	100.1	95.6	18.4	82.3	65.9
81.5	83.0	80.7	80.7	76.5	82.2	79.2	82.9	81.3	80.6	81.4	78.4	80.3	77.6	82.9	82.1	82.8	70.9	80.4	..
3.2	4.6	4.5	5.9	8.1	2.7	5.8	4.3	5.9	5.3	3.8	7.7	5.0	6.2	3.9	3.7	4.9	33.0	5.5	..
7.0	9.5	10.7	9.4	6.8	9.2	6.5	8.6	5.6	8.9	8.0	6.3	9.2	5.7	7.5	8.7	10.9	4.8	7.6	..
24.0	23.8	23.3	16.1	11.9	26.4	30.0	22.3	43.5	24.9	27.8	9.2	16.2	11.5	18.6	24.7	27.4	6.0	21.9	22.1
4.9	7.5	9.4	13.8	7.3	..	11.0	14.2	..	6.3	10.0	..	..	..	..	6.4	6.2	16.2	10.9	..
22.8	27.8	28.2	33.6	28.3	..	32.4	34.5	..	25.5	25.6	..	..	..	..	23.0	26.9	49.1	32.4	..
x	60.8	x	51.3	37.2	x	55.8	x	48.9	47.1	x	35.5	38.2	..	31.8	x	x	..	41.7	..
9.1	8.9	7.8	10.0	5.9	3.1	4.2	9.1	3.0	2.5	4.0	19.9	5.1	18.6	11.4	4.0	2.8	10.6	5.2	6.9
74.8	69.9	75.8	63.3	59.2	86.7	70.1	61.4	66.3	66.9	80.6	64.2	76.3	69.6	67.6	76.4	85.8	49.8	75.7	70.8
5.7	3.7	2.6	16.0	6.3	7.8	7.0	5.3	1.4	2.9	3.9	19.1	12.7	6.1	6.4	2.3	4.2	32.6	1.4	6.6
73.8	63.9	82.6	51.4	70.2	56.9	57.6	43.3	52.7	65.1	85.8	45.9	19.9	85.1	40.0	80.6	87.4	24.3	63.0	64.3
5.6	6.1	5.3	4.0	5.0	6.3	4.6	4.9	..	4.7	5.9	5.2	5.7	4.2	4.9	6.5	5.7	3.4	5.3	<u>5.5</u>
0.35	0.38	0.27	0.21	..	..	0.40	0.20	0.77	0.81	0.89	..	0.27	..	0.26	0.83	0.32	..	0.31	0.23
89	92	65	26	..	..	102	40	330	207	374	..	31	..	42	223	129	..	82	68

4) Civil employment in agriculture, forestry and fishing.

5) Upper secondary or higher education; OECD: average of rates.

6) Public and private expenditure on educational institutions; OECD: average of rates.

7) Official Development Assistance by Member countries of the OECD Development Assistance Committee.

II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE)

Y = in force S = signed R = ratified D = denounced

						CAN	MEX	USA	JPN
1946	Washington	Conv. - Regulation of whaling		Y	D	R	R	R	
1956	Washington	Protocol		Y	R	R	R	R	
1949	Geneva	Conv. - Road traffic		Y	R		R	R	
1954	London	Conv. - Prevention of pollution of the sea by oil		Y	R	R	R	R	
1971	London	Amendments to convention (protection of the Great Barrier Reef)				R			
1957	Brussels	Conv. - Limitation of the liability of owners of sea-going ships		Y	S				D
1979	Brussels	Protocol		Y					
1958	Geneva	Conv. - Fishing and conservation of the living resources of the high seas		Y	S	R	R		
1960	Geneva	Conv. - Protection of workers against ionising radiations (ILO 115)		Y		R		R	
1962	Brussels	Conv. - Liability of operators of nuclear ships							
1963	Vienna	Conv. - Civil liability for nuclear damage		Y		R			
1988	Vienna	Joint protocol relating to the application of the Vienna Convention and the Paris Convention		Y					
1997	Vienna	Protocol to amend the Vienna convention		Y					
1963	Moscow	Treaty - Banning nuclear weapon tests in the atmosphere, in outer space and under water		Y	R	R	R	R	
1964	Copenhagen	Conv. - International council for the exploration of the sea		Y	R		R		
1970	Copenhagen	Protocol		Y	R		R		
1969	Brussels	Conv. - Intervention on the high seas in cases of oil pollution casualties (INTERVENTION)		Y	R	R	R	R	
1973	London	Protocol (pollution by substances other than oil)		Y		R	R		
1969	Brussels	Conv. - Civil liability for oil pollution damage (CLC)		Y	D	D	S	D	
1976	London	Protocol		Y	R		R		
1992	London	Protocol		Y	R	R	R	R	
1970	Bern	Conv. - Transport of goods by rail (CIM)		Y					
1971	Brussels	Conv. - International fund for compensation for oil pollution damage (FUND)		Y	D	D	S	D	
1976	London	Protocol		Y	R	R	R		
1992	London	Protocol (replaces the 1971 Convention)		Y	R	R	R	R	
2000	London	Amendment to protocol (limits of compensation)		Y	R	R	R	R	
2003	London	Protocol (supplementary fund)							
1971	Brussels	Conv. - Civil liability in maritime carriage of nuclear material		Y					
1971	London, Moscow, Washington	Conv. - Prohib. emplacement of nuclear and mass destruct. weapons on sea-bed, ocean floor and subsoil		Y	R	R	R	R	
1971	Ramsar	Conv. - Wetlands of international importance especially as waterfowl habitat		Y	R	R	R	R	
1982	Paris	Protocol		Y	R	R	R	R	
1987	Regina	Regina amendment		Y	R	R	R		
1971	Geneva	Conv. - Protection against hazards of poisoning arising from benzene (ILO 136)		Y					
1972	London, Mexico, Moscow, Washington	Conv. - Prevention of marine pollution by dumping of wastes and other matter (LC)		Y	R	R	R	R	
1996	London	Protocol to the Conv. - Prevention of marine poll. by dumping of wastes and other matter			R		S		

