

SWEDEN'S ENVIRONMENTAL

objectives

– Appendices



Preface

Ahead of the in-depth evaluation by the Environmental Objectives Council of progress made towards attaining the environmental objectives, lead agencies for individual objectives and sectoral agencies were asked to submit proposals for measures and instruments needed for the environmental quality objectives to be met. The lead agencies were also asked to present proposals for revised or new interim targets where considered necessary. According to the assignment, both interim target proposals and proposals for instruments were to be subjected to impact assessment. It can be noted after completion of the assignment that impact assessments have not been made for all proposed measures and instruments and that those impact assessments that have been carried out have differed in level of aspiration and execution.

Two appendices to the Environmental Objectives Council's evaluation of Sweden's Environmental Objectives 2008, *The Environmental Objectives – No Time to Lose*, are published in this report.

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Appendix 1 contains a listing of all the proposals for measures and instruments submitted in the reports of the lead and sectoral agencies and in the compilation of proposals from the county administrative boards made by RUS (Regional Follow-Up System – Regionalt UppföljningsSystem). The number of proposals is large, running to more than a thousand, but in many cases more than one proposer has submitted proposals with the same orientation.

Appendix 2 contains a listing of impact assessments made by Swedish Environmental Protection Agency economists in cooperation with the Environmental Objectives Council's secretariat. It is based on the impact assessments presented principally in the reports of the lead agencies.

For detailed information on proposals and impact assessments, reference should be made to the proposers concerned and the background reports. Several reports are available as pdf files at the Environmental Objectives Portal, www.miljomal.nu.



APPENDIX 1

LISTING OF PROPOSALS FOR

Measures, instruments and other proposals aimed at attaining the environ- mental quality objectives

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Reduced Climate Impact	6
Clean Air	23
Natural Acidification Only	27
A Non-Toxic Environment	32
A Protective Ozone Layer	54
A Safe Radiation Environment	57
Zero Eutrophication	59
Flourishing Lakes and Streams	65
Good-Quality Groundwater	74
A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos	79
Thriving Wetlands	85
Sustainable Forests	90
A Varied Agricultural Landscape	99
A Magnificent Mountain Landscape	104
A Good Built Environment	106
A Rich Diversity of Plant and Animal Life	111
Proposals of a general nature and/or focusing on several unspecified environmental quality objectives or, for example, cross-cutting issues related to the objectives	115
Proposals from the county administrative boards in other policy areas, of a general nature and/or focusing on several unspecified environmental quality objectives	120

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Proposals for measures to attain the environmental quality objectives and their interim targets have been presented by authorities responsible for objectives, sector authorities and county administrative boards, and encompass virtually the entire structure of society. In work on the three action strategies, the proposals presented by the authorities have been sifted to highlight the proposals that are of greatest importance to attain the environmental quality objectives, while broad endorsement efforts have led to endorsement of the proposed measures by authorities affected by both work on measures and follow-up of the environmental quality objectives. Both objective-specific proposals and proposals for instruments and measures not directly linked to a specific environmental quality objective are presented in the strategies.

A listing of all the measures proposed in the background reports from authorities responsible for objectives, sector authorities and county administrative boards for the Environmental Objectives Council's in-depth evaluation for 2008 follow below. The proposals from the action strategies are presented in Chapter 6. The measures have been classified according to environmental quality objective wherever possible. Where the proposals relate to several or all of the environmental quality objectives or cross-cutting issues related to the objectives, these proposals have been presented separately. Proposals from authorities that have been used in the strategies are highlighted in the tables. In cases where the strategies relate to a proposal, but where the proposal has been reworded or the strategies present proposals that are clearly linked to the proposals in the tables below, the name of the strategy is placed in brackets. Measures already in progress are not included in this list.

The classification of instruments used in the background material for the report of the Climate Change Committee "Proposal for a Swedish Climate Change Committee" (*informative instruments, administrative instruments, economic instruments, research, development and demonstration*) is used in the listing, in addition to which measures, policy and organisational control (everything the Swedish Government can instruct a government agency to do or give it greater resources to carry out) are described. In addition, the aspiration of the Environmental Objectives Council's secretariat has been to scrutinise who the proposal is aimed at, as it is not always apparent from the reports who is the intended recipient of the proposal. There may

sometimes be several recipients of a proposal, and it is sometimes not entirely self-evident who is the intended recipient, and it is therefore possible that there are further recipients in addition to those stated in the table. A general listing of the number of proposals made is shown in Table 1 below.

The background reports and impact assessments made in connection with the in-depth evaluation can be found at the Environmental Objectives Portal, www.miljomal.nu, unless otherwise stated in the column for reference to impact assessment.

Table 1. Total number of proposals made.

Reduced Climate Impact	147
Clean Air	53
Natural Acidification Only	49
A Non-Toxic Environment	160
A Protective Ozone Layer	21
A Safe Radiation Environment	20
Zero Eutrophication	48
Flourishing Lakes and Streams	70
Good-Quality Groundwater	42
A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos	61
Thriving Wetlands	51
Sustainable Forests	69
A Varied Agricultural Landscape	51
A Magnificent Mountain Landscape	17
A Good Built Environment	42
A Rich Diversity of Plant and Animal Life	45
Other proposals from central authorities	43
Other proposals from the county administrative boards	20
Total number of proposals presented	1 009

REDUCED CLIMATE IMPACT

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessment
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY & SWEEDISH ENERGY AGENCY "CHECKPOINT 2008"

Development of the EU trading scheme

1	It should be possible for the quantity of emission allowances allocated to be cut in comparison with the volume allocated during the forthcoming trading period 2008–2012. We estimate that the allocation for 2020 should be 6–10 Mtonnes below projected emissions. This signifies an allocation 2-6 Mtonnes lower than in 2008–2012 for the Swedish installations in the system.	Government	EET	Economic instrument	Yes
	We consider it important that some key elements of the scheme undergo development. Our view is that Sweden should press for:				
2	The allocation of emission allowances to be done centrally by the European Commission	Government	EET	International work	Yes
3	A higher proportion of the allocation to be made by auction instead of free of charge at present	Government	EET	Economic instrument	Yes
4	The future allocation should be restrictive	Government	EET	Economic instrument	Yes

Sectors outside the EU trading scheme

	It is estimated that continued development of EU instruments and the introduction/tightening of national instruments in the sectors not covered by the EU trading scheme could produce emission reductions in the longer term of 46 Mtonnes.				
In the EU					
5	Sweden supports the European Commission proposal on binding emission requirements for car manufacturers averaging a maximum of 130 grams of carbon dioxide per kilometre for new cars in 2012 and presses for the requirements thereafter to be tightened. The requirements should be extended to also cover other types of vehicle.	Government	EET	International work	Yes
6	Sweden presses for the EU's import duties for ethanol to be removed.	Government	EET	International work	Yes
7	Sweden supports the aspiration of the EU to devise a system for the certification of motor biofuels.	Government	EET	International work	Yes
8	Sweden is a driving force in work on the development of an EU-standardised method of measuring the fuel consumption of heavy vehicles.	Government	EET	International work	Yes

Nationally					
9	Increase in fuel taxes of 75 öre per litre and an annual adjustment of fuel taxes in line with changes in the consumer price index and GDP.	Government	EET	Economic instrument	Yes
10	Increased carbon dioxide differentiation of vehicle taxes and the rules for the benefit value of a free car being based on carbon dioxide.	Government	EET	Economic instrument	Yes
11	Strengthened consumer information in connection with the purchase of a new car.	Government, Swedish Consumer Agency, Swedish Road Administration etc.	EET	Informative instrument	Yes
12	A compulsory quota system should be considered to replace the current tax relief for biofuels.	Government	EET	Economic instrument	Yes
13	The Swedish Road Administration's definition of a green car should apply to all government incentives that encourage more green cars. This means that very fuel-efficient petrol and diesel vehicles are included.	Government and several government agencies		Administrative instrument	Yes
14	The requirement for energy efficiency should be tightened for vehicles that can run on biofuels.	Government	(EET, all vehicles)	Administrative instrument	Yes
Other proposals					
15	An environmental charge on fluorinated greenhouse gases on a par with current carbon dioxide tax for manufacturing industry is introduced.	Government		Economic instrument	Yes
16	Grants under the existing rural development programme are used for conversion from fossil fuels and efficiency improvement measures.	Government		Economic instrument	Yes

Proposals – Focus on purchasing emission reduction units

17	We judge that the focus should be on holding 2-4 Mtonnes of emission reduction units per year from projects in other countries for each year around 2020. The lower level corresponds to the effects of tightened national instruments becoming favourable and the allocated quantity of emission allowances being reduced according to the upper part of the range 6-10 Mtonnes (see proposals for development of the EU trading scheme). We consider that the focus should be on holding emission reduction units with a certain margin in 2020.	Government		Economic instrument	Yes
18	The focus should also continue to be on projects in renewable energy and energy efficiency improvement. The projects should lead to local environmental benefits and can serve as a channel for the transfer of technology in the area of climate.	Government		Economic instrument	Yes

19	Sweden should continue to play an active part in international cooperation to develop the flexible mechanisms.	Government		Economic instrument	Yes
20	Government investments should broaden the global cooperation on climate, for example by contributing to method development for projects in programme form or sector-based approaches and through investments in climate projects in least developed countries. Sweden should also earmark resources ahead of future international negotiations as the issue of climate change requires international solutions.	Government		Economic instrument	Yes
21	Support the international negotiation process through research and development.	Government		R&DD	Yes
22	Instruct government agencies to commit resources to a greater extent than at present to studies and analyses of negotiated solutions.	Government		R&DD	Yes

Proposals – Other proposals

General					
	Investments in research, development and demonstration of new technology by central government and industry and commerce are a very important component in a continued climate strategy. However, we have not evaluated or analysed research and development efforts in the context of this work.				
Transport-related instruments					
23	Public planning at regional and local level needs to encourage a social structure that promotes resource-efficient transport to a greater extent. Regional coordination of planning is required and new methodology for sustainable transport planning should be tested.	Government, county administrative boards, municipalities	EET	Measure, policy, organisational control	No
24	The fuel and environmental factors used today in calculating vehicle tax for diesel cars should be revised.	Government		Measure	No
25	Energy tax on diesel fuel should be successively raised to a level of taxation equivalent to that on petrol, while the higher vehicle tax for diesel cars should be lowered. Repayment of parts of paid taxes to truck haulage firms to offset a rise in energy tax on diesel should also be included in the assessment.	Government		Economic instrument	No
The housing sector					
26	It should be investigated how building regulations, a labelling system for buildings and the requirement for energy declarations can be combined to move towards greater energy efficiency in connection with the new construction and refurbishment of residential and commercial buildings.	Government	(EET)	Administrative instrument	No

Manufacturing industry outside the EU trading scheme					
	There is a need to strengthen the instruments that cover industry outside the EU trading scheme. We propose that there should be continued analysis, which would include:				No
27	A limited increase in tax combined with an expanded programme for energy efficiency improvements in industry (PFE)/Voluntary agreements.	Government	EET	Economic instrument	No
28	Enhanced implementation of the Environmental Code.	Government	EET	Administrative instrument	No
29	Direct investment support under a changed Klimp (Climate Investment Programme).	Government	EET	Economic instrument	No
The Climate Investment Programme					
30	Klimp (the Climate Investment Programme) should be revised to provide direct climate investment support for designated areas. In-depth analysis is required to specify precisely which action areas are suitable.	Government	EET	Economic instrument	No
	and				
31	It should be investigated how central government can most effectively provide incentives for local climate and energy-related work.	Government		Economic/administrative instrument	No

NATIONAL ROAD ADMINISTRATION – SECTOR REPORT

32	Develop consumer information aimed at new-car buyers in which the focus is on comparability with respect to energy consumption.	Swedish Road Administration and other authorities	EET	Informative instrument	Yes, sector report.
33	Develop support for purchasers of heavy vehicles and machinery so that they take account of energy consumption more easily.	Swedish Road Administration and other authorities		Informative instrument	Yes, sector report.
34	Disseminate information so that an effective premium-raising campaign can be conducted during a limited period of time that leads to older cars being scrapped.	Government, Swedish Road Administration		Informativ/economic instrument	Yes, sector report.
35	Devise a national strategy for the introduction of fuels not based on fossil sources. The platform jointly developed by the Swedish Environmental Protection Agency, the Swedish Energy Agency, VINNOVA (the Swedish Agency for Innovation Systems) and the National Road Administration can form the basis for this strategy.	Government		Policy	Yes, sector report.
36	Investigate the prospects and effects of awarding government grants to public transport initiatives in urban areas, compare the KomFort project in Jönköping and test passengers.	Government	EET	Economic instrument	EET

37	To be effective, the scrapping premium should be designed so that it principally benefits the car-owner.	Government		Economic instrument	
38	Set aside further resources, revise and adapt regulations (and disseminate information) so that an effective premium-raising campaign can be conducted during a limited period of time that leads to older cars being scrapped.	Government		Economic, administrative instrument	
39	Consider progressive element in carbon dioxide charge for light vehicles if there is judged in the forthcoming evaluation of the effects of carbon dioxide tax to be a need for an increase in the steering effect.	Government	EET	Economic instrument	EET, Check-point 2008.
40	Investigate the opportunities for and effects of carbon dioxide-dependent vehicle tax also applicable to heavy vehicles.	Government		Economic instrument	
41	Introduce a km tax for vehicles over 3.5 tonnes.	Government	EET	Economic instrument	RU SIKÄ
42	Earmark government funds to encourage the use of such sustainable transport planning in the form of best practice and dissemination of experience, in or according to model from KLIMP (Climate Investment programme), for municipalities and regions of differing size and character. The support should be given with the intention of improving the environment, but also be capable of contributing to other societal objectives, for example regional development through measures that lead to sustainable regional enlargement.	Government	(EET)	Economic instrument	Yes, sector report
43	Government grants to the municipalities for noise control measures continue (and ordinances are revised so that grants are also available for inventories and preparation of implementation plans).	Government	EET	Economic instrument	No (probably not)
44	Draw up plans for how to work on eco-driving in various sectors.	Swedish Road Administration		Policy	Yes, sector report.
45	Develop a common concept for eco-driving of machinery and, where there is a need to do so, supplementing this basic concept with tailored applications for the various sectors.	Swedish Road Administration	EET	Measure	Yes, sector report, EET.
46	Investigate how more transport authorities can be encouraged to join a uniform travel-card standard.	Swedish Road Administration		Measure	Yes, sector report
47	Encourage the development of tools for sustainable transport planning at local and regional level, with a cross-sectoral approach that contributes to the development of attractive cities and towns and regions.	Swedish Road Administration and other authorities		R&DD	Yes, sector report

SWEDISH ENERGY AGENCY – SECTOR REPORT

48	Regional and local collaboration focusing in particular on energy advice: Regional cooperation in the area of energy should be developed with respect to the roles of county administrative boards, municipalities, energy advisers and the Swedish Energy Agency.	Government, Swedish Energy Agency		Informative instrument	Yes, sector report
49	Simplifications in the licensing process (for wind-power installations) using general regulations or general advice and a single body to deal with applications.	Government, Swedish Energy Agency, Swedish Environmental Protection Agency	EET	Administrative instrument	Yes, sector report.
50	Areas of national interest for wind farms should achieve breakthrough.	Government, Swedish Energy Agency, Swedish Environmental Protection Agency, National Board of Housing, Building and Planning, county administrative boards, municipalities		Administrative instrument	Yes, sector report.
51	Solar heating – A national target should be established which means that solar collectors equivalent to 0.4 TWh are installed by 2020 and support for solar heating should be extended.	Government	EET	Policy	Yes, sector report.
52	Extension and expansion should be considered (for wind-power installations) in the next review of the electricity certificates system	Government		Economic instrument	Yes, sector report.