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	EU
R	R	R	R			R	R	R	R			D	R	R		R	R					R	R	R		R
R	R	R				R		R	R			R	R	R		R	R					R	R	R		R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R
R	R	R	R	R		R	R	R	R	R		R	R	R		R	R	R	R	R		R	R	R		R
	R	R				R	R	R	R	R				R			R						R	R		R
D				D	D	D	D	D			R		S	R	D	D	R	R				R	D	R		D
R				R			S	S							R			R	R			R	R			D
R	S		R	R	R	R	R				S	S			R			R	R			R	R			R
				R	R	R	R	R	R	R				R			R	R	R	R	R	R	R	R	R	R
				S			S						S			R										
					R						R							R			R	S				S
				S	R	R	R	S	S	S	S			R			R	R	R	S	R	S	R	S	S	S
				S							S			S					S							
R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R
				R		R	R	R	R			R	R				R	R	R	R		R	R			R
				R		R	R	R	R			R	R				R	R	R	R		R	R			R
S	R	R		R		R	R	R	R	S		R	R	R		R	R	R	R	R		R	R	R		R
	R	S		R		R	R	R	R			R	R			R	R	R	R	R		R	R	R		R
D	D	D		D		D	D	D	D	D		D	D	D	R	D	D	D	R		D	D	D		D	
R	R			R		R	R	R	R	R		R	D	R	R	R	R	R	R	R		R	R	R		D
R	R	R		R		R	R	R	R	R		R	R	R		R	R	R	R	R		R	R	R		R
			R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R
D	D	D		D		D	D	D	D	D		D	D	D		D	D	D	R		D	D	D		D	
	R			R		R	R	R	R	R		R	D	R		R	R	R	R	R		R	R			D
R	R	R		R		R	R	R	R	R		R	R	R		R	R	R	R	R		R	R	R		R
R	R	R		R		R	R	R	R	R		R	R	R		R	R	R	R	R		R	R			R
				R		R	R	R	R					R								R	R			R
R	R	R		R		R	R	R	R	R		R	R	R		R	R	R	R	R		R	R	R		R
	R	R		S		R	S	R	R			R	R			S	R					R	R	R		R

II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE) (cont.)

Y = in force S = signed R = ratified D = denounced

		CAN MEX USA JPN					
1972	Geneva	Conv. - Protection of new varieties of plants (revised)	Y	R	R	R	R
1978	Geneva	Amendments	Y	R	R	R	R
1991	Geneva	Amendments	Y			R	R
1972	Geneva	Conv. - Safe container (CSC)	Y	R	R	R	R
1972	London, Moscow, Washington	Conv. - International liability for damage caused by space objects	Y	R	R	R	R
1972	Paris	Conv. - Protection of the world cultural and natural heritage	Y	R	R	R	R
1973	Washington	Conv. - International trade in endangered species of wild fauna and flora (CITES)	Y	R	R	R	R
1974	Geneva	Conv. - Prev. and control of occup. hazards caused by carcinog. subst. and agents (ILO 139)	Y				R
1976	London	Conv. - Limitation of liability for maritime claims (LLMC)	Y		R		R
1996	London	Amendment to convention	Y	S			
1977	Geneva	Conv. - Protection of workers against occupational hazards in the working environment due to air pollution, noise and vibration (ILO 148)	Y				
1978	London	Protocol - Prevention of pollution from ships (MARPOL PROT)	Y	R	R	R	R
1978	London	Annex III	Y			R	R
1978	London	Annex IV	Y				R
1978	London	Annex V	Y		R	R	R
1997	London	Annex VI	Y				
1979	Bonn	Conv. - Conservation of migratory species of wild animals	Y				
1991	London	Agreem. - Conservation of bats in Europe	Y				
1992	New York	Agreem. - Conservation of small cetaceans of the Baltic and the North Seas (ASCOBANS)	Y				
1996	Monaco	Agreem. - Conservation of cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area	Y				
1996	The Hague	Agreem. - Conservation of African-Eurasian migratory waterbirds	Y				
1982	Montego Bay	Conv. - Law of the sea	Y	R	R		R
1994	New York	Agreem. - relating to the implementation of part XI of the convention	Y	R		S	R
1995	New York	Agreem. - Implementation of the provisions of the convention relating to the conservation and management of straddling fish stocks and highly migratory fish stocks	Y	R		R	S
1983	Geneva	Agreem. - Tropical timber	Y	R		R	R
1994	New York	Revised agreem. - Tropical timber	Y	R		R	R
1985	Vienna	Conv. - Protection of the ozone layer	Y	R	R	R	R
1987	Montreal	Protocol (substances that deplete the ozone layer)	Y	R	R	R	R
1990	London	Amendment to protocol	Y	R	R	R	R
1992	Copenhagen	Amendment to protocol	Y	R	R	R	R
1997	Montreal	Amendment to protocol	Y	R		R	R
1999	Beijing	Amendment to protocol	Y	R		R	R