NATIONAL RAIL ADMINISTRATION (BANVERKET) – SECTOR REPORT

53	Infrastructure initiatives at bottlenecks in the present-day rail network to increase capacity.	Government	EET	Measure	No
54	Energy measurement in the railway system, with objective of energy efficiency improvement.	Government, National Rail Administration	EET	Measure	No

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION

55	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> write that the climate objective depends entirely on international efforts and that the Government should continue and increase its efforts on reduced emissions internationally.	Government		International work	No
56	<i>Dalarna</i> states that continued agreements within the UN are of key importance, as is continued development of the EU's energy and transport policy. Also stresses the significance of reduced emissions from international shipping and aviation.	Government		International work	No

57	<i>Jämtland</i> writes that Sweden needs to act strongly to drive the issue of climate change forward in both the EU and the UN. They point out in particular that greater efforts must be made to convert the transport sector and ensure that it bears its environmental costs.	Government		International work	No
58	<i>Jönköping</i> writes that great efforts need to be made in the EU and internationally to force through proposals in climate-change policy.	Government		International work	No
59	<i>Västernorrland</i> would like to see a focus on commitments to reduced climate impact in particular.	Government		Policy	No
60	<i>Stockholm</i> is of the opinion that the Government should press for the implementation of emission allowances in more areas, e.g. in international transport such as aviation and shipping.	Government		Economic instrument	No
61	<i>Jönköping</i> writes that it is crucially important that the allocation of emission allowances is not too generous. Also that an expansion of trading to cover transport must not lead to a reduced cost per emitted quantity of carbon dioxide from the transport sector, which they regard as posing a risk. They write that a solution may be to have separate trading schemes for industry and transport, and if the carbon dioxide tax is removed at the same time a minimum price should be set for emission allowances which is equivalent to the tax.	Government		Economic instrument	No
62	<i>Jämtland</i> wants aviation to be covered by emissions trading as soon as possible.	Government		Economic instrument	No
63	<i>Jämtland</i> writes that aviation emissions must be included in national statistics. They would also like to see combined statistics for greenhouse gases broken down regionally.	Government		Measure	No
64	<i>Västernorrland</i> would like to see better control of cross-border waste transportation. In addition, support for technology development, research and market introduction of motor biofuels and making cultivation for energy use more environmentally sound.	Government		Administrative instrument, R&DD	No
65	<i>Jämtland</i> wants instruments to change long-haul transport over to rail to be implemented at European level.	Government		International work	No
Support for municipal work on climate change:					
66	<i>Gävle</i> proposes that the ordinance on climate investment programmes be amended so that application is simplified and the programme is geared more towards direct measures. The present-day Klimp climate investment programmes are regarded as heavy on staff resources for small municipalities.	Government		Economic instrument	No

67	<i>Dalarna</i> proposes support for the climate-change and energy measures of the municipalities that can supplement or replace Klimp. This can be organised through the county administrative boards, like the local nature conservation grants. Klimp programmes have been a positive factor for measures and strategic work, but have been regarded as involving a large amount of work. Important that Klimp programmes are evaluated.	Government		Economic instrument	No
68	<i>Jämtland</i> is of the opinion that Klimp programmes have produced good results and that similar programmes should also be set up for future periods.	Government		Economic instrument	No
69	<i>Gotland</i> would like to see better distribution of Klimp programmes around the country and to small municipalities.	Government		Economic instrument	No
70	<i>Västerbotten</i> wishes there to be regional Klimp funds.	Government		Economic instrument	No
Emissions trading:					
71	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> think that emissions trading is good but that the number of emission allowances needs to be reduced for the system to become a driving force.	Government		Economic instrument	No
72	<i>Kronoberg</i> considers it important to develop emissions trading for more fields of activity, but does not take part to a sufficient extent to be able to make specific proposals.	Government		Economic instrument	No
Other:					
73	<i>Stockholm</i> would like to see regional benchmarking in work on climate change. The wide difference between the counties in carbon dioxide emissions per head of population is due to structural differences, but also to different regional strategies. To promote implementation of good strategies, it is proposed that the counties' emissions, circumstances and strategies should be compared and analysed.	Swedish Environmental Protection Agency, county administrative boards		Informative instrument	No
74	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> want the measures to reduce nitrous oxide from the healthcare sector that have been implemented in several county councils to be implemented everywhere.	Government, county councils, National Board of Health and Welfare		Measure	No
75	<i>Gotland</i> considers it important that authorities take the lead on the issue of climate change.	Government, authorities		Policy	No
76	<i>Kalmar</i> proposes differentiation of tax funds, green tax shift.	Government		Economic instrument	No

77	<i>Kronoberg</i> emphasises for the impact of private consumption that measures should be taken in accordance with the recommendations of the “Transport, Foodstuffs and Housing” Inquiry. They mention that in their action strategy for energy and transport they have described and assessed the impact of 36 measures regionally and locally. They would also like to see more consistent monitoring of climate and energy in physical planning and infrastructure planning.	Government, planning authorities, county administrative boards, municipalities		Measure	Partially in relation to action strategy for energy and transport.
78	<i>Västernorrland</i> wishes the climate information campaign to be continued.	Government, Swedish Environmental Protection Agency		Informative instrument	No
Regional energy collaboration:					
79	<i>Dalarna</i> points to the significance of regional and local work on energy and considers more collaboration to be necessary to increase work on measures. They also point out that the county administrative boards are appropriate to coordinate this work. They propose that the assignments of the county administrative boards in regional collaboration should be developed, clarified and given more resources. Regional energy programmes and collaboration of the kind developed in the county of Dalarna can be used as a model. The roles of different regional players need to be clarified at the same time.	Government, county administrative boards		Organisational control	No
80	<i>Västernorrland</i> wants the role and terms of reference of the county administrative boards with regard to energy changeover to be clarified.	Government		Organisational control	No
81	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> want the assignments of the county administrative boards in the new branch of activity of “energy changeover” to be clarified and accompanied by funds for implementation. They also write that the regional energy agencies play an important role in coordinating the energy advisers and driving urgent projects forward. Increased and more long-term basic funding would also improve the prospects of pursuing active and long-term activity.	Government		Organisational control, informative instrument	No
82	<i>Västerbotten</i> also mentions the significance of the energy agencies.	Government		Informative instrument	No
83	<i>Kronoberg</i> sees a need to strengthen the ability to coordinate and expertise of the county administrative board in the area of climate and energy. They propose that the county administrative boards be instructed to coordinate work on climate and energy in the county and that services be set up. They consider that the energy agencies should be classified more under the Swedish Energy Agency. A division of labour may be for county administrative boards to be responsible for general aspects in planning and formal management, while energy agencies are responsible for advice and specialist and support functions.	Government		Organisational control	No

84	<i>Värmland</i> would like to see more clearly formulated assignments and special resources to coordinate the regional aspect of energy and climate impact equivalent to at least one staff post. The county administrative board should and wants to play a key role in this regional work. The importance of the issue, the many parties involved and the complex picture of instruments make collaboration all the more important. The county administrative board to date has had limited resources.	Government		Organisational control	No
Public planning of energy:					
85	<i>Dalarna</i> sees a need to develop municipal energy planning and climate strategies. Experience from projects in progress in the country should be utilised to develop the work.	Government		Organisational control	No
86	They propose that the Municipal Energy Planning Act should be revised and supplemented so that the plan has to contain a climate strategy and elucidate transport and also that the regional level should be developed.			Administrative instrument	No
87	The county administrative board also proposes that central authorities train and offer advice to municipalities on how to take account of energy in public planning.	Swedish Energy Agency, Swedish Environmental Protection Agency, National Board of Housing, Building and Planning, transport authorities		Informative instrument	No
88	<i>Skåne</i> also proposes review of the Municipal Energy Planning Act to clarify and strengthen municipal and intermunicipal planning.	Government		Administrative instrument	No
Municipal energy advice and informative instruments:					
89	<i>Dalarna</i> proposes that support for municipal energy advice be made permanent and that its goals, role and tasks should be developed. It should also have strategic and coordinating tasks. Transport should also form part of the activity.	Government		Informative instrument	No
90	<i>Gotland</i> considers it vital that energy advice can continue and receive support.	Government		Informative instrument	No
91	<i>Kalmar</i> regards it as being of the greatest importance to have an energy adviser in each municipality.	Government, the municipalities		Informative instrument	No
92	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> propose that the national energy-saving campaign currently in progress which is aimed at private individuals should be expanded so that it also applies to industrial enterprises and other activities. The county administrative boards and municipalities could be important parties in this work in a similar way to the radon campaign.	Government, Swedish Energy Agency, National Board of Housing, Building and Planning, Swedish Environmental Protection Agency		Informative instrument	No

Industry:					
93	<i>Gotland</i> proposes introduction of energy advice for companies and support for collaboration between companies to find joint solutions for energy use.	Government		Informative instrument	No
94	Requirements for compensation measures in testing under the Environmental Code so that carbon dioxide emissions can be regulated.	Government		Administrative instrument	No
95	<i>Kronoberg</i> considers that businesses ought in general to be ordered to draw up plans for energy efficiency and conversion. This can be dealt with under the Environmental Code, but as things stand at present is happens randomly, as the requirements can only be set at the time of testing. The provisions on self-inspection can be developed. However, emissions trading represents a limitation. A way of incorporating traffic-generating activities into this energy planning for businesses via the Environmental Code would be desirable.	Government, Swedish Environmental Protection Agency		Administrative instrument	No
Buildings:					
96	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> propose that grants be introduced for individual energy measurement in new apartment blocks. Tenants being responsible for their own costs is an incentive to save energy.	Government, National Board of Housing, Building and Planning, Swedish Energy Agency		Economic instrument	No
97	<i>Örebro</i> is of the opinion that property tax should be used as a tool to encourage energy-efficient and environmentally friendly living, for example through graduated tax linked to the energy declaration.	Government		Economic instrument	No
98	<i>Dalarna</i> would like to see more instruments for properties, e.g. investment support for the combination of bioenergy and solar energy, support for county administrative board information relating to the energy grants, measures in the introduction of the energy declarations, improved energy statistics and developing regional support functions for energy efficiency improvement.	Government, Swedish Energy Agency		Economic instrument, (informative instrument)	No
99	<i>Västerbotten</i> would like to see grants or tax relief for new construction of housing with highly insulated heat shells and low-energy heating systems. Also grants for replacement of electricity and oil-based heating systems and installation of solar heating systems.	Government		Economic instrument	No
100	<i>Gotland</i> proposes tougher requirements for energy management and choice of energy source in new construction, including for holiday homes. In the longer term there should also be requirements for existing buildings.	Government, National Board of Housing, Building and Planning, Swedish Energy Agency		Administrative instrument	No

101	<i>Blekinge</i> would like to see information-related measures such as continued financial support to promote energy changeover in building construction and reduced energy use.	Government, National Board of Housing, Building and Planning, Swedish Energy Agency		Informative instrument, economic instrument	No
Energy sector: district heating, electricity:					
102	<i>Gävleborg</i> is of the opinion that the county administrative board must have an opportunity to turn down grants for investments in heat pumps where the property owner has been offered district heating, which requires amendments to 2005:1255-1256. The expansion of district heating should also increase. There must be an opportunity for a property owner to find out when expansion is due to take place and that this is binding. If a property owner decides against geothermal heating in favour of district heating and the supplier fails to comply with contracts, there should be eligibility for compensation. The county administrative board would also like to see energy certificates for heating production, particularly waste heat. They want the district heating networks to be opened in the same way as electricity and phone networks, which would mean that industry can switch on waste heat on reasonable terms.	Government, National Board of Housing, Building and Planning, Swedish Energy Agency		Administrative instrument	No
103	<i>Västra Götaland</i> would like to see continued investment support that encourages expansion of district heating, solar energy and biofuel as well as resources for the processing of applications.	Government		Economic instrument	No
104	<i>Västra Götaland</i> also wants the legislation relating to linking solar heating and district heating to be revised. It should be simple to supply solar heating to the district heating network. They also want the legislation regarding distribution of electricity to be revised so that solar panel installations can be easily linked to the electricity network for the supply of solar-based electricity.	Government		Administrative instrument	No
105	<i>Jämtland</i> is of the opinion that new hydropower should not be allowed within the framework of green certificates, regardless of size of installations, as so many watercourses are greatly affected.	Government, Swedish Energy Agency		Economic instrument	No
106	<i>Dalarna</i> is of the opinion that, for the expansion of wind power, there is a need for planning and measures to ensure expansion of the electricity network and formulation of regulations that work.	Government, Swedish Energy Agency		Administrative instrument	No
107	<i>Södermanland, Uppsala, Västmanland and Örebro</i> would like to see requirements for rural district grants in connection with major wind-power installations similar to those for hydropower. This may mean that a portion of the production accrues to the municipality or a rural district.	Government		Economic instrument	No

Bioenergy from soil and forest:					
108	<i>Dalarna</i> thinks that the total energy balance of agriculture must be improved. They propose that energy advice to agriculture should become a mandatory task for the county administrative boards and that the support system should be formulated so that local production of biogas, for instance, is encouraged.	Government		Informative instrument	No
109	<i>Västernorrland</i> wishes cultivation for energy use to be made more environmentally sound.	Government, Swedish Board of Agriculture, Swedish Energy Agency		Measure	No
110	<i>Skåne</i> would like to see a national future study of how the changeover of the energy system may affect needs for and demands on arable land. The position of agricultural land as a resource for organic production is weak. It should be examined whether the introduction of national interest for arable land would be appropriate to provide better protection for the best soil.	Swedish Board of Agriculture, Government		R&DD, administrative instrument	No
111	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> would like to see requirements for the cultivation of energy crops to be environmentally sound. It is important that the total energy balance does not lead to a net addition of greenhouse gases. Account also needs to be taken of the natural and cultural assets of the cultivated landscape.	Government, Swedish Board of Agriculture, Swedish Energy Agency, Swedish Environmental Protection Agency, National Heritage Board		Administrative instrument	No
112	<i>Gävle</i> considers it important that there is a long-term strategy to favour domestic production and use of biofuel as the investment costs are very high.	Government		Policy	No
113	<i>Jämtland</i> is of the opinion that increased removal of biomass for energy purposes from the forest necessitates exempting the forests most worthy of protection from forestry.	Government, Swedish Environmental Protection Agency		Administrative instrument	No
Energy technology:					
114	<i>Västerbotten</i> would like to see grants for energy-saving technology and energy technology development projects for wind and solar energy and biofuels so that work is speeded up.	Government		Economic instrument, R&DD	No
115	<i>Gotland</i> would like to see more support for research for small-scale solutions of energy systems and for the production of these.	Government		R&DD	No

Other:					
116	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that existing instruments need to be revised taking a holistic view. Green electricity certificates and emission allowances, for example, need to work together better. Combined heat and power plants today to a large extent report renewable energy for electricity production but still have fossil fuels in their heat production.	Government, Swedish Energy Agency		Economic instrument	No
Public planning, transport:					
117	<i>Skåne</i> wants it to be possible for municipalities and authorities to set requirements for "green transport plans" in connection with new business set-ups, detailed development plans and assessments. A collective grip is then obtained on the transport to which an activity gives rise.	Government, National Board of Housing, Building and Planning, transport authorities		Administrative instrument	No
118	<i>Skåne</i> would also like to see the transport agencies and regional infrastructure planning tasked with creating a readiness to plan for changes to transport systems at short notice to meet severe restrictions on emissions.	Government		Organisational control	
119	<i>Dalarna</i> note that regional and local work on sustainable transport is important and that several counties are undertaking environmentally sound transport systems (MaTs) projects. They propose that a regional collaboration and support function for sustainable transport be made mandatory, with central government funding, primarily through integration with county transport planning. It is judged that the four-step principle can be developed in this way. This can be compared with the sector work of the Swedish Road Administration which forms part of the national road plan. The county administrative board additionally proposes that government agencies be tasked with training municipalities in taking account of transport in their planning.	Government		Organisational control	No
120	<i>Stockholm</i> writes that there are what are known as mobility management measures in transport policy as a complement to infrastructure investments. These are best formulated at regional level and together with the municipalities. At present central government has funding for this in the Swedish Road Administration's national plan. The county administrative board proposes that grant option is instead transferred to the county plans for regional transport infrastructure.	Government		Organisational control	No
121	<i>Kalmar</i> wants to increase the availability of service through good physical planning in rural areas to reduce travel. Increase electronic communication and improve public transport to support those who live in the country and work in town.	Government, several authorities, county administrative boards, municipalities		Measure	No

Road transport:					
122	<i>Gävle</i> wants it to be made possible for employees to utilise the workplace car pool privately. At many places of work there are car pools containing cars, increasingly often green cars, which are principally utilised in day-time. It should be possible for these to be utilised by employees privately. Legislation at present makes this option difficult to exercise. They also propose coordination of passenger transport and environmentally correct classification of green cars.	Government, Swedish Environmental Protection Agency, Swedish Road Administration		Administrative instrument	No
123	<i>Örebro</i> is of the opinion that the rules relating to deductibility of travel to work should be revised. Deductibility should be used as a way of favouring sustainable travel.	Government		Economic instrument	No
124	<i>Jämtland</i> would like to see grants for scrapping. The green car premium will probably contribute to a greater proportion of green cars, on the other hand it is not definite that the environmental benefit will be as great. A greater environmental benefit can be achieved if a grant for scrapping of the most environmentally harmful cars is introduced. This grant can be made so high that it exceeds the car's market value and at the same time is available for a limited time.	Government		Economic instrument	No
125	<i>Västerbotten</i> would also like to see a scrapping premium for older cars.	Government		Economic instrument	No
126	<i>Södermanland, Uppsala, Västmanland and Örebro</i> propose that a programme for energy efficiency improvement in the transport sector equivalent to the Programme for Energy Efficiency Improvement in electricity-intensive industry be introduced. Some form of kilometre tax on heavier and lighter trucks should alternatively be introduced.	Government		Economic instrument	No
127	<i>Västra Götaland</i> proposes a kilometre tax for heavy vehicles.	Government		Economic instrument	No
128	<i>Kalmar</i> wants there to be fossil-free passenger and freight transport and purchasing of green cars to be favoured.	Government		Economic instrument	No
Public transport:					
129	<i>Södermanland and Uppsala</i> are of the opinion that regional players need to strengthen the information provided on the benefits of travelling by public transport and supporting documentation for the municipalities.	County administrative boards, municipalities		Informative instrument	No
130	<i>Skåne</i> proposes that the benefit taxation of public transport tickets be questioned in order to encourage employees to commute by public transport.	Government		Economic instrument	No

131	<i>Västra Götaland</i> proposes investments to make public transport more appealing and adapted to customers. They refer to proposals from the Swedish Road Administration (publication 2004:102).	Government		Economic instrument, administrative instrument	Yes
132	<i>Kalmar</i> wants expanded public transport to be favoured.	Government and other players		Economic instrument, administrative instrument	No
Rail transport:					
133	<i>Gävle</i> considers it vital that rail transport is favoured over road transport. Increased access to transfer centres where freight can be easily moved between boat, train and truck is required. Railway property should be retained when railways are closed down, as forming such property involves considerable work. Instruments are required so that existing industrial tracks are maintained and utilised. They also want it to be made easier to have a national annual season ticket for local transport/rail.	Government, National Rail Administration		Measure	No
134	<i>Västerbotten</i> would like to see grants for the development of an increased proportion of rail transport in the mining and metal industries.	Government, National Rail Administration		Economic instrument	No
135	<i>Dalarna</i> writes that Dalabanan, in terms of volume of traffic, is a slow section of railway line for passenger transport. They regard an investment as important, partly for travel to the mountains.	Government, National Rail Administration		Measure	No
136	<i>Jämtland</i> considers that the trend towards increased long-haul transport by truck must be broken. They would like to see a strong commitment to rail-mounted traffic and faster expansion of high-speed rail to contribute to reduced freight transport by road and reduced passenger transport by air.	Government		Measure	No
137	<i>Södermanland, Uppsala, Västmanland and Örebro</i> want rail capacity to be expanded and instruments that promote freight transport by rail to be introduced.	Government		Measure	No
Renewable vehicle fuels:					
138	<i>Jämtland</i> regards improved distribution of renewable fuels as necessary, as well as continued development. The number of filling stations for E85 is now increasing due to existing legislation, but the transport system of the future will need more fuels, and instruments and targeted grants for continued development for example of biogas are desirable.	Government. Principally filling stations, oil companies (other companies that deliver fuels)		Measure, R&DD, economic instrument	No
139	<i>Dalarna</i> considers there to be need for strong central government support for renewable fuels, both for technology development and for production facilities.	Government		Economic instrument, R&DD	No