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	EU
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R		R	R	R	R	R		R		R	R		R	R	R	R	R		R	R			R
R	R				R	R	R		R		R				R		R				R	R				R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	S	R
R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	R			R	R	R	R		R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
					R	R	R	R	R		R	R	R	R		R		R	R	R		R	R			R
					R	R		R	R	R	R		R			R	R	R			R	R	R	R	R	R
					R			R	R	S	R					S	R					R				R
						R	R	R	R	R	R		R			R		R	R	R	R		R			R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R					R	R	R	R	R	R	R					R		R	R	R	R	R	R	R	R	R
R	R				R	R	R	R	R	R	R		R			R	R	R	R	R	R	R	R	R	R	R
						R			R	S	R					S	R					R				R
						R	R	R	R	R	R		R			R		R	R	R	R		R			R
									S	S						S				S		R				
					S		R	R	R	R	S	R		S		R	R				R	R	R	R		R
R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S		R
R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S		R
S	R	R	R	R		R	R	R	R	R	R		R	R	R	R	R			R		R	R			R
R	R	R	R	R		R	R	R	R	R			R	R	R	R	R			R		R	R	R		R
R	R	R	R	R		R	R	R	R	R			R	R	R	R	R			R		R	R	R		R
R	R	R	R	R		R	R	R	R	R			R	R	R	R	R			R		R	R	R		R
R	R	R	R	R		R	R	R	R	R			R	R	R	R	R			R		R	R	R		R
R	R	R	R	R		R	R	R	R	R			R	R	R	R	R			R		R	R	R		R
R	R	R	R	R	S	R	R	R	R	R		R			R	R	R	R	R	R	R	R	R	R		R
R					R	R	R	R	R		R					R	R	R			R	R	R	R		R

II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE) (cont.)

Y = in force S = signed R = ratified D = denounced

			CAN	MEX	USA	JPN
1986	Vienna	Conv. - Early notification of a nuclear accident	Y	R	R	R
1986	Vienna	Conv. - Assistance in the case of a nuclear accident or radiological emergency	Y	R	R	R
1989	Basel	Conv. - Control of transboundary movements of hazardous wastes and their disposal	Y	R	R	S
1995	Geneva	Amendment				
1999	Basel	Prot. - Liability and compensation for damage				
1989	London	Conv. - Salvage	Y	R	R	R
1990	Geneva	Conv. - Safety in the use of chemicals at work (ILO 170)	Y		R	
1990	London	Conv. - Oil pollution preparedness, response and co-operation (OPRC)	Y	R	R	R
2000	London	Protocol - Pollution incidents by hazardous and noxious substances (OPRC-HNS)				
1992	Rio de Janeiro	Conv. - Biological diversity	Y	R	R	S
2000	Montreal	Prot. - Biosafety (Cartagena)	Y	S	R	R
1992	New York	Conv. - Framework convention on climate change	Y	R	R	R
1997	Kyoto	Protocol		R	R	S
1993	Paris	Conv. - Prohibition of the development, production, stockpiling and use of chemical weapons and their destruction	Y	R	R	S
1993	Geneva	Conv. - Prevention of major industrial accidents (ILO 174)	Y			
1993		Agreem. - Promote compliance with international conservation and management measures by fishing vessels on the high seas	Y	R	R	R
1994	Vienna	Conv. - Nuclear safety	Y	R	R	R
1994	Paris	Conv. - Combat desertification in those countries experiencing serious drought and/or desertification, particularly in Africa	Y	R	R	R
1995	Rome	Code of conduct on responsible fishing				
1996	London	Conv. - Liability and compensation for damage in connection with the carriage of hazardous and noxious substances by sea (HNS)		S		
2000	London	Protocol - Pollution incidents by hazardous and noxious substances (OPRC-HNS)				
1997	Vienna	Conv. - Supplementary compensation for nuclear damage				S
1997	Vienna	Conv. - Joint convention on the safety of spent fuel management and on the safety of radioactive waste management	Y	R		R
1997	New York	Conv. - Law of the non-navigational uses of international watercourses				
1998	Rotterdam	Conv. - Prior informed consent procedure for hazardous chemicals and pesticides (PIC)	Y	R		S
2001	London	Conv. - Civil liability for bunker oil pollution damage				S
2001	London	Conv. - Control of harmful anti-fouling systems on ships				S
2001	Stockholm	Conv. - Persistent organic pollutants	Y	R	R	S

Source: IUCN; OECD.

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	EU
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	S	R	R	R	R	R	S	R	R	R	R	S	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
			R	R	R	R	R	R	R						R	R	R	R	R	R	R	R	R	R	R	R
					S	S	S			S				S								S	S		S	
	R	R				R	S	R	R	R		R	R	R		R	R	S			S	R	R		R	
R													R		R							R				
R	R	R				R	R	R	R	R		R	R	R		R	R				R	R	R		R	
					S	S	S	S	R						R		R					R				
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
S		S	R	S	R	R	S	R	S	S	R	S	R	S	R	R	R	R	S	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
S	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	R	R	R	R	R	S	R	R	R	S	S
					S										R							R				
R																	R					R				R
R	R		R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
					S	S		S							S	S						S			S	
					S	S	S	S	R						R		R					R				
S				S										S												
R	R		R	R	R	R	R	R	R	R	R		R	S	R	R	R	R		R	R	R	R	R	R	R
						R	S	R							S	R	R		S			R				
R	S	R	R	R	R	R	S	R	R	R	R			R	R	R	R		S		R	R	R	S	S	R
															S							R	S			
S					R	S									R							R				
S	S	S	R	S	R	R	R	R	R	S	S	R	S	S	R	R	R	S	S	R	S	R	R	S	S	S

II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL)