140	<i>Skåne</i> would like to see further commitments to the introduction of motor biofuels, for example through targeted incentives for biogas production, filling stations for biogas and incentives for the introduction of biogas vehicles.	Government		R&DD, economic instrument	No
141	<i>Kalmar</i> would like to see more research on alternative vehicle fuels.	Government, Nutek, VINNOVA, Swedish Road Administration, Swedish Energy Agency and others		R&DD	No
142	<i>Gävle, Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that ethanol is not a long-term alternative to petrol and diesel. The first county mentioned would like to see economic instruments for third-generation fuels, combined solutions and fuel-efficient vehicles.	Government		Economic instrument	No
143	<i>Västernorrland</i> would like to see support for development of technology, research and market launch of motor biofuels.	Government, Nutek, VINNOVA, Swedish Energy Agency, Swedish Road Administration etc.		R&DD	No
Other:					
144	<i>Gävle, Skåne, Södermanland, Uppsala, Västmanland, Örebro and Västra Götaland</i> would like to see generally expanded economic instruments in the area of transport (see specific proposals above).	Government		Economic instrument	No
145	<i>Gävle</i> wants it to be possible for requirements for local production to be set in public production, which at present is not the case. Only requirements for organic production can be set.	Government		Economic instrument	No
146	<i>Kronoberg</i> would like to see more powerful instruments for change-over to efficient freight traffic.	Government		Economic instrument, administrative instrument, informative instrument	No
147	<i>Jämtland</i> proposes that all government agencies be given clear instructions to offer distance alternatives for as high a proportion of their own events as possible. Too often seminars are held routinely only with the possibility of attending in person. The civil service should set a trend in using distance technology.	Government, all government agencies		Organisational control	No

CLEAN AIR

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessment
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – BACKGROUND REPORT FOR IN-DEPTH EVALUATION 2008

Proposals needing to be pursued in the EU and other international forums

1	Ports and shipping, including particulate emissions	Government			Yes, in another report.
2	In the negotiations on a new cap directive for the EU, Sweden should actively press for a line that makes it possible to meet the WHO recommendation for levels of ground-level ozone, 100 µg/m ³ , throughout the country.	Government		International work	Yes, in another report.
3	Global agreement to reduce background levels of ozone.	Government		International work	No
4	Continued requirements for emission reductions for machinery and vehicles.	Government	(EET)	International work	Uncertain
5	Increased collaboration in work on climate and air quality.	Government and several authorities	EET	International work	
6	Monitor and set requirements in other relevant EU negotiations such as the Clean Air Directive etc.	Government		International work	

Proposals in environmental policy aimed at Government and Parliament

7	Environmental quality standards action programme.	Government		Measure	
8	Research	Government		R&DD	
9	Give the county administrative boards coordinating responsibility for local/regional work to attain interim targets.	Government		Organisational control	

Proposals in other policy areas aimed at Government and Parliament

10	Tax/charge on use of studded tyres in certain urban areas.	Government	EET	Economic instrument	Yes
11	Differentiated congestion tax with respect to studded tyres.	Government		Economic instrument	Yes
12	Investigation of the economic impact of using studded tyres.	Government		Economic instrument	
13	Environmental classification system for boilers with small-scale wood burning, including environmental charge.	Government	EET	Administrative instrument, economic instrument	Yes, background to report on objective.
14	Public procurement in the government sector, requirements for non-studded winter tyres, for mobile machinery and vehicles with low emissions and energy efficiency.	Government	(EET)	Economic instrument	Yes, in another report.

15	Congestion tax as instrument.	Government		Economic instrument	Yes, in another report.
16	Higher energy tax on diesel and petrol.	Government	EET	Economic instrument	Yes, in another report.
17	Changed benefit rules for cars and motor fuels.	Government	EET	Economic instrument	Yes, in another report.
18	Scrapping of cars without catalytic converters.	Government		Economic instrument	Yes, in another report.
19	Kilometre tax for heavy vehicles	Government	EET	Economic instrument	Yes, in another report.
20	Planning and future.	Government			Yes, in another report.
21	Economic instruments that reduce the NO _x emissions of shipping.	Government	EET	Economic instrument	Yes
22	Investigate exhaust emission requirements/ environmental classification of snowmobiles.	Government	EET	Administrative instrument	No
23	Information campaign for special fuel for snowmobiles.	Government		Informative instrument	No

Proposals not aimed at Government and Parliament

24	Bring studded tyres into definition of green car in local/regional instruments.	Municipalities and others		Measure	Yes, in another report.
25	Differentiated parking charges.	Municipalities		Measure, economic instrument	Yes
26	Environmental zones for mobile machinery.	Municipalities		Measure	Yes, in another report.
27	Improved follow-up of benefit of free parking.	National Tax Board		Measure	Yes, in another report.
28	Expansion of district heating.			Measure	Yes, in another report.

National Maritime Administration

29	Sweden should take initiatives in the framework of HELCOM activity aimed at bringing about requirements for exhaust emission control (nitrogen oxides) for all ferries in the Baltic Sea area.	Government	EET	International work	No
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Swedish Energy Agency – sector report for In-depth Evaluation 2008

30 a	Monitoring and follow-up of air quality programmes from small-scale wood burning should be expanded, so that the extent of the problem is established before further measures are taken.	Government, Swedish Environmental Protection Agency	EET	Measure, R&DD	Yes, sector report.
30 b	The municipalities should be given an opportunity to set requirements in areas where (small-scale) wood burning poses problems.	Government	EET	Administrative instrument	Yes, sector report.

Swedish Civil Aviation Authority – sector report for In-depth Evaluation 2008					
31	Differentiate take-over charge with respect to NO _x emissions at airports with a local air quality problem.	Government, Swedish Civil Aviation Authority	EET	Economic instrument	
County administrative boards					
32	Emissions of NO_x, VOCs and particulates: <i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> write that fulfilment of targets to a great extent is dependent on measures taken in the EU. Stockholm considers emission requirements for mobile machinery to be relevant and the other four that these need to be tightened.	Government		International work	No
33	<i>Dalarna</i> argues that continued decisions in the EU and in Sweden's neighbouring countries are important for air emissions and air quality.	Government		International work	No
34	<i>Jönköping</i> regards the prospects of attaching the environmental quality objective as depending on measures to reduce emissions from the EU's transport sector.	Government		International work	No
35	<i>Kalmar</i> writes that international cooperation is important to reduce pollution.	Government		International work	No
36	<i>Gotland</i> considers it vital for international work on the introduction of tightened requirements in the shipping sector to progress.	Government		International work	No
Environmental quality standards and air monitoring:					
37	<i>Stockholm</i> mentions a reply they have submitted to the Government on supplementary action programmes for nitrogen dioxide and particulates. They write that there is no prospect of establishing an adequately endorsed programme and point to the need for amended legislation. They also state that there is a lack of responsibility for follow-up of measures decided upon.	Government		Administrative instrument	No
38	<i>Dalarna</i> proposes that the county administrative boards be instructed, in collaboration with the air quality management associations, to coordinate work on implementation of the air quality standards for urban area in accordance with what the Swedish Environmental Protection Agency has proposed (report 5407).	Government		Organisational control	No
39	<i>Uppsala</i> considers the role of the county administrative board on air monitoring issues to be unclear. Implementation of the proposal for instance on regional air monitoring programmes submitted to the Government (M2005/1863/Mk) may help in clarifying this role.	Government		Organisational control	No

40	<i>Västra Götaland</i> would like to see more resources and control to facilitate implementation of the programmes of measures for the environmental quality standards so that they become real steps on the way to fulfilling the objective.	Government		Organisational control	No
41	<i>Kronoberg</i> considers there to be a need for a strengthening of the county administrative boards which the MIKSA inquiry has proposed to bring about coherent work on air quality management.	Government		Organisational control	No
Solid-fuel installations:					
42	<i>Södermanland, Uppsala, Västmanland and Örebro</i> consider there to be a need for instruments to replace non-environmentally approved wood-fired boilers without an accumulator tank with more modern technology or district heating. They propose statutory requirements for an environmentally approved boiler and accumulator tank for wood firing. The requirements for the emissions of wood-burning stoves also need to be investigated.	Government		Administrative instrument	No
43	A scrapping premium can be introduced during a transitional period.			Economic instrument	No
44	<i>Jönköping</i> proposes a grant for replacement of older equipment for food burning or tax relief when replacing old burners with a boiler approved for use in urban areas.	Government		Economic instrument	No
45	<i>Kalmar</i> considers that municipalities should have a policy for wood burning in built-up areas.	Municipalities, (Government)		Policy	No
46	<i>Kronoberg</i> is of the opinion that it would be good for present-day conversion grants to be reformulated so that replacement of old wood-fired boilers with environmentally approved ones was also eligible for grant. They refer to positive experience of such grants in the LIP system.	Government		Economic instrument	No
47	<i>Gotland</i> considers that restrictions on small-scale wood burning will have a limited effect there. They consider it considerably more important to influence replacement with better technology through economic instruments. They would like to see continued and expanded grants.	Government		Economic instrument	No
Mobile machinery and transport:					
48	<i>Södermanland, Uppsala, Västmanland and Örebro</i> would like to see emission requirements for mobile machinery in connection with public procurement, which reduces emissions, drives technological development and improves the working environment.	Government, government agencies		Administrative instrument	No
49	<i>Gotland</i> would like to see requirements for better emission control of mobile machinery.	Government		Administrative instrument	No

50	Västra Götaland wants speed restrictions in urban areas to be used as a way of attaining targets for reduced particulates in outdoor air and other targets	Government		Administrative instrument	No
51	Kalmar would like to see more powerful instruments to reduce the use of two-stroke engines.				No
52	Better traffic planning to reduce risks to health.			Measure	No
53	Reduced use of studded tyres to keep particulate levels at an acceptable level.	Municipalities, (Government)		Measure	No

NATURAL ACIDIFICATION ONLY

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessment
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY

– BACKGROUND REPORT FOR IN-DEPTH EVALUATION OF WORK ON ENVIRONMENTAL OBJECTIVES

Reduced emissions from shipping (other environmental quality objectives affected: Clean Air and Zero Eutrophication)					
1	Tightened emission requirements for sulphur.	Government	EET	Administrative instrument	Yes, Natural Acidification Only, Swedish Environmental Protection Agency Annex 6.
2	Emission trading scheme for shipping.	Government	EET	Economic instrument	Yes, see above.
3	Introduction of charge system for nitrogen oxides.	Government	EET	Economic instrument	Yes, see above.
4	Environmentally differentiated shipping support in the EU.	Government		International work	Yes, see above.
5	Government support for emission-limiting measures on ships.	Government	EET	Economic instrument	Yes, see above.
6	Emission requirements on passenger ferries.	Government	EET	Administrative instrument	Yes, see above.

Proposals for instruments in environmental policy for Government and Parliament

Reduced emissions of nitrogen oxides (other environmental quality objectives affected: Clean Air, Zero Eutrophication, Reduced Climate Impact)					
7	Broadening and raising of nitrogen dioxide charge for stationary sources.	Government	EET	Economic instrument	Yes, Natural Acidification Only, Annex 4.
8	Environmentally differentiated Kilometre tax for heavy vehicles	Government	EET	Economic instrument	Yes, see above.

Proposals for instruments in other policy areas for Government and Parliament

Reduced emissions from shipping (other environmental quality objectives affected: Clean Air, Zero Eutrophication, Reduced Climate Impact)					
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9	Tightened environmentally differentiated fairway dues.	Government	EET	Economic instrument	Yes, Natural Acidification Only, Annex 6.
10	Emission requirements for passenger ferries docking in Swedish ports.	Government	EET	Administrative instrument	Yes, see above.
11	Targeted environmental requirements/tender-grading factors in procurement of ships or transport services by ship.	Government	(EET)	Economic instrument	Yes, see above.
12	Environmentally differentiated support for shipping.	Government		Economic instrument	Yes, see above.
13	Improved reporting of level of sulphur in ship fuel and in sold fuel for better data on ships' emissions.	Government		Measure	

Other proposals for measures

Acidifying effects of forestry (Other environmental quality objectives affected: Zero Eutrophication, Sustainable Forests, Flourishing Lakes and Streams, A Rich Diversity of Plant and Animal Life).					
14	Increased ash return in removal of branches and tops in acidified areas.	Swedish Forest Agency, ash producers		Informative instrument, measure	Yes, Natural Acidification Only, Annex 5.
15	Increased and routinely recurring information for heating plants, land-owners and other players on the need for return of ash to acidified forest soil.	Swedish Forest Agency, parties concerned		Measure	No
16	To increase the return of ash to the forest, fewer permits should be granted for landfilling or use of returnable ash other than return.	Swedish Environmental Protection Agency, Government		Administrative instrument	No
17	Measures should be taken that counteract co-firing of pure wood fuels and fuels with higher levels of heavy metals that make the ash non-returnable.	Government, Swedish Environmental Protection Agency, Swedish Energy Agency		Measure	No
18	Increased return of ash can be achieved by imposing some form of landfill tax on the forest industry's ash.	Government		Economic instrument	No
19	Evaluate the significance of the new research findings that indicate greater leaching of nitrogen from cutting in spruce forest than from cutting in deciduous forest.	Swedish Environmental Protection Agency		Measure	No
20	Measures such as screening, buffer zones and increased deciduous admixture should be considered so that measures in forestry do not result in increased leaching of nitrogen and organic substances.	Swedish Forest Agency, players concerned		Measure	

21	Improved statistics on where whole-tree removal takes place and where ash is returned is required in order to be able to follow up a new interim target on the acidification impact of forestry.	Authority responsible for statistics, players concerned		Measure	No
22	It should be ensured that environmental impact assessments linked to acidification impact are made before new methods such as stump harvesting and intensive fertiliser application are permitted on a large scale.	Government, Swedish Environmental Protection Agency		Measure	
23	Quantification of acidification impact on surface water of forestry measures such as increased removal of biomass, return of ash and nitrogen fertiliser application.	Swedish Forest Agency, Swedish Environmental Protection Agency		Measure	No
24	Investigation of potential for measures to screen cutting.	Swedish Forest Agency		R&DD	No
25	Further evaluation is needed of how climate change may affect the state of acidification and the possibility of attaining the environment quality objective. The significance of increasing levels of humus should also be clarified.	Swedish Environmental Protection Agency		R&DD	No
26	It needs to be clarified how the impact of acidification in small watercourses varies in the landscape in order to be able to devise a strategy for monitoring of small watercourses.	Swedish Environmental Protection Agency		R&DD, policy	No
27	Effects of expanded nitrogen fertiliser application on forest land on acidification of groundwater should be investigated.	Swedish Environmental Protection Agency		R&DD	No
28	Further evaluation is needed of how climate change may affect the state of acidification and the possibility of attaining the environment quality objective. The significance of increasing levels of humus should also be clarified.	Swedish Environmental Protection Agency		R&DD	

Revised strategy for the international work of the Swedish Environmental Protection Agency: Clean Air, Zero Eutrophication, Reduced Climate Impact)

29	Sweden's international work on air pollution and acidification has been successful and has made a difference. We should continue to wave the flag. An element in this is revising the strategy for our international work on air pollution.	Government, Swedish Environmental Protection Agency		International work, policy	No
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COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Emissions of NO_x and SO₂:					
30	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> write that measures need to be taken in the EU and internationally to reduce emissions. Measures to reduce emissions by shipping are also important.	Government		International work	No

31	<i>Jämtland</i> argues that Sweden should contribute to continued development of environmental technology to reduce the quantity of acidifying precipitation.	Government and several authorities		R&DD	No
32	<i>Jönköping</i> regards the prospects of attaining the environmental quality objective as being dependent on measures to reduce emissions from the EU's transport sector.	Government		International work	No
33	<i>Kalmar</i> is of the opinion that EU decisions on emission limits for cars and mobile machinery must be established at such a level that the environmental quality objective is attained.	Government		International work	No
Liming and return of ash:					
34	<i>Västra Götaland</i> wants a national action programme against soil acidification to be implemented which includes mineral soil liming in drainage basins particularly at risk where it has been clarified that recovery will not occur naturally in the foreseeable future.	Government		Measure	No
35	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> are of the opinion that the liming grants made by the county administrative boards to local stakeholders are their most important tool for use against the effects of acidification and that continued resources are needed.	Government, Swedish Environmental Protection Agency		Economic instrument	No
36	<i>Jönköping</i> recommends return of ash on fields where removal of biofuel takes place and primarily giving priority to the most acidified areas. They would like to see the necessary resources to get started on measures. In addition they recommend coordinated liming and return of ash to forest soil in the most acidified areas which today are not subject to lake and watercourse liming or where target fulfilment by this is poor.	Government, Swedish Environmental Protection Agency		Measure	No
37	<i>Örebro</i> would like to see increased return of ash to the forest from the burning of pure biofuels.	Parties concerned		Measure	No
38	<i>Blekinge</i> is of the opinion that a commitment to soil liming/return of ash is required in areas with many small lakes with a short turnover time. Most of these are not limed at present. To encourage this, they are of the opinion that liming grants should be paid for projects approved by the county administrative board in relation to the proportion of the used quantity of lime.	Government, Swedish Environmental Protection Agency, county administrative board		Economic instrument, (measure)	No
39	<i>Kalmar</i> is of the opinion that soil liming is required for some waters to be able to recover.	County administrative board		Measure	No
40	In the county of <i>Kalmar</i> the area where ash is returned after removal of branches and tops needs to be substantially increased. It is difficult to find ash producers, the quality of the ash must be improved and all players active in the forest community must become better at informing forest owners about returning ash.	Players concerned, county administrative board, Swedish Forest Agency		Informative instrument	No