Y = in force S = signed R = ratified D = denounced

		CAN MEX USA JPN			
1940	Washington	Conv. - Nature protection and wild life preservation in the Western Hemisphere	Y	R	R
1946	London	Conv. - Regulation of the meshes of fishing nets and the size limits of fish	Y		
1958	Dublin	Amendments	Y		
1960	London	Amendments	Y		
1961	Copenhagen	Amendments	Y		
1962	Hamburg	Amendments	Y		
1963	London	Amendments	Y		
1950	Paris	Conv. - Protection of birds	Y		
1957	Geneva	Agreem. - International carriage of dangerous goods by road (ADR)	Y		
1975	New York	Protocol	Y		
1958	Geneva	Agreem. - Adoption of uniform conditions of approval and reciprocal recognition of approval for Y motor vehicle equipments and parts			
1959	Washington	Treaty - Antarctic	Y	R	R
1991	Madrid	Protocol to the Antarctic treaty (environmental protection)	Y	S	R
1960	Paris	Conv. - Third party liability in the field of nuclear energy	Y		
1963	Brussels	Supplementary convention	Y		
1964	Paris	Additional protocol to the convention	Y		
1964	Paris	Additional protocol to the supplementary convention	Y		
1982	Brussels	Protocol amending the convention	Y		
1982	Brussels	Protocol amending the supplementary convention	Y		
1988	Vienna	Joint protocol relating to the application of the Vienna Convention and the Paris Convention	Y		
1962	Stockholm	Agreem. - Protection of the salmon in the Baltic Sea	Y		
1972	Stockholm	Protocol	Y		
1964	London	Conv. - Fisheries	Y		
1967	London	Conv. - Conduct of fishing operations in the North Atlantic	Y	S	S
1968	Paris	Conv. - Protection of animals during international transport	Y		
1979	Strasbourg	Protocol	Y		
1969	London	Conv. - Protection of the archaeological heritage	Y		
1972	London	Conv. - Conservation of Antarctic seals	Y	R	R
1973	Oslo	Agreem. - Conservation of polar bears	Y	R	R
1973	Gdansk	Conv. - Fishing and conservation of the living resources in the Baltic Sea and the Belts	Y		
1982	Warsaw	Amendments	Y		
1974	Stockholm	Conv. - Nordic environmental protection	Y		
1992	Paris	Conv. - Protection of North-East Atlantic marine env. (replace Oslo-1972 and Paris-1974)	Y		
1992	Helsinki	Conv. - Protection of the marine environment of the Baltic Sea area	Y		
1979	Bern	Conv. - Conservation of European wildlife and natural habitats	Y		
1979	Geneva	Conv. - Long-range transboundary air pollution	Y	R	R
1984	Geneva	Protocol (financing of EMEP)	Y	R	R
1985	Helsinki	Protocol (reduction of sulphur emissions or their transboundary fluxes by at least 30%)	Y	R	
1988	Sofia	Protocol (control of emissions of nitrogen oxides or their transboundary fluxes)	Y	R	R
1991	Geneva	Protocol (control of emissions of volatile organic compounds or their transboundary fluxes)	Y	S	S
1994	Oslo	Protocol (further reduction of sulphur emissions)	Y	R	
1998	Aarhus	Protocol (heavy metals)	Y	R	R
1998	Aarhus	Protocol (persistent organic pollutants)	Y	R	S
1999	Gothenburg	Protocol (abate acidification, eutrophication and ground-level ozone)		S	S

II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL) (cont.)

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA	JPN
1980	Madrid	Conv. - Transfrontier co-operation between territorial communities or authorities		Y	
1995	Strasbourg	Additional protocol		Y	
1998	Strasbourg	Second protocol		Y	
1980	Canberra	Conv. - Conservation of Antarctic marine living resources		Y R	R R
1982	Paris	Memorandum of understanding on port state control		Y R	
1982	Reykjavik	Conv. - Conservation of salmon in the North Atlantic Ocean		Y R	R
1983	Bonn	Agreem. - Co-operation in dealing with poll. of the North Sea by oil and other harmful subst.		Y	
1989	Bonn	Amendment		Y	
1989	Stockholm	Agreem. - Transboundary co-operation with a view to preventing or limiting harmful effects for human beings, property or the environment in the event of accidents		Y	
1991	Espoo	Conv. - Environmental impact assessment in a transboundary context		Y R	S
1992	Helsinki	Conv. - Transboundary effects of industrial accidents		Y S	S
1992	Helsinki	Conv. - Protection and use of transboundary water courses and international lakes		Y	
1999	London	Prot. - Water and health			
1992	La Valette	European Conv. - Protection of the archaeological heritage (revised)		Y	
1993	Copenhagen	Agreem. - Co-op. in the prevention of marine poll. from oil and other dangerous chemicals		Y	
1994	Lisbon	Treaty - Energy Charter		Y	S
1994	Lisbon	Protocol (energy efficiency and related environmental aspects)		Y	S
1998	Aarhus	Conv. - Access to env. information and public participation in env. decision-making		Y	
2003	Kiev	Prot. - Pollutant Release and Transfer Registers (PRTR)			
1998	Strasbourg	Conv. - Protection of the environment through criminal law			
2000	Florence	Conv. - European landscape convention			

Source: IUCN; OECD.

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	SLO	ESP	SWE	CHE	TUR	UKD	EU	
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Reference III

ABBREVIATIONS

BOD	Biochemical oxygen demand
CFC	Chlorofluorocarbon
CGIAR	Consultative Group on International Agriculture Research
CHP	Combined heat and power
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COD	Chemical oxygen demand
EIA	Environmental impact assessment
EMAS	Eco-Management and Audit Scheme (of the European Union)
EMS	Environmental management system
EPR	Environmental Performance Review
EQO	Environmental quality objective
EU	European Union
FAO	Food and Agriculture Organization (UN)
GDP	Gross domestic product
GHG	Greenhouse gas
GNI	Gross national income
HELCOM	Helsinki Commission
IBSFC	International Baltic Sea Fishery Commission
ICES	International Council for the Exploration of the Sea
IPPC	Integrated pollution prevention and control
IMO	International Maritime Organization
ISO	International Organisation for Standardization
ITTO	International Tropical Timber Organization
IUCN	International Union for the Conservation of Nature (now the World Conservation Union)
LPG	Liquefied petroleum gas
MARPOL	International Convention for the Prevention of Pollution from Ships
Mtoe	Million tonnes of oil equivalent
NGO	Non-governmental organisation
NMVO	Non-methane volatile organic compound
NUTEK	Swedish Business Development Agency
ODA	Official development assistance