41	<i>Västernorrland</i> wants continued resources for liming.	Government, Swedish Environmental Protection Agency		Organisational control	No
Forest management:					
42	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> write that the forestry industry needs to increase the proportion of deciduous trees in the forests where deciduous trees can occur naturally and on forest land where there has previously been a high proportion of deciduous trees.	Swedish Forest Agency, Parties concerned		Measure	No
43	<i>Örebro</i> considers clear rules and supervision to be important to ensure that removal from the forest does not disrupt the chemical and ecological balance. Where branches and tops are utilised there may be a shortage of neutralising substances in forest soil, resulting in increased acidification and lack of nutrients.	Government, Swedish Environmental Protection Agency, Swedish Forest Agency		Administrative instrument	No
Air emissions:					
44	<i>Blekinge</i> would like to see requirements for denitrification of flue gases from biofuel installations, particularly if government or EU support is granted to these. Requirements for removal of nitrogen oxides should also be laid down for "personal diesels".	Government		Administrative instrument	No
45	<i>Kalmar</i> is of the opinion that permits for certain large combustion plants must be re-assessed so that better purification equipment is installed.	Government		Administrative instrument	No
46	Would like to see better technology for converting old cars to vehicles powered by alternative fuels.	Government		R&DD	No
47	<i>Gotland</i> considers it essential to have resources to itemise emissions and current emission sources in the county, as a basis for continued work and prioritisation of efforts.	Government		Organisational control	No
48	<i>Gotland</i> also consider it important to have requirements for purification equipment and choice of fuel in shipping and that requirements are laid down for aviation.	Government		Administrative instrument	No
Cultural heritage:					
49	<i>Kalmar</i> would like to see targeted resources in order to work actively on continued build-up of knowledge and other preventive measures for those parts of the cultural heritage at risk of being destroyed by air pollution.	Government, National Heritage Board		R&DD	No

A NON-TOXIC ENVIRONMENT

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessment
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SWEDISH CHEMICALS AGENCY – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

The environmental quality objective

Proposals for matters to pursue in the EU					
1	1. The Government and the Swedish Chemicals Agency should contribute proposals during future development, review and updating of Reach, pesticides legislation and other rules so that it is in agreement with the intentions of A Non-Toxic Environment, as far as possible (see also proposals under interim targets 1, 2 and 3).	Government	(GRK)	International work	
2	2. The Government should commission the Swedish Chemicals Agency to apply Reach, pesticides legislation and other rules that it is in agreement with the intentions of A Non-Toxic Environment, as far as possible (see also proposals under interim targets 1, 2 and 3).	Government	(GRK)	International work	
3	3. The Government and the Swedish Chemicals Agency should press for cooperation on enforcement in the EU to work well, firstly through a high level of input in the Forum for enforcement issues at the European Chemicals Agency (ECHA) and secondly through the forms of cooperation with the enforcement authorities of other member states promoting effective action against contraventions of the provisions of Reach and other rules.	Government	(GRK)	International work	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals for matters to pursue outside the EU					
4	4. The Government, with the support of affected agencies, such as the Swedish Chemicals Agency and Sida, should contribute to rapid and effective global application of SAICM. This includes contributing to the action paths for implementing important initiatives in SAICM being clarified and pressing for mechanisms to be created to monitor development with regard to implementation.	Government		International work	
5	5. The UN's Commission on Sustainable Development will deal with chemicals in its two-year cycle 2010/11. The Government should press for this work to take place alongside the work on chemicals that takes place globally in SAICM so that the two processes are mutually supportive.	Government	(GRK)	International work	GRK (strategy on non-toxic and resource-efficient eco-cycles) argues on coordination between work on environmental objectives and CSD efforts for improved efficiency in environmental work.

6	6. The Government, with support from Sida and sector authorities, support the implementation of SAICM in developing countries and countries with transitional economies via development assistance. The latter can take place firstly through grants to the Quick Start Programme (QSP), which has been started for SAICM, and secondly through Sweden directly pursuing development assistance projects bilaterally and multilaterally in the area of chemicals.	Government		International work	
Proposals in environmental policy to Government and Parliament					
7	7. The Government should commission VINNOVA (Swedish Agency for Innovation Systems) in collaboration with affected authorities and research funders to draw up a Swedish nanostrategy. This strategy should also contain initiatives for research on health and environmental risks of nanoparticles.	Government	(GRK)	Policy	
8	8. The Government should increase the appropriation for the research funds of the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) for support for research in ecotoxicology.	Government	(GRK)	R&DD	GRK (strategy on non-toxic and resource-efficient eco-cycles) emphasises research with a broader formulation.
9	9. The Government should commission a suitable organisation to support other research which is of particular significance for the prospects of attaining A Non-Toxic Environment, e.g. research on Green Chemistry and on economic instruments (see also proposal 24 under interim target 4)	Government		Organisational control	
Proposals aimed at players other than Government and Parliament					
10	10. The Government should commission affected sector authorities, such as the Swedish Consumer Agency, the Swedish Chemicals Agency, the Swedish Environmental Protection Agency, the Swedish Medical Products Agency etc. to work to also motivate and engage private individuals in efforts to attain A Non-Toxic Environment. The information on the objective of A Non-Toxic Environment should be intensified and made as clear as possible so that the objective becomes better known to the public and guides the environmental efforts of businesses.	Government, authorities		Informative instrument	

Information on health and environmental properties of chemical substances

Proposals for matters to pursue in the EU					
11	1. The Government should commission the Swedish Chemicals Agency to ensure effective examination and evaluation of registration material and test plans to produce data on risks to health and the environment.	Government		Organisational control	

12	2. The Government should commission the Swedish Chemicals Agency to press for efficient work with a high number of assessments of substances. This is of particular importance ahead of and in connection with the adoption of the first rolling plan for the assessment of substances in 2011-2012.	Government		Organisational control	
13	3. The Government should commission the Swedish Chemicals Inspectorate to request a good knowledge base on health and environmental hazards as a basis for proposals for restrictions and other measures in Sweden's own assessments of substances.	Government		Organisational control	
14	4. The Government and the Swedish Chemicals Agency should press for the knowledge requirements for low-volume substances (1-10 tonnes) to be tightened in connection with European Commission reporting in 2012 which is to include an assessment of the requirements for low-volume substances.	Government	(GRK)	Administrative instrument	
15	5. The Government and the Swedish Chemicals Agency should draw up proposals ahead of the Commission's reporting in 2012 on how the knowledge requirements for low-volume substances can be strengthened by the addition of methods that do not use experimental animals and methods that require a smaller number of experimental animals.	Government		Administrative instrument	
16	6. The Government and the Swedish Chemicals Agency should work to raise the level of protection in updates of certain annexes to Reach, for example the one about exposure-based exemptions from the requirement to produce data on hazards to health and environment (review of Annex XI in 2009).	Government		Administrative instrument	
17	7. The Government should propose that the Commission analyses and summarises the current state of knowledge after the various registration runs for the chemical substances covered by Reach.	Government		International work	
18	8. The Government should commission the Swedish Chemicals Agency to press for strict requirements to be set for knowledge of the hazardous properties to health and the environment of nanotechnological substances in order to attain a high level of protection in Reach.	Government	(GRK)	Organisational control, administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
19	9. The Government should commission the Swedish Chemicals Agency to press for test methods and risk assessment methodology to be validated in the OECD and EU for nanotechnological substances.	Government		R&DD	

20	10. The Government and the Swedish Medical Products Agency should press for EU legislation on medicinal products to be supplemented by expanded requirements for the testing of the environmental hazards of active ingredients.	Government, Swedish Medical Products Agency		International work	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
21	11. The Government and the Swedish Medical Products Agency should press for EU legislation on food additives to be supplemented by requirements for the testing of environmental hazards.	Government, National Food Administration		International work	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals for matters to pursue outside the EU					
22	12. The Government should commission the Swedish Chemicals Agency to press for in vitro methods for the testing of the hazardous properties of chemicals to be validated and accepted by the OECD.	Government		International work, R&DD	
23	13. The Government should commission the Swedish Chemicals Agency to press for validation in the EU and in the OECD of methods to assess the properties of chemical substances on the basis of (quantitative) structure-activity relationships, (Q)SAR, i.e. between the chemical structure of substances and their hazardous properties.	Government		International work, R&DD	
24	14. The Government, with the support of the Swedish Chemicals Agency, should press for countries also outside the EU to take responsibility to a greater extent than at present for obtaining knowledge of the hazards to health and the environment of the substances they produce. This can be brought about by pressing for the statements that exist in SAICM on obtaining knowledge to be put into practice.	Government		International work	
Proposals in environmental policy to Government and Parliament					
25	15. The Government should allocate research funds to the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) to support research on the risks to health and the environment of nanotechnology.	Government	(GRK)	R&DD	

26	16. The Government should allocate research funds to the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) to support research which in the longer term promotes the development of test methods that necessitate fewer experimental animals or none at all. The appropriations for this area of research should be maintained at the level that applied over the period 2002–1006.	Government		R&DD	
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Information on dangerous substances in products

Proposals for matters to pursue in the EU					
27	1. The Government should create a national enforcement organisation that provides the necessary basis for effective chemicals supervision and enforcement equivalent to the higher level of aspiration which Reach signifies. This applies to both chemical products and articles and is equivalent to what is required by pesticides legislation.	Government	(GRK)	Organisational control	
28	2. The Government should press for the requirements for information to users on substances of very high concern in articles to be expanded to apply to a larger number of hazardous substances and for consumers to receive the information without needing to specifically ask for it.	Government	GRK	Informative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
29	3. The Government should press for requirements to supply information on environmental hazards posed by substances in cosmetic and hygiene products to be introduced into relevant regulations (addition to the Cosmetics Directive or amendment to Reach).	Government	(GRK)	Administrative instrument	
30	4. The Government should press for rules on the labelling of substances that fulfil the criteria in Reach for PBT/vPvB substances to be introduced into GHS.	Government		Administrative instrument	
31	5. The Government should pursue proposals in the EU that articles treated with biocidal products must be provided with labelling containing information about the biocides.	Government		International work	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.

32	6. When the product directives are revised, the Government should consider pressing for a requirement for information on hazardous substances in articles to be introduced. In addition, the Government should consider pressing for the same requirement to be introduced into the Product Safety Directive.	Government	(GRK)	Administrative instrument	
Proposals to be pursued in international forums					
33	7. The Government and the Swedish Chemicals Agency should work towards awareness and acceptance, among countries that are important exporters of articles to the EU, of requirements for information on the content of hazardous substances in articles. This can be done for example by Sweden introducing ICCM2 and the Swedish presidency of the EU arranging a workshop or a side-event on problems caused by substances emitted from articles through their life. The work should be primarily focused on problems associated with heavy metals and PB substances.	Government		International work	
Proposals in environmental policy to Government and Parliament					
34	8. The Government should introduce requirements for documentation in the form of a building-related log book on what building products are built into buildings. The documentation should follow the building throughout its life.	Government	(GRK)	Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
35	9. Develop the Swedish Chemicals Agency's database Varuguiden with information the content of chemical substances in materials and articles at a general level.	Swedish Chemicals Agency		Measure/informative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals aimed at players other than Government and Parliament					
36	10. The Swedish Chemicals Agency and other affected authorities should encourage businesses, organisations and consumers to demand environmental and health-related information about articles through information, dialogue and various risk-reduction tools.	Authorities		Informative instrument	

Substances of very high concern

Proposals that need to be pursued in the EU					
37	1. Sweden should have preparedness in the form of skills and resources to produce data so that prioritised substances of very high concern are identified and placed on the candidate list for authorisation testing in Reach.	Government		Administrative instrument	
38	2. Sweden should press for testing according to the system of restriction in Reach of prioritised substances of very high concern greatly used in imported articles. This can be done either by Sweden enabling ECHA to draw up material for restriction or Sweden, through the Swedish Chemicals Agency, drawing up the material.	Government		International work	
39	3. In committee work under Reach, Sweden should press for substances without a threshold level for harmful effects to undergo full assessment rather than the simplified procedure. This applies in particular to substances that are used in such a way that humans and the environment may be exposed and to endocrine-disrupting substances. An important time at which to press for this application of the rules is in connection with review of Article 60.3 of Reach in 2013.	Government		Administrative instrument	
40	4. The Government should commission the Swedish Chemicals Agency to press for the practice developed in the processing of applications for authorisation to make strict demands on quality in the applications for authorisation, including the applicant being able to show that use is checked in a satisfactory manner (adequate control). It is also important to have strict quality requirements in the analysis of alternative, substitution plans and economic impact assessments. The assessment of the applications must be strict and requirements for authorisation to be granted must be stringent. Decisions on authorisation must be subject to clear terms and conditions. The Government should also have preparedness to draw up supplementary decision-making material in prioritised cases with support from the Swedish Chemicals Agency.	Government		Administrative instrument, measure	
41	5. In formulating and reviewing the EU's product directives, including what are known as "new approach directives", Sweden should actively press for these to be worded so that they contribute to attainment of the environmental quality objective of A Non-Toxic Environment.	Government	(GRK)	International work	
42	6. Sweden should continue to active so that the EU's mercury strategy culminates in legislation with a high level of aspiration.	Government	(GRK)	International work	
43	7. In the review of the EU's LCP and IPPC directives, Sweden should actively press for as strict rules as possible to be created for emissions of mercury, cadmium and lead.	Government		International work	

44	8. The Government should press for the Commission's proposal for a new regulation on plant protection products not to be watered down during the negotiations in the Council and Parliament with respect to proposed criteria for substances of very high concern.	Government		International work	
45	9. The Government should commission the Swedish Chemicals Agency to press for practice/guidance for highly allergenic substances to be established for application in the areas of plant protection products and biocides.	Government		Administrative instrument	
Proposals needing to be pursued in international forums					
46	10. The Government and the Swedish Chemicals Inspectorate should press for the recommendations in SAICM concerned with reducing production and use of substances of very high concern to be actively applied. For this purpose it is required that the substances that should be covered by special measures to be given priority. Sweden should press for there to be a dialogue with the international research community so that the knowledge the research scientists have is transferred in a practical and usable manner to decision-makers and industry.	Government		International work	
47	11. The Government should commission the Swedish Chemicals Agency, in cooperation within the EU, to continue to identify new candidate substances for the Stockholm Convention and the POP Protocol of the LRTAP Convention and to drive forward the process of incorporating new substances into the convention and protocol. Where necessary, the precautionary principle should be applied in assessing new candidate substances. The Government, with the support of the Swedish Environmental Protection Agency and the Swedish Chemicals Agency, should contribute to bringing about global environmental monitoring of persistent substances.	Government		International work	
48	12. The Government, with support from the Swedish Chemicals Agency and the Swedish Environmental Protection Agency, should press for globally binding instruments to be developed for mercury which should also be open to other metals, primarily cadmium and lead.	Government		International work	
49	13. The Government, with support from the Swedish Environmental Protection Agency, should press for measures to be taken to reduce mercury emissions from the burning of coal in the international forums we take part in and in international contacts and cooperation projects. The Government should also emphasise the aspect of mercury in international work on climate change.	Government		International work	

50	14. Sweden should provide support to other countries, particularly developing countries, and disseminate Swedish experience and knowledge on work to limit mercury, cadmium and lead.	Government		International work	
Proposals in environmental policy to Government and Parliament					
51	15. The Government should initiate a programme for research and development regarding alternatives to substances of very high concern. It should be possible for such a programme to be formulated between affected authorities, research and the business community. The programme can be envisaged as comprising firstly an inventory of existing alternatives to substances of very high concern and secondly efforts to develop alternatives where there are none at present. It should also include dissemination of the knowledge that emerges to various stakeholders.	Government	(GRK)	R&DD	
52	16. The Swedish Chemicals Agency, together with the Swedish Environmental Protection Agency and the Swedish Board of Agriculture should submit proposal to the Government for a national action programme, supported by the thematic strategy for plant protection products, to counteract, partly on the basis of the principle of product choice, plant protection products containing substances of very high concern being used in Sweden and to reduce the dependence on chemicals.	Swedish Chemicals Agency, Swedish Environmental Protection Agency, Swedish Board of Agriculture		Policy	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
53	17. The Government should commission the Swedish Chemicals Agency to act for strong implementation of the Biocides Directive with a phase-out of substances of very high concern in accordance with the criteria of the Directive.	Government		Administrative instrument, organisational control	
54	18. The Government should introduce further restrictions on lead in various products, for instance on lead in fishing weights and in certain consumer products.	Government		Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
55	19. Affected parties and authorities, e.g. municipalities, county administrative boards etc., should collaborate to bring about expanded information for consumers that low-energy lamps contain mercury and have to be collected and press for near-consumer collection of these.	Authorities		Informative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.