ODS	Ozone-depleting substance(s)
OSPAR	Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
PAC	Pollution abatement and control
PAH	Polycyclic aromatic hydrocarbon
PBDE	Polybrominated diphenyls ether
PCB	Polychlorinated biphenyls
PM	Particulate matter
POP	Persistent organic pollutant
SEPA	Swedish Environmental Protection Agency
SIDA	Swedish International Development Co-operation Agency
TAC	Total allowable catch
UNECE	UN Economic Commission for Europe
UNEP	UN Environment Programme
VOC	Volatile organic compound

Reference IV

PHYSICAL CONTEXT

Sweden is *one of the largest countries in Western Europe*, with a total area of 450 000 km². It occupies about two-thirds of the Scandinavian peninsula and extends for about 1 600 km from the southern Baltic to north of the Arctic Circle; its coastline measures more than 2 700 km. The Swedish countryside is dotted with more than 83 000 lakes, and thousands of islands are located off its jagged coast. Most of the land is relatively flat, but a long mountain chain in the north-west reaches heights of up to 2 111 metres.

About 68% of Sweden's *land area* (411 620 km²) is covered with forests and other wooded land. About 3% is built-up area. Some 8% is farmland, enough to make the country self-sufficient in most farm products. A further 12% consists of mires (bogs and fens). Lakes cover close to 40 000 km². Many moose, deer, foxes and other *wildlife* can be found in much of the country, and about 230 000 reindeer roam northern Sweden. Under the Swedish right of common access to private land (*allemansrätten*), anyone may hike through forests and fields to gather berries and mushrooms.

Vast *forests* of spruce, pine and other softwood trees supply a highly developed sawmill, pulp, paper and finished wood product industry. About 85% of the paper and market pulp output and 75% of sawn timber products are exported. The state owns some 3% of the forest area. Other *natural resources* are water power, iron ore, uranium and other minerals. Sweden lacks significant oil and coal deposits. The only iron mines still in production are in the far north; their output is mainly exported. A number of mines with sulphide ores are found in central and northern Sweden.

Cheap hydropower was a major factor in the country's industrial development. Today around 32% of Sweden's total energy supply of 47 Mtoe comes from hydropower; many of the plants are on northern rivers. Eleven *nuclear* reactors supply a further 32%. The rest of the energy supply is imported oil (28.6%), solid fuels (5.5%) and gas (1.5%). After a 1980 referendum, the Riksdag, Sweden's parliament, voted to phase out the use of nuclear power by 2010, but that target was abandoned in 1997. One reactor, Barsebäck 1, has been closed so far.

Reference V

SELECTED ENVIRONMENTAL EVENTS (1996-2003)

1996

- A government commission examining environmental research recommends that, in the next bill on the subject, the government should propose a new direction for environmental research with more emphasis on social aspects as well as science.
- The Prime minister announces that Sweden ambition is to accomplish the greening of the welfare state. Sustainability incorporated into the longstanding “People’s Home” concept of consensus politics aimed at reducing economic disparities, redistributing wealth and carrying out welfare reforms.
- The Transport Policy Commission presents a ten year investment plan for road and rail, including an environmentally sound transport system.
- At the Visby summit, regional Prime ministers establish “Baltic 21”, an Agenda 21 for the Baltic Sea region.
- Sweden’s 25th national park, Tresticklan, with almost 3 000 hectares of virgin forest, is established on the border with Norway.
- UNESCO adds two Swedish sites to its World Heritage list: the Church Town of Gammelstad, in the northern municipality of Luleå, and the Laponian area (Lapland).
- A new tax on extraction of natural gravel enters into force.
- A Government Bill proposes a CO₂ tax of SEK 0.37 per kg emitted, with some exemptions for energy-intensive production.
- The government proposes decreasing the 1997 budget of the Swedish Environmental Protection Agency (SEPA) to SEK 230 million, including SEK 170 million for research and SEK 40 million for purchases of nature areas.
- Several government agencies are requested to participate in a pilot project on ISO 14000 environmental management systems.

1997

- The government presents the first Communication to the Riksdag on work for a sustainable Sweden. Environmental quality objectives (EQOs), to be reached within one generation (by 2020), are drawn up.
- The Commission for Ecologically Sustainable Development is appointed, consisting of five ministers and chaired by the Environment minister.
- More stringent controls on exhaust emissions from motor vehicles are adopted.
- The Riksdag passes the Ordinance on Producer Responsibility for Packaging.
- All ministries and government agencies are requested to start applying the European Eco-Management and Audit Scheme (EMAS).
- The government halts work on a controversial agreement by the Social Democratic Party, Liberal Party and Moderate Party concerning infrastructure projects and road pricing in the Stockholm area.
- The government give the Riksdag a bill proposing an action plan for biodiversity, including strengthened protection of endangered species.
- In its Spring Finance Bill, the government proposes local investment programmes for environmentally sustainable development. The Riksdag approves the allocation of SEK 5.4 billion for such programmes for 1998 – 2000.
- A Government Bill proposes that annual reports from public limited companies should include environmental aspects.
- Sweden's National Parks Information Centre opens in Tyresta National Park, south of Stockholm.
- The Riksdag adopts new energy policy guidelines aimed at facilitating efforts to bring about an environmentally sustainable society.
- It is decided to ban exports of mercury, whose use is being phased out in Sweden.
- In a communication to the Riksdag, the government outlines its efforts to achieve environmental sustainability in Sweden.
- The government sends the Riksdag a Bill on Sustainable Agriculture and Fisheries Policies with a focus on environmental aspects.
- Neurological symptoms in cattle and in workers trigger a major environmental scandal in which it is revealed that large quantities of acrylamide, used in construction of a railway tunnel through the Hallandsåsen ridge in order to make the

tunnel airtight, leached into the nearest river, where cattle were drinking, and also affected construction workers. Work on the tunnel is subsequently halted.

- A government commission proposes reorganising Sweden's water administration so that it is based on catchment areas.
- The Riksdag passes a law on the phase-out of nuclear power. Two reactors at Barsebäck power plant are to be closed by 2001, provided that their power production can be replaced by renewable resources and energy conservation.

1998

- Sweden signs the Kyoto Protocol.
- Sweden introduces differentiated environmental dues, depending on ship-generated SO₂ and NO_x emissions, for shipping fairways.
- The government introduces producer responsibility for end-of – life vehicles.
- The government issues its first national report on implementation of the Convention on Biodiversity.
- The OECD Megascience Forum meets in Saltsjöbaden, to examine the role of the scientific community in providing integrated analyses and advice on global scientific issues such as climate change, as well as on other environmental issues and on health and food safety.
- A Government Bill proposes a sustainable transport policy.
- The government modifies its action programme for architecture, form and design to strengthen quality in built environments.
- The Government Environment Bill presents the 15 EQOs, whose “generation goal” means that, by 2020 (for climate change, 2050), environmental pressures should be reduced to levels that are sustainable in the long run.
- The Foreign ministers of the Council of the Baltic Sea States (CBSS) adopts Baltic 21.
- Karlskrona's naval port becomes a World Heritage site.
- A planned tax on waste products that are not recycled is postponed owing to uncertainty about how it fits in with EU regulations.
- Vehicle taxes are lowered on electric cars and hybrid cars.
- EMAS is introduced for all sectors in Sweden.

- Sweden's 26th national park, Färnebofjärden, is established. Its 10 000-plus hectares include a unique river system with shallow lakes connected by rapids and surrounded by alluvial forests.
- The Swedish Council for Planning and Co-ordination of Research (FRN) reports to the government on a new strategy for research on sustainable development.
- The National Forestry presents its five-year nationwide inventory of key habitats, with 40 000 habitat indicators.
- The government proposes substantial increases in appropriations for purchases of valuable natural areas, especially forest areas, amounting to an additional SEK 660 million over three years.
- An annual environmental index for companies listed on the Stockholm Stock Exchange is launched, with a substantial number of companies participating.

1999

- The Environmental Code, combining 15 previous environmental statutes, is enacted to resolve three main problems: the former environmental legislation was hard to understand, many activities (e.g. roads and railways) were inadequately regulated and new environmental problems had arisen.
- The government strengthens legislation to halt illegal trade in threatened species.
- The Riksdag adopts the EQOs and asks the government to present comprehensive proposals for interim targets, measures and strategies for achieving the EQOs.
- The Government Bill on Cultural Heritage, Cultural Environments and Cultural Assets is presented to the Riksdag.
- The government proposes raising appropriations for environmental protection from SEK 1.5 billion to SEK 2 billion.
- The first nuclear reactor at the Barsebäck power plant is closed.
- SEPA proposes a new policy on Sweden's four large predators: bear, wolf, lynx and wolverine.
- In Göteborg, 27 countries sign a protocol to the Convention on Long-range Transboundary Air Pollution on abating acidification, eutrophication and ground-level ozone, setting national emission ceilings for 2010.

2000

- A SEK 250 per tonne tax on landfilling enters into force.
- A ban on lead shot takes effect.
- Sweden participates in the World Bank's Prototype Carbon Fund. The Ministry of Industry, Employment and Communications expects to buy about 1-2 million tonnes of CO₂.
- A Government Bill on a strategy for chemicals to aid in attaining the EQO "A Non – Toxic Environment" is presented to the Riksdag. It outlines ways to reach the EQO and includes a set of interim targets.
- A Commission on Producer Responsibility is established.
- The government concludes a covenant with the motor industry on development of alternative-fuel vehicles.
- A strategy on a "green tax shift" is introduced as a result of an agreement by the Social Democratic government, the Left Party and the Green Party.
- Sweden's 27th national park, Söderåsen, is established to protect some 1 600 hectares including unique virgin deciduous forest with very extensive flora and fauna and virgin watercourses.
- A government commission proposes new guidelines on chemical policies to promote stricter EU legislation on chemicals.
- The government establishes a national committee on Agenda 21 and Habitat.
- UNESCO adds the agricultural landscape of southern Öland, a Baltic island, and the "High Coast" (Höga Kusten) of the county of Ångermanland to the list of World Heritage sites.
- The Environmental Committee of the Confederation of Swedish Enterprise presents its "Vision for Sustainable Industrial Development in the year 2025".
- The European Commission approves the Swedish Environmental and Rural Development Programme for 2000 – 06.
- The Climate Commission proposes that the levels of Sweden's GHG emissions should be halved by 2050 from 1990 levels.
- The government purposes a substantial increase in CO₂ tax, from SEK 0.37/kg to SEK 0.53/kg.