56	20. The Government should revise the exemption in Ordinance (1998:944) regarding the use of cadmium and artist's paints, which is no longer justified and should therefore be removed.	Government		Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals aimed at parties other than Government and Parliament					
57	21. Affected parties, such as the Swedish Environmental Protection Agency and the Swedish Chemicals Agency, municipalities and dental surgeries should work towards reduced dispersal of mercury to sludge from dental surgeries. A discussion should be initiated between the Swedish Environmental Protection Agency and industry representatives and independent suppliers of amalgam separators, on the basis of existing agreement, on what further measures are needed.	Authorities		Measure	

Reducing health and environmental risks of chemical substances

Proposals that need to be pursued in the EU					
58	1. The Government and the Swedish Chemicals Agency should press for companies to produce simplified chemical safety reports for low-volume substances.	Government		Administrative instrument	
59	2. The Government and the Swedish Chemicals Agency should press for cooperation on enforcement in the EU to work well, firstly through a high level of input in the Forum for Enforcement Issues at the European Chemicals Agency (ECHA) and secondly through the forms of cooperation with the enforcement authorities of other member states promoting effective action against contraventions of the provisions of Reach and other rules.	Government	(GRK)	International work	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
60	3. The Government should press for articles intended to be used by children and other sensitive groups not to contain substances hazardous to health. This can be done partly by developing requirements in the Toys Directive, but also other legislation.	Government		Administrative instrument	
61	4. The Government should work for the New Approach Directive to deal with hazardous substances in a way that is line with Reach.	Government		International work	
62	5. The Government and affected authorities (involved in the standardisation process) should influence the development of the EuP Directive so that it is ensured that the health and environment aspects in the design of energy-consuming products are also covered.	Government, authorities		International work	

63	6. The Government and affected authorities should work for the principles of substitution and product choice to be sharply worded in the Plant Protection Products Ordinance and in the Biocides Directive when it is revised, and ensure that application of the principles is effective.	Government, authorities	(GRK)	Administrative instrument	
64	7. The Government should press for the Member States to be given sufficient opportunities in the new Plant Protection Products Ordinance to introduce new or retain old action plans intended to reduce risks with and dependence no pesticides without these being limited by rules on authorisation for individual plant protection products.	Government		International work	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
65	8. The Government should press for the development of a thematic strategy for the use of biocidal products with the aim of reducing the risks in the use of and dependence on biocidal products.	Government		Policy	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals to be pursued in international forums					
66	9. In its contacts with developing countries, Sweden should support application of the Rotterdam Convention so that these countries are better able to reduce the trade in hazardous substances, which in turn contributes to reducing the global spread of these substances.	Government		International work	
Proposals in environmental policy to Government and Parliament					
67	11. The Government should develop the Ordinance (1998:901) on self-inspection by operators. The requirements for the listing of products should be amended to also include the presence of hazardous substances and their classification according to safety data sheets.	Government		Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
68	12. The Government should commission VINNOVA to support research on alternatives to substances of very high concern.	Government		R&DD	
69	13. The Swedish Chemicals Agency should investigate the possibility of introducing economic instruments to encourage reduction/substitution of certain substances of very high concern (which are not the object of phase-out under interim target 3).	Swedish Chemicals Agency		Organisational control	

70	14. The Government should revise the economic conditions for small and medium-sized enterprises (SMEs) in the testing procedure for biological pesticides and other advantageous alternatives from the point of view of environment and health (deterrents, pheromones etc.) and investigate the possibility of providing support for the market launch of these.	Government		Economic instrument	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
71	15. The Government should investigate the possibility of providing support for research on biotechnical organisms used for control purposes (microorganisms, viruses, nematodes, insects and arachnids).	Government		R&DD	Annex 3 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
72	16. In action plans for public procurement, the Government should establish objectives for the chemical-related requirements to be considered for product groups that may entail chemical risks. The Government should provide support to the Swedish Environmental Management Council with regard to interpretation of the legislation on public procurement in order to clear away obstacles to purchasers setting requirements relating to chemical risks.	Government		Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
73	17. The Government should encourage technology procurement and in so doing create the necessary conditions for the development of technical products that contribute to a non-toxic environment.	Government	(GRK)	Economic instrument	
74	18. Knowledge is required so that purchasers can set requirements for chemicals that are relevant, effective and capable of being followed up. Guidance and support in this work is requested. In action plans for public procurement, the Government should establish objectives for chemical-related requirements to be considered for certain crucial product groups with identified chemical risks.	Government		Policy	
75	19. The Swedish Chemicals Agency, together with other affected authorities, should work towards chemical aspects receiving greater attention in the design of products so that environmentally sound behaviour can be favoured. There are designers who work on designing products so that environmentally sound behaviour is encouraged.	Authorities		Economic instrument	

76	20. The Government's dialogue Future Trade should be expanded to include suppliers of products intended for children. Manufacturers and retailers of articles intended for children and articles used in the vicinity of children should, to a greater extent, make active efforts to reduce chemical risks to the health of children.	Government		Economic instrument	
77	21. The Government should revise the waste tax and exempt more types of waste from it. Full deduction should be permitted for contaminated earth, all dredging material and asphalt containing coal tar. Bottom ash, fly ash and other flue-gas purification products from waste incineration should be permitted deduction from the tax.	Government	GRK	Economic instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
78	22. The requirements for notification of demolition and demolition plans in the Planning and Building Act should be tightened to make it clear that a demolition plan has to be based on an inventory by an expert on the presence of hazardous waste in the building. The rules should also apply to demolition of part of a building.	Government	(GRK)	Administrative instrument	The measures also included under the environmental quality objectives of A Good Built Environment (page 91, no. 18) and A Protective Ozone Layer (page 40, no. 9). Impact assessment is contained in the background report for A Non-Toxic Environment, Annex 1, page 54.
79	23. There is a need for enforcement authorities and enforcement-guiding authorities to improve enforcement and guidance in the management of construction and demolition waste. This applies primarily to the management of hazardous waste.	Authorities	(GRK)	Informative instrument	
80	24. It is proposed that the Government take initiatives to investigate the prospects of establishing a Swedish institute for sustainable production and use of chemicals. The aim is to speed up development towards sustainable production and use of chemicals, development which the Swedish Chemicals Agency considers to be proceeding too slowly. It should be possible for this institute to represent a centre of expertise for green chemistry and sustainable use of chemicals.	Government	GRK	Organisational control	

Proposals aimed at players other than Government and Parliament					
81	25. Informative instruments should be developed as a complement to coercive instruments. The Swedish Chemicals Agency, in collaboration with other authorities, should develop information to influence certain key groups so that they can disseminate knowledge to a greater extent on what product choices can reduce chemical risks.	Authorities		Informative instrument	
82	26. Work on environmental management systems should be developed by the Swedish Chemicals Agency encouraging industry organisations and educational institutes to train environmental auditors in chemicals legislation and chemicals control.	Swedish Chemicals Agency			

Remediation of contaminated sites

					Annex 2 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
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Proposals in environmental policy to Government and Parliament					
83	1. Good and stable central-government financing of the remediation of contaminated sites is essential for work on targets and to deal with prioritise contaminated sites where no one can be held responsible for measures that are necessary and sustainable in the long term.	Government	GRK	Measure	
84	2. It should be possible for the Swedish Environmental Protection Agency's authorisation limit to be used for operations according to applicable conditions in Annex 1 for the appropriation for remediation and to obtain more secure funding.	Government		Organisational control	
85	3. The remediation insurance in Chapter 33 of the Environmental Code should be revised and developed, so that society does not need to bear the costs of remediation of newly contaminated sites.	Government		Economic instrument	
86	4. State remediation activity should be funded through some form of environmental charge levied on environmentally hazardous activity subject to a duty of notification and licensing. The forms this takes should be investigated.	Government		Economic instrument	
87	5. Ways of making it easier for those responsible to take responsibility for investigations and measures on contaminated sites, for example through a possibility of allocating the expenses to different periods, should be investigated.	Government			

88	6. Clearer and better central control, follow-up, evaluation and development of remediation activity is essential for it to be possible for the work to be carried out in a more resource-efficient way and for the pace of remediation to increase so that the targets can be reached. Resources at the Swedish Environmental Protection Agency should be strengthened.	Government		Organisational control	
89	7. An investigation of organisation and sharing of responsibility for remediation activity should be carried out to see whether the resources can be utilised even more effectively and whether there are tasks which today are not covered by the organisation but could advantageously be so.	Government	GRK	Organisational control	
	(Proposal 8 – see below.)				
90	9. The rules relating to remediation in the Environmental Code should be revised and developed. The aim is firstly for clearer rules to have a greater impact as it is easier to apply them, and secondly for greater legal certainty in the rules.	Government		Administrative instrument	
91	10. To simplify and improve the efficiency of the work of the enforcement authorities, the formulation of B5 and B6 in the Ordinance (1998:900) on Inspection and Enforcement under the Environmental Code should be revised.	Government		Administrative instrument	
92	11. The options for setting more far-reaching requirements for the clean-up of new contamination should be investigated and guidance given with the aim of reducing the incidence of new contaminated sites.	Government			
93	12. The possibility of retaining easily accessible information on suspected and proven contamination with the property should be investigated and developed.	Government			
Proposals in other policy areas to Government and Parliament					
94	8. Government agencies which have given rise to contaminated sites through their activities should be instructed in their appropriation directions to investigate these and, if necessary, take action to deal with them.	Government		Organisational control	
Proposals aimed at parties other than Government and Parliament					
95	13. The municipalities should take account of known and suspected occurrences of contaminated sites in their comprehensive planning and other planning under the Planning and Building Act, so that the provisions in the Act on health and safety are complied with.	Municipalities		Measure	
96	14. Supply of knowledge through guidance, development efforts, feedback of experience, training and support should be implemented to the extent required to meet the targets.			Measure	

Unintentionally produced substances

Proposals needing to be pursued in the EU and other international forums					
97	1. Sweden should press for the Stockholm Convention and other relevant agreements to be strongly implemented for compliance by the countries that are parties to the Convention.	Government		International work	
98	2. Sweden should continue to contribute to international work on revising risk assessment for dioxins and PCBs, including work on TEF revisions.	Government		International work	
Proposals in environmental policy to Government and Parliament					
99	3. The Government should encourage research on the most sensitive effects, their modes of action, variation in sensitivity between different species and individuals and collaboration between different dioxin-like systems (the TEF system).	Government		R&DD	
100	4. The Government should encourage research on sources for the most significant substances unintentionally formed through human activity.	Government		R&DD	
101	5. The Government should encourage research on environmental and health properties for the most significant substances unintentionally formed through human activity.	Government	(GRK)	R&DD	

Dietary and occupational exposure to cadmium

Proposals needing to be pursued in the EU and other international forums					
102	1. Swedish should press for low limit values for cadmium in phosphorus fertilisers and feedstuffs and if appropriate a tax in the EU and reduced cadmium emissions to the atmosphere.			International work	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
Proposals in environmental policy to Government and Parliament					
103	2. Reduce levels for the supply of cadmium with wastewater sludge to levels presented in the action for the return of phosphorus from wastewater.	Government		Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.
104	3. Draw up a national, scientific risk assessment for cadmium, in which a national tolerable intake (TDI) of cadmium is established.	Government		Policy	
105	4. Continue to develop tools to actually reduce cadmium levels in foods.	Government			

Proposals aimed at parties other than Government and Parliament					
106	5. Encourage the work being done in industry, for example by setting limit values for cadmium in soil and crops and work to reduce cadmium levels in mineral fertilisers, as this highlights cadmium problems for farmers and causes them to demand fertilisers with low cadmium levels, for example.			Administrative instrument	Annex 1 to Documentation for the in-depth evaluation of the environmental quality objective of A Non-Toxic Environment.

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107	Training and information to encourage environmental thinking (among manufacturers of medicinal products, cosmetics and hygiene products)	Medical Products Agency		Informative instrument	No
108	Increased consideration of the environment in European legislation on medicinal products.	Government (to be pursued)		International work	No
109	Promote environmental classification (of medicinal products).	Government, Medical Products Agency and other authorities		Administrative instrument	No
110	Pursue the issue of a Cosmetics Directive that also considers environmental aspects in the EU.	Government		International work	No
111	Investigate the obstacles to trade that national environmental requirements for cosmetics and hygiene products may cause so that the Medical Products Agency can act in accordance with the intentions of the Environmental Code.	Government, Swedish Medical Products Agency		Measure	No
112	Increased consideration of the environment in legislation (with respect to cosmetics and hygiene products).	Government		Administrative instrument	No
113	More and improved environmental risk assessments (for manufacturers of medicinal products, cosmetics and hygiene products).	Medical Products Agency		Measure	No
114	Compilation and electronic availability of data.	Medical Products Agency		Measure	No
115	Continuous follow-up of flows (of medicinal products).	Medical Products Agency		Measure	No
116	Reduced scrapping and improved waste management (of medicinal products).	Medical Products Agency		Measure	No
117	Improved reporting of the contents of product and continuous follow-up of flows (for manufacturers of cosmetics and hygiene products).	Medical Products Agency		Measure	No

NATIONAL FOOD ADMINISTRATION – SECTOR REPORT FOR IN-DEPTH EVALUATION 2008

118	Study the presence of additives, and where appropriate known environmental effects of certain structurally interesting groups of chemicals, including sucralose.	Government, National Food Administration		R&DD	
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NATIONAL RAIL ADMINISTRATION – SECTOR REPORT FOR IN-DEPTH EVALUATION 2008

119	Clean-up/remediation of contaminated sites.	Government, National Rail Administration, Swedish Environmental Protection Agency		Measure	Yes, sector report.
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COUNTY ADMINISTRATIVE BOARDS – BACKGROUND REPORTS FOR IN-DEPTH EVALUATION 2008

Phase-out of chemicals:					
120	Proposals aimed at players other than Government and Parliament	Government		International work	No
121	<i>Dalarna, Jämtland and Jönköping</i> generally emphasise the significance of instruments in the EU and internationally in the area of chemicals.	Government		International work	No
Phase-out of substances of very high concern:					
122	<i>Normative instruments: self-inspection, enforcement etc.:</i> <i>Kalmar</i> considers the legislation at national and international level to be too weak for the national interim targets to be achievable. This also applies to Reach. <i>Kalmar</i> is also of the opinion that the self-inspection ordinance needs to be amended so that the list of the contents of chemical substances in products is made clear.				
123	<i>Gävleborg</i> proposes that the requirements contained in the list of chemicals of the Self-Inspection Ordinance be amended, primarily Section 7 and the list of chemicals. They would like to see requirements for the reporting of chemicals at substance level instead of product level, as at present, and reporting of the list of chemicals made possible in conjunction with the environmental report (SMP).	Government		Administrative instrument	No
124	<i>Skåne</i> proposes an amendment to the Ordinance on the Self-Inspection of Operators so that the current requirements for safety data sheets for products also contain requirements for certain substances classified as hazardous to be indicated. They would also like to see it clarified how the Secrecy Act should be applied when authorities and operators want to stipulate requirements for the content of chemical products.	Government		Administrative instrument	No
125	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> want to strengthen work on inspection and enforcement guidance and information on the phasing-out of substances of very high concern. They would also like to see training on the rules in Reach for enforcement agencies and sector organisations, for greater compliance and legal certainty.	Swedish Chemicals Agency, Swedish Environmental Protection Agency		Informative instrument	No

126	<i>Västra Götaland</i> wants the Swedish Chemicals Agency to be commissioned to actively pursue replacement of substances hazardous to health and the environment. It is important to prepare guidance for the authorities containing information on how phase-out substances are used. The Swedish Chemicals Agency should also pursue agreements with manufacturers and importers on replacement of substances, e.g. triclosan. They also want the Swedish Chemicals Agency to be commissioned to implement strict control of the sale of antifouling paints.	Government		Administrative instrument	No
Informative instruments:					
127	<i>Gotland</i> would like to see funding for a broad campaign on choice of chemicals for the Swedish Chemicals Agency, primarily aimed at two target groups: the general public and industry. This should then be followed up at regional/local level through the enforcement agencies.	Government		Informative instrument	No
128	<i>Kalmar</i> is of the opinion that the information on hazardous products must be improved to bring about a change in the consumer market. They would also like to see information and training for farmers aimed at reducing pesticide use.	Government, Swedish Chemicals Agency, Swedish Consumer Agency, Swedish Environmental Protection Agency, Swedish Board of Agriculture		Informative instrument	No
129	<i>Västra Götaland</i> wants the Swedish Environmental Protection Agency to be commissioned to conduct repeated information campaigns for environmentally sound petrol for boats (alkylate), which reduces emissions of and human exposure to PAHs, benzene, nitrogen oxides and other substances.	Government		Informative instrument	No
130	<i>Skåne</i> proposes a mandatory and consumer-friendly labelling system for articles that contain hazardous substances and are sold to final consumers in Sweden.	Government		Informative instrument	No
131	<i>Västerbotten</i> considers there to be a need for special information campaigns in order to attain the interim targets in A Non-Toxic Environment. Funding is needed for information materials and information campaigns.	Government, several authorities		Informative instrument	No
Economic instruments:					
132	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> feel that economic instructions to phase out the use of hazardous substances is a hitherto untested tool they judge to have great potential, e.g. duties on hazardous substances which should encourage the development of replacement products.	Government		Economic instrument	No

133	<i>Kronoberg</i> considers that support for properties in need of PCB removal might be a measure worth considering, as well as support for the destruction of material containing PCBs in transport.	Government		Economic instrument	No
Other:					
134	<i>Västra Götaland</i> would like to see measures proposed in Action Plan for the Marine Environment (Swedish Environmental Protection Agency, Report 5563) implemented: Incorporate EU directives on certain hazardous substances into Swedish law. Market environmentally sound petrol for boats. Reduce the risks of hazardous antifouling paints. Find hazardous substances in ports. Keep a closer eye on shipping.	Government, several authorities		Administrative instrument, informative instrument, action	No
135	<i>Skåne</i> proposes that it should be examined whether manufacturers, sellers and users of pesticides should be given greater responsibility for general build-up of knowledge on the long-term effects of substances on soil, water and living organisms, for example through enhanced checking of receiving bodies of water.	Swedish Environmental Protection Agency, Swedish Chemicals Agency		Measure	No
136	<i>Kalmar</i> considers that public authorities need to show the way in procurement, so that the proportion of organic food bought increases, for example.	Government, public authorities		Measure	No
137	<i>Gävleborg</i> refers to proposals for measures presented by the county administrative boards at a conference at the Swedish Chemicals Agency in 2006. The following measures were identified:	Government, several authorities		Administrative instrument	No
138	Develop the list of chemicals in self-inspection so that it covers risk assessment.	Government, Swedish Environmental Protection Agency		Administrative instrument	No
139	Compile and investigate the impact of the chemical surveys which the counties have conducted to date and create a common framework for how to proceed.	Swedish Environmental Protection Agency, Swedish Chemicals Agency etc.		Measure	No
140	Targeted resources in order to be able to work on chemicals issues and a non-toxic environment regionally. The county administrative boards need to have designated responsibility and resources for new ways of working, inspection and enforcement, enforcement guidance and information.	Government		Organisational control	No
141	Conduct a training initiative on what A Non-Toxic Environment entails, together with training on Reach aimed at environmental inspectors, operators and consultants.	Swedish Chemicals Agency		Measure	No

142	Develop the work of the Swedish Environmental Protection Agency on chemicals issues.	Government, Swedish Environmental Protection Agency		Organisational control	No
143	Develop the way in which regional and local authorities work on chemicals issues. Build up expertise at each county administrative board, produce tools and guidelines etc.	Government, Swedish Environmental Protection Agency, Swedish Chemicals Agency		Organisational control	No
144	Develop tools for inspection and enforcement in relation to chemicals so that it can be assessed how criteria for the classification of chemical substances have been applied.	Swedish Chemicals Agency, Swedish Environmental Protection Agency		R&DD	No
145	Investigate opportunities for sustainable work on chemicals in relation to the Secrecy Act.	Government		Administrative instrument	No
146	It should be possible for lists of chemicals at substance level to be sent electronically with the environmental report. Possibility of also submitting data for those parts that cover risk assessment more should also be provided.	Swedish Environmental Protection Agency		Measure	No
147	Develop strategy for guide values and implement it.	Swedish Environmental Protection Agency, Swedish Chemicals Agency		Measure, policy	No
148	Develop work on measures to deal with pollution of the aquatic environment and prioritised substances in the Water Directive.	Swedish Environmental Protection Agency, water authorities, Swedish Chemicals Agency		Measure	No
149	Press for sector organisations to a greater extent to be given expert support in risk assessments and substitution.	Government, several authorities		Measure	No
150	Train and develop tools to change the method of work to become more risk-oriented with chemicals and environment in authorities, units and their consultants.	Swedish Environmental Protection Agency, Swedish Chemicals Agency		Measure	No
151	Develop officer/unit support for substitution as a continuation of PRIO.	Swedish Environmental Protection Agency, Swedish Chemicals Agency		Measure	No