2001

- Sweden's six-month presidency of the Council of the European Union begins. Environmental issues are one of the government's three priority areas.
- The government issues its second national report on implementing the Convention on Biodiversity.
- A Government Commission on Waste is established.
- The government presents a Bill on Interim Targets and Action Strategies for the EQOs and proposes an Environmental Objectives Council, associated with SEPA. The government also announces it intends to submit a proposal to the Riksdag for a 16th EQO, on biodiversity.
- As part of the Environmental and Rural Development Programme, the Board of Agriculture, the County Administrative Boards, the Federation of Swedish Farmers and various agri-business companies launch a joint initiative called "Focus on Nutrients" to reduce nutrient losses from agriculture to air and water. The initiative draws on the EQOs, especially "Zero Eutrophication".
- The Stockholm Convention on Persistent Organic Pollutants, which requires the complete phase-out of nine toxic pesticides and limits the use of several other chemicals, is signed by 92 countries.
- SEPA and the Centre for Biodiversity establish a Swedish Species Information Centre.
- The European Council, meeting in Göteborg, adopts a sustainable development strategy.
- EU Environment ministers unanimously adopt a common position on a Sixth Environmental Action Plan and the Council Conclusions on future EU policy on chemicals.
- The mining area of the Great Copper Mountain (Kopparbergslagen) and the central Swedish town of Falun are named World Heritage sites.
- The government's budget bill for 2002 proposes introducing climate investment programmes to replace the local investment programmes, and appropriating SEK 200 million for the first year, rising to SEK 400 million by 2004. The purpose is to support municipal measures to reduce GHG emissions.
- The Riksdag postpones the shutdown of the second reactor at Barsebäck, after deciding that the requirements have not been met, and orders a new evaluation to be made in 2003.

- The government sends the Riksdag a Bill on Climate Change proposing that national GHG emissions should be reduced by 4% by 2010.
- The government initiates an inquiry on how to implement the EU Water Framework Directive in Sweden.

2002

- Sweden ratifies the Kyoto Protocol.
- Requirements concerning separation of combustible waste and a ban on dumping separated combustible waste enter into force. The landfill tax is increased from SEK 250 to SEK 288 per tonne.
- Sweden ratifies the 1999 Beijing Amendment to the Montreal Protocol on ozone-depleting substances.
- The government sends the Riksdag a Bill on infrastructure for a long-term sustainable transport system, and launches an assessment of shipping fairway dues to make them more cost-effective.
- The government formulates a comprehensive nature conservation policy, presenting new strategies that take into account sustainable development and the EQOs, and highlighting key new ideas such as sectoral integration and enhanced dialogue with local communities.
- Sweden ratifies the Stockholm Convention on Persistent Organic Pollutants.
- An expert is launched on management and final disposal of radioactive waste from non-nuclear activities.
- Ratification of the EU burden sharing agreement confirms that Sweden may increase its CO₂ emissions by 4%.
- On the 30th anniversary of the UN Conference on the Human Environment, which was held in Stockholm, the government assembles 250 experts from around the world to review three decades of international environmental co-operation and discuss strategies for the next 30 years. The Riksdag adopts the Government Energy Bill on co-operation to achieve a secure, efficient and environment-friendly energy supply.
- A government negotiator is appointed to seek agreement between government and industry on a long-term sustainable policy for the phase-out of nuclear power and continued change in the energy system.

- The International Secretariat of the Global Water Partnership, a network on global water resources, is established in Stockholm.
- Sweden ratifies the Cartagena Protocol on Biosafety, an agreement under the Convention on Biodiversity concerning genetically modified organisms.
- Sweden presents its national report, “From Vision to Action,” at the World Summit on Sustainable Development in Johannesburg.
- Sweden establishes its 28th national park, Fulufjället, whose 38 500 hectares include virgin forests with long valleys, steep-sided ravines and Sweden’s highest waterfall.
- The government decides to designate new areas as vulnerable zones in accordance with the EU nitrate directive.
- Envisions 2002, a stakeholder conference on sustainable development, is held in Västerås to discuss the follow-up to the Johannesburg Summit. Some 700 people participated, including representatives of governments, municipalities, NGOs and industry.
- The government inquiry on implementation of the Water Framework Directive results in a proposal to establish five water administration agencies.
- SEPA launches a campaign to increase knowledge about, and change attitudes towards, the greenhouse effect.

2003

- The landfill tax is raised from SEK 288 to SEK 370 per tonne.
- A forum for environmental NGOs on efforts to achieve the EQOs is established.
- The national Environmental Court rules that the National Rail Administration can triple the amount of groundwater drained from the railway tunnel being built through the Hallandsåsen ridge. Local residents challenge the decision in the Environmental Court of Appeal.
- The Swedish Business Development Agency (NUTEK) proposes establishing a national centre for environment-driven business development and exports of environmental technology.
- In a proposal to the European Commission, the government seeks the inclusion of a further 54 Swedish sites in the Natura 2000 network, for a total of 3 581 Swedish sites.

- The government sends the Riksdag its Ecocycle Bill proposing “a society with a non-toxic and resource-saving ecocycle”. It also introduces a Bill on Shared Responsibility: Sweden’s Policy for Global Development.
- The Riksdag adopts the government proposal on green certificates for electricity produced from renewable sources.
- A Government Bill proposes a new system for property registration.
- The Government establishes a Council for Outdoor Recreation Activities.
- A Chinese tanker sinks in the Baltic Sea, releasing a large amount of oil. The accident brings renewed calls for the Baltic to be classified as a particularly sensitive sea area.
- The Commission on Ocean Environment presents its proposal to the government on actions and strategies for the Baltic Sea and the North Sea.
- The government appoints a commission of inquiry on objectives and strategies for the continued introduction of vehicle fuels from renewable sources.
- Three environment ministerial meetings are held in Luleå, northern of Sweden: the Nordic Environment ministers, the Environment ministers of the Barents Euro-Arctic Council and the CBSS Environment ministers.
- The Environmental Court of Appeal agrees to study the Hallandsåsen ridge railway tunnel project and advise the government on whether it should continue.
- An agreement by the government, the Left Party and the Green Party on the 2004 budget includes a decision to expand the green tax shift by SEK 2.0 billion and raise resources for biodiversity protection to SEK 1.4 billion.
- Several private companies and public agencies declare their intention to join the “At Least One Green Car” network (Minst en miljöbil), whose members agree to buy at least one alternative-fuel vehicle.
- The government presents a communication to the Riksdag on a revised set of Swedish priorities for EU environmental co-operation. Marine issues are added as a priority, joining air pollution, climate, acidification, chemicals and sustainable use of natural resources.
- The government announces a programme for local nature protection projects entailing funding of SEK 300 million over the period 2004-06.
- The government completes its proposal for the European Nature 2000 network, bringing the total of proposed Swedish Natura sites to 3 949.