Contaminated sites					
152	<i>Coordination, inventory, enforcement etc.: Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> believe that regional coordination in work on contaminated sites needs to be strengthened. Increased long-term approach in inventories, enforcement and investigations of responsibility is needed. They also feel that municipal inspection and enforcement in remediation is of key importance and needs to be strengthened. They also consider a lot of resources to be needed to establish inspection and enforcement responsibility for contaminated sites and clarification to be important.	Government		Organisational control, (economic instrument)	No
153	A review of the rules on storage is required, for example old mine waste, as it is unreasonable to claim individual liability in similar cases.			Administrative instrument	No
154	<i>Örebro</i> would like to see extra appropriations for work on investigations of liability for the county administrative boards. Lack of clarity on liability is relatively common.	Government		Organisational control	No
155	<i>Västra Götaland</i> is of the opinion that funds should be set aside for the clean-up of polluted sites to at least the same extent as in recent years.	Government		Economic instrument	No
156	<i>Gotland</i> is of the opinion that the effort on contaminated sites should continue and that the Swedish Environmental Protection Agency should receive funds to employ more people for administration and support for the county administrative boards and enforcement agencies.	Government		Organisational control	No
157	<i>Kalmar</i> would like to see resources for continued clean-up of contaminated sites and increased inspection and enforcement.	Government		Organisational control	No
158	<i>Västernorrland</i> would like desk officer capacity to be increased for the examination, supervision and administration of government-financed remediation projects. Also long-term funding for work on contaminated sites.	Government		Organisational control	No
Clean-up measures:					
159	<i>Södermanland, Uppsala, Västmanland and Örebro</i> write that very little money has been paid out from the remediation insurance fund and the previous environmental damage insurance fund. This is partly due to the conditions of payment being difficult to meet. The conditions for remediation insurance need to be revised so that environmentally hazardous operations can have confidence in the insurance and so that it will have an environmental benefit.	Government		Administrative instrument	No

160	Örebro wants the requirements for part-financing in connection with the role of responsible authority to be reduced. To enable contaminated sites to be cleaned up where there is no legal responsibility, a responsible authority is needed which undertakes the environmentally hazardous operation that the actual clean-up entails. The requirement of 10% co-financing may signify a large sum of money for a small municipality with large objects for clean-up. It is therefore important that deviation from or amendment of the rule on co-financing should be possible.	Government		Administrative instrument	No
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A PROTECTIVE OZONE LAYER

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – BACKGROUND REPORT FOR IN-DEPTH EVALUATION 2008

1	Prohibition of the use of HCFCs as working media in existing refrigeration, heating and other climate-control systems by 2010. An associated impact assessment of the proposed measure was presented in the government assignment.	Government		Administrative instrument	Impact assessment in previously submitted investigation, see annex in background report.
2	Phase-out of CFCs without change-over to HCFCs. Avoid developing countries becoming trapped in HCFC dependence.	Government		International work	
3	Give developing countries a better opportunity to meet their obligations. There are shortages of resources and too much access to HCFCs on the market at very low prices.	Government		International work	
4	Collaboration between the Kyoto Protocol and the Montreal Protocol so that the rules under the Kyoto Protocol's Clean Development Mechanism (CDM) does not favour the construction of production installations for HCFCs.	Government	(GRK)	International work	
5	Halt the illegal trade in CFCs. The trade is facilitated by production which still remains. There are no requirements for regulation of the use of installations that already exist.	Government		International work	
6	It is important that all countries ratify and implement all addenda to the Montreal Protocol.	Government		International work	
7	There is a need for a faster procedure for adding new ozone-depleting substances to the Montreal Protocol.	Government		International work	

8	Limit exempted areas that entail continued production and emissions of ODSs.	Government		Administrative instrument	
9	Requirements for notification of demolition and demolition plans in the Planning and Building Act should be tightened.	Government	(GRK)	Administrative instrument	The measures are also included under the environmental quality objectives of A Non-Toxic Environment (page 28, no. 39) and A Good Built Environment (page 91, no. 18). Impact assessment is contained in the background report for A Non-Toxic Environment, Annex 1, page 54.

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Manufacturing, use and exporting of articles:					
10	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> write that the Government should press for the use of substances that harm the ozone layer to decrease internationally and for exports of articles containing such articles to developing countries to be halted.	Government		International work	No
11	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> write that the use of CFCs and HCFCs is still permitted to some extent and that further restrictions would further reduce emissions. They mention insulation materials and say that the issue must be dealt with in demolition plans. Information measures for a voluntary change-over from products containing ozone-depleting substances to less harmful ones may also be a way of reducing emissions.	Government		Administrative instrument	
12	<i>Västra Götaland</i> wants the proposed measure put together by the Swedish Environmental Protection Agency in 2004 for a ban on the use of HCFCs to be implemented.			Measure	
13	<i>Gotland</i> presents several proposals: Establish level of aspiration regarding collection of freon waste.	Government		Administrative instrument	No
14	Requirements for manufacturers to reduce their use of ozone-depleting products and introduce labelling of products to facilitate waste management.	Government		Administrative instrument	No

15	Develop systems for disposal of existing products.	Authorities		Measure	No
16	Implement a national information campaign and prepare information materials.	National Board of Housing, Building and Planning, Swedish Environmental Protection Agency		Informative instrument	No
17	Clarify through regulations the duty to utilise insulation and other material that contains ozone-depleting substances	National Board of Housing, Building and Planning, Swedish Environmental Protection Agency		Administrative instrument	No
18	Implement information campaigns on replacement of fire extinguishing agents	National Board of Housing, Building and Planning, Swedish Environmental Protection Agency, Swedish Rescue Services Agency		Informative instrument	No
19	Devise instruments for access to the smaller installations (<10kg).	Government		Administrative instrument, economic instrument	No
20	Give the Ecocycle Council for the Building Sector responsibility for drawing up guidelines on Freon waste in the building sector, as proposed previously by the Swedish Environmental Protection Agency.			Policy, measure	No
21	<i>Kalmar</i> writes that inventories of the presence of ozone-depleting substances in the county are needed.	Kalmar county administrative board		Measure	No

A SAFE RADIATION ENVIRONMENT

	Proposal	Made to	Presented in strategy	Type of proposal	Comments and reference to impact assessments
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SWEDISH RADIATION PROTECTION AUTHORITY – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

1	<p>Effects on plants and animals should also be assessed when assessments are made of the effects of ionising radiation on human health caused by emissions of radioactive substances from operations.</p> <p>To enable such an assessment to be made the Swedish Radiation Safety Authority should drive ahead work aimed at reaching international consensus on methodology and criteria to assess the risk of harmful effects on plants and animals.</p> <p>The Authority and relevant authorities should then assess the risks from existing operations. This is in order to determine the need for further regulation of activities.</p> <p>In addition, the new authority should include environmental protection issues in the revision or preparation of new regulations or general guidelines.</p>	Government (Swedish Radiation Safety Authority), operators		Organisational control (measure, international work, legal instrument)	Yes
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Interim target Disposal of radioactive waste

2	Inquiry on final disposal and intermediate storage of non-nuclear radioactive waste.	Government	GRK	Organisational control	Yes
3	Draw up national waste plan for all radioactive waste.	Government	GRK	Organisational control, R&DD	Yes
4	Long-term retention of information for final disposal of long-lived radioactive waste. The Government, or the authority proposed by the Government, should press for an international archive to be created under the Joint Convention on the Safety of Spent Waste Management.	Government		International work	Yes

Interim target Incidence of skin cancer

5	<p>Strengthen the responsibility of the authorities for preventive efforts. It should be written into the appropriation directions of the following authorities that they are to work actively to reduce human exposure to UV radiation:</p> <ul style="list-style-type: none"> • The Swedish Work Environment Authority with regard to increasing awareness of exposure to UV radiation in the working environment and drawing up guidelines for reducing occupational exposure. • The National Board of Housing, Building and Planning in cooperation with the National Board of Health and Welfare and the National Institute of Public Health regarding recommendations and support for municipalities and operators in planning and designing playgrounds and preschool and school yards. 	Government		Organisational control	Yes
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6	The Government should commission the Swedish Radiation Safety Authority to investigate the possibility of introducing a limit of 18 years of age for solarium tanning in solarium facilities for the general public.	Government		Organisational control	Yes
7	The Swedish Radiation Safety Authority should press for knowledge on UV radiation, risks and ways of protecting oneself to be introduced into basic training for preschool and leisure activity personnel, teachers in grades 1 to 7 and paediatric healthcare personnel.	Government (Swedish Radiation Safety Authority), operators		Organisational, control, measure	Yes
8	Cooperation with mediators – authorities at central, regional and local level should develop cooperation with relevant mediators.	Other authorities		Measure	Yes
9	The county councils should press for more examinations of naevi (birthmarks) to be carried out.	County councils		Measure	Yes
10	The Swedish Radiation Safety Authority should take the initiative to develop an indicator that monitors the UV exposure of children.	Swedish Radiation Safety Authority		R&DD	Yes

Interim target Exposure to electromagnetic fields

11	The Government should commission the Swedish Work Environment Authority to conduct a survey of exposure to EMFs in the area of the working environment.	Government		R&DD, organisational control	Yes
12	The Government should commission the Swedish Radiation Safety Authority, the National Board of Health and Welfare and the Swedish Work Environment Authority, in their appropriation directions, to provide training for personnel in the municipalities, county administrative boards, work environment districts and major employers on EMFs and health risks. The new authority for radiation protection and nuclear safety and the National Board of Health and Safety should, in their capacity as guiding enforcement, prepare a manual for the municipalities and county administrative boards on EMFs and health. The Swedish Work Environment Authority should do the same for work environment districts and major companies.	Government, other authorities		Organisational control, informative instrument	Yes
13	The Government should give the Swedish Council for Working Life and Social Research (FAS) an expanded role in the monitoring of research electrical sensitivity to also cover research on cases of the difficulties faced by the group of people who have electrical sensitivity. This work should be done in cooperation with affected authorities and experts in environmental medicine.	Government		R&DD, organisational control	Yes
14	The Swedish Radiation Safety Authority should formulate an environmental monitoring programme for public exposure. The programme should cover various applications of EMFs in different types of environments, indoors and outdoors in different parts of the country.	Swedish Radiation Safety Authority		Measure	Yes

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Nuclear safety:					
15	<i>Dalarna, Södermanland, Uppsala, Västernorrland, Västmanland and Örebro</i> would like to see work on increased nuclear safety and stress the importance of monitoring this internationally.	Government, affected authorities		International work	No
16	<i>Södermanland, Uppsala, Västmanland and Örebro</i> consider national campaigns on the risks of sunbathing to be important and want the Swedish Radiation Protection Authority to continue with its work on children and adults in the proximity of children. National campaigns can be strengthened by local initiatives.	Government, Swedish Radiation Safety Authority		Informative instrument	No
17	<i>Västra Götaland</i> considers there to be a need for special information campaigns aimed at parents with short training courses on the importance of protecting their children against strong sunshine.	Government, Swedish Radiation Safety Authority		Informative instrument	No
18	<i>Kalmar</i> would like to see increased information initiatives to break the trend towards increasing numbers of cases of skin cancer and considers that the municipalities need instructions on more active inspection of solaria.	Government, Swedish Radiation Safety Authority		Informative instrument	No
19	<i>Kalmar</i> would also like to see inventory resources for a county overview regarding the use of radioactive substances.	Government		Organisational control	No
20	Finally they feel that the need for zones free from electromagnetic radiation needs to be investigated.	Government, Swedish Radiation Safety Authority		R&DD	No

ZERO EUTROPHICATION

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
	<p>SWEDISH ENVIRONMENTAL PROTECTION AGENCY – BACKGROUND MATERIAL FOR IN-DEPTH EVALUATION 2008</p>				<p>The impact assessments are contained in separate annexes to the background reports.</p>

The Common Agricultural Policy (CAP)

1	Sweden should continue to press for the reforms in agricultural policy and the eastward enlargement of the EU to lead to reduced plant nutrient leaching and reduced emissions of nitrogen compounds to the air in all member states.	Government		International work	No
2	Sweden should also continue to press for the Nitrates Directive and the IPCC Directive to be fully implemented in both old and new member states.	Government		International work	No

3	In accordance with the decision taken at the high-level meeting of representatives of the Ministry of Agriculture in Saltsjöbaden in April 2007, Sweden should press for the "health check" to be made on EU CAP 2008 to result in further measures to reduced impact on marine areas around Sweden.	Government		International work	No
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Strategy for international work on air quality management

See measures under Natural Acidification Only, interim target Emissions of nitrogen oxides

Strategies for marine work in the EU and the regional marine conventions

4	Revise the action programme for agriculture.	Government		International work	Yes
5	Reduced working of cultivated land	Swedish Board of Agriculture	(HUM)	Measure	Yes
6	Make permanent or increase acreage of catch crops.	Swedish Board of Agriculture	(HUM)	Measure	Yes
7	Making the acreage where the soil is worked in spring permanent at 100,000.	Swedish Board of Agriculture		Measure	Yes
8	Setting aside 100% of the land in sensitive areas for permanent fallow land.	Swedish Board of Agriculture		Measure, administrative instrument	Yes
9	Establishing buffer zones on land at risk of erosion.	Swedish Board of Agriculture, Swedish Environmental Protection Agency	(HUM)	Measure	Yes
10	Increasing the regionalisation of wetland support.	Swedish Environmental Protection Agency		Economic instrument	Yes
11	Using ponds as phosphorus traps.	Swedish Board of Agriculture, municipalities		Measure	Yes
12	Using lime filter drains	Swedish Board of Agriculture, municipalities		Measure	Yes
13	Regulating drainage	Swedish Board of Agriculture, municipalities		Administrative instrument, measure	Yes
14	Reducing the phosphorus content of animal feed-stuffs.	Swedish Board of Agriculture		Measure	Yes
15	Research and development on phosphorus losses from agricultural land.	Government, Swedish Board of Agriculture		R&DD	Yes
16	Drawing up plans for single-household sewage systems and introducing targeted grants.	Government, municipalities	GRK	Policy	Yes

17	Establishing a knowledge centre, conducting information campaigns and producing general advice and a handbook on single-household sewage systems	Swedish Environmental Protection Agency, municipalities	GRK	Informative instrument	Yes
18	Introducing quality assurance, certification of skills and certification of individual installations in the field of single-household sewage systems.	Swedish Environmental Protection Agency, municipalities		Measure	Yes
19	Using mussel cultivation for purification purposes.	Swedish Environmental Protection Agency, municipalities		Measure	Yes

NATIONAL MARITIME ADMINISTRATION – SECTOR REPORT FOR IN-DEPTH EVALUATION 2008

20	Support voluntary efforts to improve the prospects of boats keeping toilet waste onboard and leaving it onshore at a receiving station.	Government, National Maritime Administration municipalities		Measure, informative instrument	No, possibly in previous communication.
21	Improve toilet service on shore (for those on board boats)	Government, National Maritime Administration municipalities		Measure	No, possibly in previous communication.

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Exporting "Focus on Nutrients":					
22	<i>Stockholm</i> proposes that the Government presses for the exporting of the "Focus on Nutrients" project to other countries bordering the Baltic Sea, to reduce runoff of nutrients from agriculture. The county administrative board is conducting a preliminary study.	Government		International work	No
Emissions from transport:					
23	<i>Jönköping</i> writes that the prospects of attaining the environmental quality objective depend on measures to reduce emissions from the EU's transport sector.	Government		International work	No
Sewage treatment plants and sewer networks:					
24	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> want requirements to be introduced for nitrogen purification stages in larger sewage treatment plants, including inland, equivalent to those that exist in the coastal areas as nitrogen may also contribute to eutrophication problems in lakes and significant proportions also reach the coast..	Government, Swedish Environmental Protection Agency		Administrative instrument	No

25	<i>Örebro</i> considers it important to press for increased ways of utilising phosphorus from sewage.	Swedish Environmental Protection Agency etc.		Measure	No
26	<i>Västra Götaland</i> would like to see support for research and development efforts to recycle phosphorus from sewage.	Government, Swedish Environmental Protection Agency		R&DD	No
27	<i>Dalarna</i> considers that support for the renovation of pipe networks should be provided for municipalities that have particular problems with older sewer systems.	Government		Economic instrument	No
Single-household sewage systems:					
28	<i>Dalarna</i> proposes that economic instruments, e.g. grants, should be introduced to make single-household sewage systems environmentally sound. Government technology development support functional alternatives to WCs should also be introduced as instruments to encourage the introduction of such systems.	Government		Economic instrument	No
29	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> feel that work on single-household sewage systems needs to be strengthened by certification with requirements for training for contractors who install single-household sewage systems. Increased resources are also needed for the municipalities for work on the issue, most of them argue.	Government, Swedish Environmental Protection Agency, National Board of Housing, Building and Planning, municipalities		Measure, administrative instrument	No
30	<i>Västra Götaland</i> considers that government grants for coastal municipalities with a great need to clean up their water and wastewater systems should be considered. Increased permanent residence and inadequate knowledge, as well as there being many old undersized systems, mean that single-household sewage systems in some areas account for a large proportion of the nutrient load.	Government		Economic instrument	No
31	<i>Blekinge</i> proposes grants or tax relief for the replacement of older and/or undersized single-household sewage systems. Also that a requirement should be introduced into the Ordinance on Single-household sewage Systems that these be designed so that it is possible to check efficiency of treatment and consequently to follow up specified emissions requirements. Finally that the municipalities be commissioned to make an inventory of single-household sewage systems and that related information be updated in the property register. It should be made possible for the municipalities to apply for government grants for this.	Government		Economic instrument	No