Reference VI

SELECTED ENVIRONMENTAL WEB SITES

Web site	Host institution
http://miljo.regeringen.se	Ministry of the Environment
http://naring.regeringen.se	Ministry of Employment, Industry and Communications
http://jordbruk.regeringen.se	Ministry of Agriculture, Food and Consumer Affairs
http://social.regeringen.se	Ministry of Health and Social Affairs
http://www.utrikes.regeringen.se	Ministry of Foreign Affairs
http://finans.regeringen.se	Ministry of Finance
http://www.naturvardsverket.se	Swedish Environmental Protection Agency
http://www.kemi.se	National Chemicals Inspectorate
http://www.formas.se	Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning
http://www.fhi.se	National Institute of Public Health
http://www.sos.se	National Board of Health and Welfare
http://www.lst.se	Sweden's County Administrations
http://www.imm.ki.se	Institute of Environmental Medicine
http://www.fiskeriverket.se	National Board of Fisheries
http://www.sjv.se	Swedish Board of Agriculture
http://www.svo.se	National Board of Forestry

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Signs

The following signs are used in Figures and Tables:

- .. : not available
- : nil or negligible
- . : decimal point

Country Aggregates

OECD Europe: All European member countries of the OECD, i.e. countries of the European Union plus the Czech Republic, Hungary, Iceland, Norway, Poland, the Slovak Republic, Switzerland and Turkey.

OECD: The countries of OECD Europe plus Australia, Canada, Japan, the Republic of Korea, Mexico, New Zealand and the United States.

Country aggregates may include Secretariat estimates.

The sign * indicates that not all countries are included.

Currency

Monetary unit: Sweden Krona (SEK)

In April 2004, SEK 9.19 = EUR 1.

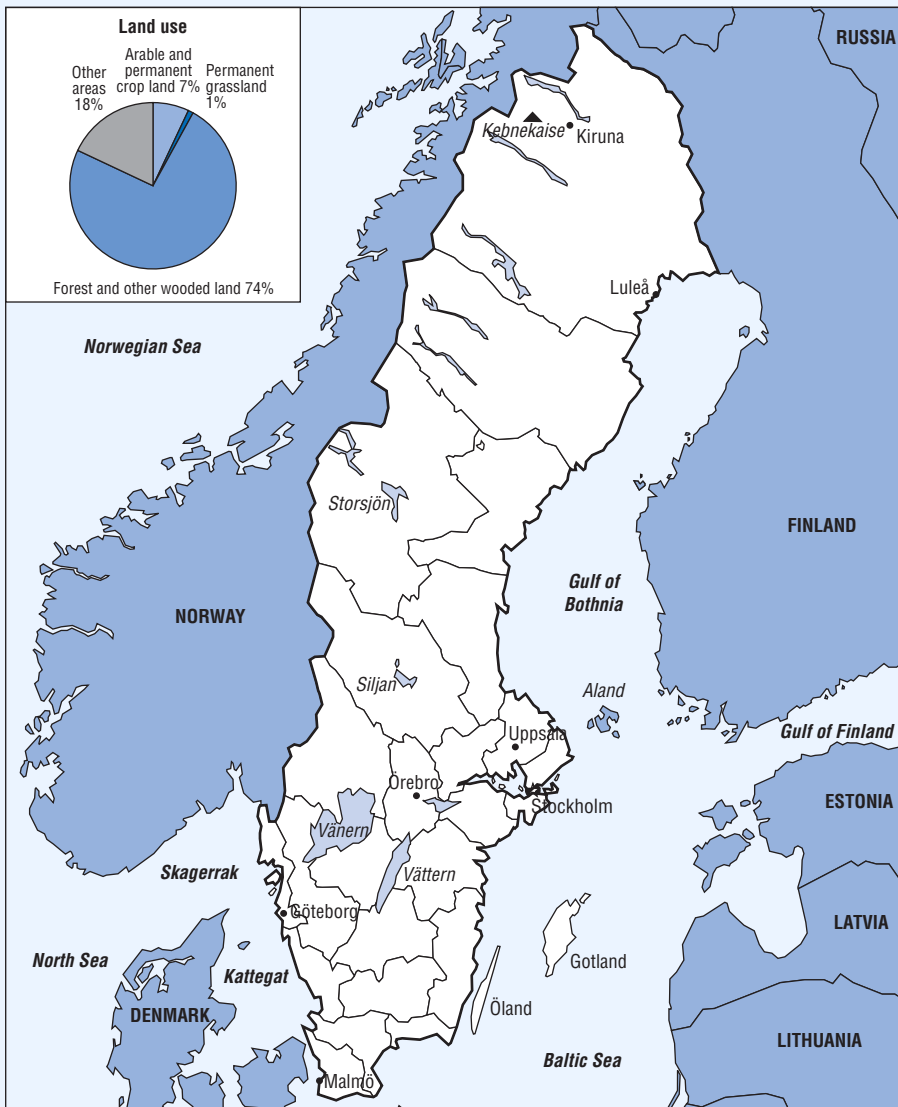
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Map of Sweden



Source: OECD.



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