32	<i>Kronoberg</i> would like to see collaboration with municipalities on single-household sewage systems.	County administrative boards, municipalities		Measure	No
33	<i>Kalmar</i> considers that the legislation must be tightened and applied better with regard to stricter treatment requirements for single-household sewage systems. Increased inspection is required and it should be possible to obtain grants to improve treatment.	Government		Administrative instrument, (economic instrument)	No
34	<i>Jönköping</i> would like to see targeted support to the municipalities for inventories of single-household sewage systems, which are needed for implementation.	Government		Economic instrument	No
35	<i>Gotland</i> considers that the issue of single-household sewage systems must be highlighted, private individuals must be motivated for replacement and deal with their own sewage	Government, Swedish Environmental Protection Agency, county administrative boards, municipalities		Informative instrument, measure	No
Agriculture:					
36	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> want work on advice to farmers, for example "Focus on Nutrients" to be strengthened as an important instrument to reduce nutrient leaching.	Swedish Board of Agriculture, county administrative boards		Informative instrument	No
37	<i>Dalarna</i> consider that advice on reduced phosphorus leaching in agriculture must be developed and that the southern agricultural area of Dalarna should be immediately included in existing systems of support and programmes of measures.	Swedish Board of Agriculture, county administrative boards		Informative instrument, economic instrument	No
38	<i>Skåne</i> proposes a ban on the spreading of slurry in the autumn in certain sensitive areas to counteract eutrophication.	Government, Swedish Board of Agriculture		Administrative instrument	No
39	<i>Kalmar</i> considers there to be a need for increased support for investment and use of shallow injection of slurry into ley.	Government, Swedish Board of Agriculture		Economic instrument	No
40	<i>Värmland</i> would like to see a change in the setting of limits for measures in environmental support for agriculture and the "Focus on Nutrients" project. In Värmland there is a need for measures along the shore of Lake Vänern, where there are serious problems with eutrophication. The environmental support for buffer zones, catch crops and spring working of the soil, and the "Focus on Nutrients" project do not at present include Värmland, which they feel should be amended so that the whole of the area adjoining Lake Vänern in Värmland is covered. Alternatively the above grants can be made needs-based.	Government, Swedish Board of Agriculture		Economic instrument, administrative instrument	No

41	<i>Kalmar</i> would like see continued good environmental payments to reduce nutrient leaching from agriculture, for example buffer zones and catch crops. In addition, introduction of environmental payment for regulatable drainage on suitable soils.	Government		Economic instrument	No
Buffer zones:					
42	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> feel that the rules for buffer zones need to be reviewed so that bushes and trees are allowed to become established in the zone. The levels of support, which have recently been cut back, also need to be raised. The vegetation also benefits biological diversity.	Government, Swedish Board of Agriculture		Economic instrument	No
43	<i>Kronoberg</i> would like to see advice to agriculture on buffer zones alongside watercourses.	Swedish Board of Agriculture, county administrative boards		Informative instrument	No
Wetlands:					
44	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> consider wetland strategies to be an important instrument, on the basis of a landscape perspective, to optimise work on the protection and restoration of wetland areas and establish wetlands and small lakes in the cultivated landscape.	Government, Swedish Board of Agriculture		Policy	No
45	To motivate landowners to establish wetlands to a greater extent and in the "right place" there is a need for increased provision for payments.			Economic instrument	No
Other:					
46	<i>Västra Götaland</i> would like to see measures in Action Plan for the Marine Environment (Swedish Environmental Protection Agency, Report 5563) implemented: Find the areas that cause most eutrophication in the sea. Fix the worst discharges first. Make it easy to choose the right detergent. Help farmers to retain phosphorus. Create right wetland in right place. Convince about need to reduce nitrogen emissions to air. Reduce emissions to air from shipping.	Swedish Environmental Protection Agency, Swedish Board of Agriculture		Measure	No

47	<i>Jönköping</i> wants support for running source-distribution model to survey causes of eutrophication in areas with serious problems. The measures should be implemented in cooperation with municipalities and water organisations. The county administrative board would like to see a course on source-distribution models from research scientists and others. They also point to the importance of lakes with high phosphorus and nitrogen levels being restored. Work on these measures is under way but is expensive. They consider one way of resolving this to be using remediation funds.	Swedish Environmental Protection Agency, Swedish Board of Agriculture, county administrative boards		Measure	No
48	<i>Kalmar</i> would like to see research on ways of lowering the pH value of slurry and urine, which reduces ammonia release. They consider that the statistical models for ammonia emissions must be improved and adapted to type of livestock and the fact that production per cow has increased.	Government, Swedish Board of Agriculture, Swedish Environmental Protection Agency		R&DD	No

FLOURISHING LAKES AND STREAMS

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – MATERIAL FOR IN-DEPTH EVALUATION 2008

1	Introduce requirements for analysis of purification requirements with hydrological investigation ahead of any purification in areas with endangered species of valuable habitats.	Government and Parliament	HUM	Administrative instrument	No
2	Investigate possibility of introducing ploughing-free zones along watercourses in the cultivated landscape, in line with SKS proposal for driving-free zones in the forest.	Swedish Board of Agriculture	HUM	Measure	No
3	Review and amend the Environmental Code so that introductory sections on consideration of the environment clearly cover Chapter on water activity and so that requirements for analysis of purification requirements are set forth in Chapter 11.	Government and Parliament		Administrative instrument	No
4	Draw up regional long-term plans for long-term conservation of natural and cultural environments.	County administrative boards	HUM	Policy	Yes
5	Establish conservation targets for each particularly valuable site.	County administrative boards		Measure	Yes
6	Four "conservation plans" are drawn up per county over the period 2011-2015 and develop the way of working.	County administrative boards	HUM	Measure	Yes

7	Develop subject-by-subject guidance for conservation measures in valuable environments other than Natura 2000 sites.	Swedish Environmental Protection Agency, National Heritage Board, National Board of Fisheries		Informative instrument	Yes
8	Implement proposed changes for biotope protection of aquatic environments in ordinance on site protection.	Government and Parliament		Administrative instrument	No
9	At least 250 nature reserves with limnic purposes, of which 50 municipalities are to have been decided on.	County administrative boards	HUM	Measure	Yes
10	On the basis of nature conservation aspect review and revise purposes, limitations, regulations and maintenance plans in at least 50 existing nature reserves or national parks with particularly valuable limnic environments.	County administrative boards	HUM	Measure	Yes
11	Decide on at least 200 biotope protection sites with link to limnic environment in areas with aquatic environments of particular national value.	County administrative boards	HUM	Measure	Yes
12	Establish at least 50 nature conservation agreements and other agreements in civil law.	County administrative boards	HUM	Measure	Yes
13	Decide on at least 40 water-related cultural reserves, of which 5 municipal.	County administrative boards	HUM	Measure	Yes
14	At least 40 new cultural environments are to be protected under Planning and Building Act.	County administrative boards	HUM	Measure	Yes
15	Decide on at least 20 new listed buildings.	County administrative boards	HUM	Measure	Yes
16	Analyse the needs for supplementary conservation measures for the specific values of cultural environments in 50 nature reserves or national parks which also constitute sites of particular national interest for cultural environment interest.	County administrative boards, National Heritage Board		R&DD	Yes
17	Care and maintenance of 100 cultural environments of particular value in and alongside lakes and watercourses not covered by the long-term protection instruments of care of the cultural environment. The National Heritage Board is commissioned to investigate the possibility of new instruments and forms of agreement for the above.	County administrative boards, National Heritage Board		Measure	Yes
18	Field inventory and overarching analysis of limnic natural assets in site of particular value or sites with very high natural assets.	Swedish Environmental Protection Agency		Measure	Yes

19	Commission the Swedish Environmental Protection Agency, the National Board of Fisheries and the National Heritage Board to review RI (national inventory) with regard to freshwater environments of particular value.	Government		Measure	Partially
20	Draw up a 5-year plan for the restoration work.	County administrative boards	HUM	Policy	Yes
21	Establish conservation targets for valuable sites that are to be restored	County administrative boards		Policy	Yes
22	Other provisions in Chapter 11 of the Environmental Code with respect to management of old permits for water operations and rules for legal costs in the review of water operations.	Government	(HUM)	Administrative instrument	Yes
23	Introduce rules that whoever takes over a permit is obliged to notify the inspection and enforcement authority accordingly.	Government		Administrative instrument	No
24	Strengthen the resources and competence of the county administrative boards and the Legal, Financial and Administrative Services Agency to speed up the review of water operations and to improve enforcement by the county administrative boards.	Government	(HUM)	Organisational control	Yes
25	Develop the Swedish Meteorological and Hydrological Institute (SMHI) register of dams into a web-based register of dams and migration obstacles with direct accessibility and editability for the county administrative boards and water authorities.	SMHI, Swedish Environmental Protection Agency, county administrative boards, water authorities		Measure	No
26	Develop guidance on management of water operations that do not have permits or have old permits.	Swedish Environmental Protection Agency		Administrative instrument, informativt	No
27	Other provisions in Chapter 11 of the Environmental Code with respect to management of old permits for water operations and rules for legal costs in the review of water operations.	Government	(HUM)	Administrative instrument	No

28	Restoration in nationally valuable sites.	Swedish EPS, National Board of Fisheries, county administrative boards, Swedish Road Administration, National Board of Housing, Building and Planning, Swedish Forest Agency, local fish conservation associations	HUM	Measure	Yes
29	Survey incorrectly located culverts.	Swedish Road Administration, Swedish Forest Agency, National Rail Administration		Measure	No
30	Investigate whether the government grant to private road can be made conditional on required measures.	Swedish Road Administration		Economic instrument	No
31	Initiate courses and targeted information to private road managers, forest owners and agency personnel.	Swedish Road Administration, Swedish Forest Agency		Informative instrument	No
32	Set targets for removal of incorrectly positioned culverts in state transport network.	Swedish Road Administration, Swedish Road Administration, Swedish Forest Agency		Policy	No
33	Make it a condition that the construction of a forest road must pay sufficient environmental consideration to aquatic organisms.	Government, Swedish Forest Agency		Administrative instrument	No
34	Investigate whether the term national interest for drinking water supply includes the actual occurrence of surface water and not just "areas for installations for water supply" If the occurrence of surface water is not covered by the term, the Environmental Code should be amended in this respect.	Government		Administrative instrument	No
35	The county administrative resources strengthen their resources for work on water protection area for surface and ground water sources by between 0.2 and 0.5 persons per year.	Government, county administrative boards	HUM	Organisational control	Yes

36	Develop a system for pricing emissions to surface water.	Government and Parliament		Economic instrument	No
37	Develop follow-up of alien species via the species portal.	Most authorities, ArtDatabanken (species database)		Measure	No
38	Investigate whether the international portals GBIF (Global Biodiversity Information Facility) and FishBase can be used in collating information on dispersal of species.	ArtDatabanken (species database), National Board of Fisheries		Measure	No
39	Initiate training and coordination between fisheries conservation consultants to monitor the strategy for release of fish more effectively.	National Board of Fisheries, county administrative boards	HUM	Informative instrument (competence etc.)	No
40	Disseminate information targeted at grade and public on risks of and with dispersal of alien species.	National Board of Fisheries, county administrative boards, Swedish Board of Agriculture	HUM	Informative instrument	No
41	Reinforce efforts to counter illegal release and unintentional dispersal through information, monitoring and tightened supervision.	National Board of Fisheries, county administrative boards, Swedish Board of Agriculture	HUM	Measure	No
42	Establish a register of fishing-free area.	National Board of Fisheries, county administrative boards		Measure	No
43	Form new fishing-free areas and designate reference areas for monitoring of the effects of fishing.	National Board of Fisheries, Swedish Environmental Protection Agency		Measure	Partially
44	Classify lakes and watercourses according to effect of vulnerability to releases.	National Board of Fisheries, county administrative boards		Measure	No

45	Prioritise physical fish-conserving measures over compensatory release.	Environmental Court, National Board of Fisheries, Legal, Financial and Administrative Services Agency, county administrative boards, power companies		Measure	No
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NATIONAL HERITAGE BOARD

46	Strengthen the work of the county administrative boards on conservation of historical assets.	Government		Organisational control	
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COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Inventory, protection and restoration of aquatic environments:					
47	<i>Gävleborg</i> proposes for nature conservation work for lakes and watercourses a strengthening of administrative capacity of at least 20 person-years and increase in funding for purchase of land. This is judged necessary to attain interim target 1. Using funds for forest protection to protect buffer zones of aquatic environments worthy of protection means that forest which does not have particularly high natural assets in itself is purchased.	Government		Organisational control	No
48	<i>Västernorrland</i> would like to see funds for restoration of all waters and not just, for example, limed watercourses. Also an adjustment of Chapter 3 Section 8 of the Environmental Code, to make possible national interest classification of areas for water supply.	Government		Administrative instrument, organisational control	No
49	<i>Västra Götaland</i> would like to see more resources for restoration work and broader purpose. Efforts at present are limited to fisheries conservation or measures in limed waters. They also consider there to be a need for expanded action time in restoration projects to which funding has been granted. At present the time within which a project must be completed is often shorter than one year. It ought to be possible for the county administrative board to decide on an authorisation limit from which funds are paid out over a longer period. They would also like to see more resources for the county administrative boards to support municipalities and other responsible authorities in work to restore watercourses. At present the possibility of efforts by local responsible authorities is a limiting factor. Finally they would like to see a national thematic inventory of lakes and watercourses.	Government		Organisational control, (measure)	No

50	<i>Örebro</i> considers that for it to be possible to protect aquatic environments it is very important to work on a drainage basin basis and strengthen work both between authorities and with other parties. Various protection instruments also need to be combined for satisfactory protection.	Most authorities		Organisational control	No
Cultural environment assets in aquatic environments:					
51	<i>Västerbotten</i> would like to see funds for restoration of old floatways. Restoration and conservation of cultural environments is a conflict in itself that must be resolved, they write.	Government		Organisational control	No
52	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> consider that the knowledge base on objects of historical value in or alongside waters is inadequate, which makes work on protection and conservation more difficult.	Most authorities		R&DD/build-up of knowledge	No
53	<i>Västra Götaland</i> would like to see financial resources for renovation and maintenance of historical assets in and alongside lakes and watercourses.	Government		Organisational control	No
54	<i>Kalmar</i> writes that the municipalities must become better at using area regulations and detailed development plans to conserve valuable historic buildings in limnic environments. They write that many relics at watercourses are not classified as ancient relics and lack long-term legal protection. They consider there to be a need for more inventories and gathering of knowledge in the area of the cultural environment. Better knowledge of cultural environments is required for it to be possible for natural environments to be restored.	Municipalities, most authorities		Organisational control, build-up of knowledge	No
Water judgments:					
55	<i>Värmland</i> proposes strengthened legislation with regard to the review of hydro power plants and dams, and that resources should be provided to pursue review cases. They write that the authorities' resources to pursue review cases are very limited. In addition, existing dams and power plants often have outdated permits or completely lack water judgments. The legislation should be amended so that review is made easier and is made mandatory, with the aim of all significant water installations having to have a modern water judgment in which environmental responsibility for the operators is made clear. At the same time, the county administrative boards and/or the Legal, Financial and Administrative Services Agency must be given increased resources so that review cases can really be pursued.	Government		Administrative instrument, organisational control	No
56	<i>Gävleborg</i> would like to see clearer legislation on water judgments:	Government		Administrative instrument	No

57	Increased resources for the Legal, Financial and Administrative Services Agency to work on the review of water judgments. The county administrative board today has very little say and the Legal, Financial and Administrative Services Agency has far too few resources.	Government		Organisational control	No
58	Clear definition of "acceptable minimum water discharge".	Environmental Protection Agency, Government		Measure	No
59	Minimise conflict between government grants for expanding small watercourses for electric power and government water conservation, and electricity certificates should be able to encourage the power companies to invest in solutions that work both for hydropower and for fish migration. Measures that improve prospects for animals in watercourses are counteracted by central government, which provides grants for the expansion of watercourses for electric power. It is important that there is consensus in central government on how water conservation work should be pursued.	Government		Administrative instrument, coordination of instruments	No
60	<i>Skåne</i> considers that the resources for review of water judgments should be expanded that the regulations for review should be simplified.	Government		Administrative instrument	No
61	<i>Dalarna</i> proposes that a more general and possibly simplified review of water judgments be carried out. The review should be carried out water system by water system, starting in valuable waters.	Government		Administrative instrument	No
62	<i>Västra Götaland</i> consider there to be a need for resources to review current permits for water operations, e.g. by opening up the possibility of financing of review through the grant for biological diversity.	Government		Administrative instrument	No
63	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> consider that a requirement for permits under the Environmental Code should be introduced for example for regulation in the same way as for environmentally hazardous activity. Many water judgments are very old and often contain outdated conditions which would need to be revised.	Government		Administrative instrument	No
Economic instruments:					
64	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> propose that compensatory charges be paid in conjunction with regulation and that payments for the restoration of wetlands, for example, should be coordinated with funds on a drainage basin basis. The resources can in that way be used for prioritised measures in this area.	Government		Economic instrument	No

65	<i>Stockholm</i> proposes that the possibility of grants to redress the effects of eutrophication and physical disturbance in lakes and watercourses be investigated. The grant would apply to measures where the polluter-pays principle cannot be applied. There is already an equivalent grant with regard to redressing the biological effects of acidification, the liming grant. It would be desirable for the counties themselves to be able to prioritise where measures are to be taken.	Government		Economic instrument	No
66	<i>Skåne</i> proposes the introduction of a national investment programme for water conservation for municipal and local water investments.	Government		Economic instrument	No
Other proposals:					
67	<i>Skåne</i> proposes long-term initiatives to preserve biological diversity and attain good water status in lakes and watercourses. This can be done in several ways, and it is proposed that incentives can be introduced on a staged basis for: a) increased construction of overflow zones along lakes and watercourses b) preservation or new construction of zones with trees along lakes and watercourses c) generally expanded no-spray zone with regard to pesticides alongside lakes and watercourses d) introduction of minimum buffer zones along lakes and watercourses in agricultural districts.	Most authorities, incl. county administrative boards		Measure	No
68	<i>Södermanland, Uppsala, Västmanland and Örebro</i> propose the introduction of a duty of consultation for water treatment, which makes it possible to lay down conditions that reduce the environmental effects.	Government, Swedish Environmental Protection Agency		Administrative instrument	No
69	<i>Gotland</i> argues that the work started under the Water Directive must be given stable and increased resources. Conservation of the historic environment and fisheries conservation have been greatly neglected in comparison with nature conservation.	Government		Organisational control	No
70	<i>Kalmar</i> argues that the Swedish Board of Agriculture and the Swedish Forest Agency must take greater responsibility for limnic environments. Also that migration routes for fish should be created or restored.	Swedish Board of Agriculture, Swedish Forest Agency		Measure	No

GOOD-QUALITY GROUNDWATER

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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GEOLOGICAL SURVEY OF SWEDEN – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

1	The Geological Survey of Sweden (SGU) proposes that the Government commission the National Board of Housing, Building and Planning, in consultation with the water authorities, the Swedish Association of Local Authorities and Regions, the Swedish Environmental Protection Agency and SGU, to draw up guidance on how public planning should be pursued for a long-term sustainable water supply.	Government	HUM	Policy, organisational control	Yes
2	SGU proposes that the Government commission the county administrative boards to draw up regional water supply plans by 2015.	Government	HUM	Policy, organisational control	Yes
3	SGU proposes that the Government ensure that the design of the system of rules for water and geothermal wells is simplified.	Government		Administrative instrument	Yes
4	SGU requests the Government urgently to consider SGU's proposals on the monitoring of groundwater.	Government		Measure	Yes
5	SGU proposes that the Government add the environmental quality objective of Good-Quality Groundwater in the Swedish Board of Agriculture's appropriation directions to the environmental quality objectives to which special attention is to be paid with regard to environment-improving measures and reporting of effects.	Government		Measure	Yes
6	SGU proposes that the Government investigate the pricing of emissions to groundwater and surface water according to the requirements of the Water Framework Directive.	Government		Economic instrument	No
7	SGU proposes that the Swedish Environmental Protection Agency in consultation with SGU and other affected authorities supplements parts of the manual for a water protection area.	Government		Organisational, control, Measure	Yes
8	SGU proposes that the Swedish Environmental Protection Agency in consultation with SGU develop parts of the guidance for landfills.	Government		Organisational, control, Measure	Yes
9	SGU proposes that the Swedish Road Administration, in consultation with SGU, investigate impact on groundwater from roads with respect to metals and organic substances and if necessary take long-term sustainable measures.	Government		Organisational control, build-up of knowledge	Yes
10	SGU proposes that the Swedish Rescue Services Agency investigate responsibilities, risks and measures in clean-up during and after an accident with regard to impact on groundwater. Consultation should take place with the Swedish Environmental Protection Agency and SGU.	Government		Organisational control, build-up of knowledge	Yes

11	SGU intends, on the basis of the guidance for water and geothermal well boring and in consultation with the industry, to carry out an information initiative aimed at everyone who notifies or applies for a permit for a water or geothermal well, partly with the aim of increasing demand for certified well borers.	Geological Survey of Sweden (SGU)		Informative instrument	No
12	SGU intends to propose that measures that reduce the risk of nitrates and pesticides in the groundwater be included in the "Focus on Nutrients" project and intends to take part in this work.	Geological Survey of Sweden (SGU)		Informative instrument	No
13	SGU intends, in collaboration with water authorities and county administrative boards and other affected authorities, to devise a long-term strategy for the implementation of protection of groundwater.	SGU, water authorities, county administrative boards		Policy	No
14	SGU intends to launch a national information initiative on protection of groundwater.	Geological Survey of Sweden (SGU)		Informative instrument	No
15	SGU intends to continue to support the county administrative boards in the work on the groundwater objective at regional level.	SGU, county administrative boards		Measure	No
16	SGU has drawn up an overall assessment of the areas in which the risks in boring and subterranean works can affect groundwaters are particularly great. Problems may arise in these areas with ground stability or poor groundwater quality if groundwater levels change. SGU intends to proceed with information to municipalities, county administrative boards and water authorities about how the risk areas can be demarcated with greater precision and what monitoring or restrictions may be needed.	SGU, county administrative boards, water authorities		Measure	No
17	SGU otherwise intends to strengthen its information activity by offering training in its course activities on groundwater for administrative staff in water and wastewater, environment, emergency planning and other planning at county administrative boards, municipalities and other authorities.	Geological Survey of Sweden (SGU)		Informative instrument	No

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Coordination and distribution of responsibility:					
18	<i>Gävleborg</i> argues that the role of the county administrative boards with regard to groundwater issues in relation to SGU should be changed. They consider it unreasonable that SGU should serve all the country's municipalities. In most areas the county administrative board acts as a link between central and local government. With regard to groundwater issues the county administrative board at present ends up "outside". If the Water Directive is to become a powerful tool and work on the environmental objective to improve, there is a need for more collaboration between municipalities and county administrative board.	Government		Organisational control	No

19	<i>Kalmar</i> is of the opinion that the distribution of responsibility between county administrative board and municipalities with regard to collation of knowledge must be made clearer.	Government		Organisational control	No
Water protection areas and water protection planning					
20	<i>Kalmar</i> is of the opinion that the municipalities should actively protect their drinking-water assets.	Municipalities		Administrative instrument	No
21	<i>Skåne</i> wants the needs and conditions to be fulfilled for government-financed support aimed at municipalities wishing to protect groundwater, e.g. by buying up land or long-term contracts.	Government		Economic instrument	No
22	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that the pace at which water protection areas are established needs to be increased if the target is to be met. Clear assignments and more resources need to be given to the county administrative boards for this work.	Government		Organisational control	No
23	<i>Stockholm, Södermanland and Uppsala</i> write that the county administrative boards in cooperation with municipalities and water producers need to draw up a water supply plan for the county concerned and that this is crucial if the environmental quality objective of Good-Quality Groundwater is to be met. Also that this should be implemented in collaboration with the county's water administration. An obstacle to implementation of the measures is judged to be limited resources for the county administrative boards and municipalities.	Government		Organisational control	No
24	<i>Blekinge</i> draws attention to the need for guidance on the preparation of water supply plans so that the municipalities are assisted in their work. They are of the opinion that the municipalities should draw up municipal water supply plans and where appropriate in cooperation with neighbouring municipalities.	Government, Swedish Environmental Protection Agency, county water authorities		Informative instrument	No
25	The municipalities should prioritise the work of devising and establishing water protection areas.	Municipalities		Organisational control	No
26	The Planning and Building Act and the Water Administration Ordinance need to be coordinated. There is a lack of clarity at present on how they collaborate.	Government		Administrative instrument	No
27	They would like to see financial support for the municipalities in implementing the environmental quality objective.	Government		Economic instrument	No
28	<i>Västra Götaland</i> is of the opinion that the possibility of declaring a groundwater source to be of national interest for water supply should be introduced into the Environmental Code.	Government		Administrative instrument	No

29	<i>Jönköping</i> wants the water protection areas to be included in work on the municipal comprehensive plans. They also propose that new protection areas for the general groundwater sources that lack protection be established no later than 2010.	Government, Swedish Environmental Protection Agency, county water authorities		Administrative instrument	No
30	They would like to see a national campaign aimed at the municipalities which contains training and information.	Government		Informative instrument	No
31	The municipalities also need more resources.	Government		Economic instrument	No
Changes in the groundwater level:					
32	<i>Blekinge</i> would like to see mapping of saltwater intrusion due to overextraction of groundwater in coastal areas. Also an inventory of groundwater extraction in areas sensitive to overextraction. They write that there is a great need today for information on the extent of the problems and that sensitive areas need to be clearly identified in comprehensive plans. These issues can be partly addressed by the county administrative board provided sufficient resources are set aside.	Geological Survey of Sweden (SGU)		Measure	No
Quality requirements for groundwater:					
33	<i>Blekinge</i> is of the opinion that the quality requirements for drinking water from municipal water treatment plants and private wells should be identical that there is a need for coordination here between the drinking water regulations of the National Food Administration and the National Board of Health and Welfare precautions for drinking water. They are of the opinion that the quality requirements for drinking water should be revised to ensure that the requirements are adapted with respect to the impact on children, for example with regard to intake of environmental toxins.	National Food Administration, National Board of Health and Welfare		Measure	No
34	The National Food Administration can specify mandatory sampling of raw water for water treatment plants, which would provide a far better knowledge base.	National Food Administration		Administrative instrument	No
35	They would like to see increased sampling of groundwater through information campaigns targeted at households with a private water supply.	SGU and other authorities		Informative instrument	No
36	<i>Södermanland, Uppsala, Västmanland and Örebro</i> propose that requirements for sampling and reporting of the quality of raw water and not for finished drinking water be introduced. Expanded sampling duty leads to the possibility of building up a system for the monitoring of groundwater/surface water. The samples from the waste sources can be supplemented, if necessary, with more stations.	Government, National Food Administration, SGU		Administrative instrument, measure	No

37	<i>Örebro</i> proposes a survey of areas in which there is an increased risk for example of high levels of metals, radioactive substances, environmental toxins or nitrates. This can be used as a basis for advice to private well owners and measures to improve drinking water quality.	SGU, National Food Administration		R&DD/survey	No
38	<i>Västra Götaland</i> is of the opinion that drinking water should be emphasised as an area of activity in food policy. They also see a need to coordinate Swedish water administration with other standards for drinking water quality.	Government		Organisational control, administrative instrument	No
39	<i>Kalmar</i> would like to see better targeted information concerning chemicals management to those active in water protection areas.	Swedish Chemicals Agency; Swedish Environmental Protection Agency, county administrative boards and other authorities		Informative instrument	No
40	<i>Västerbotten</i> would like to see follow-up of arsenic in bored wells.	Geological Survey of Sweden (SGU)		Measure	No
Enforcement (supervision):					
41	<i>Stockholm, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> are of the opinion that the protection areas are not sufficient to protect the quality of groundwater and that enforcement of the rules in the area is also required. Responsibility for enforcement may need to be clarified.	Government		Administrative instrument, organisational control	No
42	<i>Jönköping</i> proposes a project on "chemicals management in a water protection area". Greater resources and a national enforcement campaign for chemicals management are required for it to be possible for this to be implemented.	Government, Swedish Chemicals Agency, Swedish Environmental Protection Agency		Administrative instrument	No

A BALANCED MARINE ENVIRONMENT, FLOURISHING COASTAL AREAS AND ARCHIPELAGOS

	Proposal	Proposal aimed at	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – MATERIAL FOR IN-DEPTH EVALUATION 2008

1	Marine mapping and inventory for increased knowledge of marine biological diversity.	Government and Parliament, Swedish Environmental Protection Agency, SGU, SMHI, National Board of Fisheries, National Maritime Administration, county administrative boards		Direct measure	Yes, in annex to background ground for the environmental quality objective.
2	Clarification of legislation and areas of responsibility for administration and nature protection in economic exclusion zone.	Government		Organisational control, administrative instrument	
3	Develop and implement working method for long-term conservation through "conservation plans".	Government		Organisational control	Yes
4	Continued targeted economic support for the county administrative boards for formation of new marine nature reserves and review of existing coastal reserves.	Government		Direct measure (economic instrument)	Yes
5	Coordination of national network, classification and assessment of needs for protection for different habitats in the network, and definitions of favourable conservation status for habitats not included in the Natura 2000 network.	Government, Swedish Environmental Protection Agency, county administrative boards, municipalities		Organisational control	Yes
6	Draw up management plans for designated Baltic Sea Protected Areas (BSPA) by 2010.	County administrative boards, Swedish Environmental Protection Agency		Direct measure, organisational control	
7	Preparation of region-transcending action programme for disturbed habitats, e.g. key environments for fish spawning and nursery areas.	County administrative boards, National Board of Fisheries, Swedish Environmental Protection Agency		Policy	Yes

8	Summarise experiences and conclusions from ongoing and completed projects and assignments that wholly or partially relate to planning and collaboration process for sustainable development of coastal and archipelago areas. Provide a basis for continued work on integrated coastal zone management.	Government		Organisational control	Yes
9	Work on municipal comprehensive plans and regional development programmes for coastal and archipelago areas in all coastal and archipelago areas. By 2015 the work should be under way in the whole coastal area and be implemented in a first cycle in the most expansive coastal areas from Bohuslän to Malmö and the Stockholm region. The cooperation with the municipalities in implementing the water authorities' action programmes needs to be developed.	Government		Organisational control	Yes
10	Coordinate different forms of support to the benefit of the unique assets of the archipelago.	County administrative boards, Government		Direct measure	Yes
11	Safeguard cultivated landscape and buildings in protected areas. Support and training for contractors for care of buildings and landscapes in and outside protected areas. Establish cultural reserves for a selection of cultural environments. Endeavour to ensure that local labour is used for maintenance to boost trade and industry in the archipelago.	Government		Organisational control, Direct measure	Yes
12	Training and spreading of knowledge. Access to antiquarian skills and resources to work on environmental issues and outdoor activity issues in coastal and archipelago municipalities needs to increase. Regional natural and cultural environment programmes need to be updated.	County administrative boards, National Heritage Board, municipalities		Direct measure	Yes
13	Ratify the International Ballast Water Convention. Implementation of the Convention and assistance in the development of technical systems for treatment of ballast water need to be strengthened in affected authorities.	Government		Organisational control	No
14	Targeted monitoring programmes against alien species including in existing monitoring programmes and development of a reporting system. There is no international standard for the monitoring of alien species, nor indicators, measuring methods and bases of assessment specifically designed for alien species and genotypes. There should be one or more specific authority bodies that receive finds and reports of damage and compile reports.	Swedish Environmental Protection Agency		Direct measure	Central government cost of around SEK 1m.

15	Information for the shipping sector. Strategy for training and creating awareness of rules and effects regarding dispersal of alien species is needed.	Swedish Environmental Protection Agency, National Maritime Administration		Policy, informative instrument	No
16	"Fishing for litter" – fisherman deal with the waste they catch in their fishing gear. Fishermen are offered voluntary participation in a fishing-for-litter action along the whole west coast.	Government		Direct measure	No
17	Expansion of toilets and reception service in leisure craft marinas and at other heavily visited places.	Municipalities, county administrative boards, Archipelago Foundation, stakeholder organisations etc.		Direct measure	Yes, in annex to background ground for the environmental quality objective.
18	Information campaigns to leisure craft owners and the general public. Combine several different information needs into a common activity. The Swedish Environmental Protection Agency, the National Maritime Administration and the county administrative boards draw up joint information for the designated areas of consideration, noise, waste etc.	National Maritime Administration, Swedish Environmental Protection Agency, county administrative boards		Informative instrument	
19	Prosecution of offences (oil spills). Also desirable to make it easier for foreign vessels that discharge oil in Swedish waters to be the subject of legal proceedings.	Government		Administrative instrument	No
20	Reduce discharges of hydrocarbons from leisure craft. Use alkylate petrol in two-stroke engines and more environmentally sound 2-stroke oils for leisure craft. Lower the price, increase availability, inform.	Government		Economic instrument, Informative instrument	Yes, in earlier assignments
21	Increase knowledge of the effects of underwater noise. Increase knowledge on the effects of acoustic disturbance to marine organisms. This is in line with the international work of the Swedish Environmental Protection Agency in both HELCOM and ASCOBANS.	Swedish Environmental Protection Agency, National Board of Fisheries, National Maritime Administration		Direct measure, R&DD	

22	Designation of sensitive coastal and archipelago areas Introduce "Consideration Areas" with noise restrictions. The county administrative boards should draw up proposals for sensitive coastal and archipelago areas.	National Maritime Administration, county administrative boards		Direct measure, administrative instrument	
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NATIONAL BOARD OF FISHERIES – SECTOR REPORT FOR IN-DEPTH EVALUATION 2008

23	Alternative forms of management are to replace the current quota system in the longer term.	Government, National Board of Fisheries	HUM	Administrative instrument	Yes, annex to sector report.
24	Co-administration is to provide increased local influence.	Government, National Board of Fisheries		Administrative instrument	Yes, annex to sector report.
25	All Swedish waters are to be zoned with respect to permitted fisheries activity.	Government, National Board of Fisheries		Administrative instrument	Yes, annex to sector report.
26	The rules for access to the resource are to be reformed to govern fishing more clearly.	Government, National Board of Fisheries	HUM	Administrative instrument	Yes, annex to sector report.
27	Active influence in the EU system is to bring about greater acceptance of Swedish views.	Government		International work	Yes, annex to sector report.
28	Action plan for reduced by-catches of marine mammals and birds.	National Board of Fisheries, Swedish Environmental Protection Agency	HUM	Policy	Yes, annex to sector report.
29	Excess capacity in affected fisheries to be phased out according to an adaptation plan.	National Board of Fisheries	HUM	Policy	Yes, annex to sector report.
30	Improved fisheries control to be achieved through effective routines and technical monitoring of fisheries.	National Board of Fisheries		Measure	Yes, annex to sector report.
31	A region-transcending action report for disturbed habitats such as key environments for fish spawning and nursery grounds to be developed by 2010.	National Board of Fisheries		Policy	Yes, annex to sector report.
32	Knowledge of fisheries and ecosystem-based management is to increase	Government		Informative instrument	Yes, annex to sector report.
33	Selective fishing methods and gear are to be developed and put into effect in fisheries.	National Board of Fisheries	HUM	R&DD	Yes, annex to sector report.
34	Investigation with proposals for better estimates of leisure and semi-commercial fishing.	National Board of Fisheries		Measure	Yes, annex to sector report.
35	Continued development of fishing gear	National Board of Fisheries	HUM	R&DD	Yes, annex to sector report.

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Implementation of measures in programmes and action plans:					
36	<i>Blekinge, Södermanland, Stockholm and Uppsala</i> state that in 1979 they presented a collective programme on archipelago environmental and management issues on behalf of the Government. Measures targeted at the Government, Parliament and central government agencies are proposed in this and have not yet been implemented. Several of these are highly topical.	Government		Measure	No
37	<i>Västra Götaland</i> would like to see measures in Action Plan for the Marine Environment (Swedish Environmental Protection Agency, Report 5563) implemented: Protected endangered deep-sea fish.	Government, National Board of Fisheries		Measure	No
38	Regulate the number of days of fishing.	Government		Administrative instrument	No
39	Preserve certain fishing for passive gear.	Government, National Board of Fisheries		Administrative instrument	No
40	Introduce fishing account for more stable economics.	Government		Economic instrument	No
41	Start vocational training for fishermen.	Government		R&DD/Training	No
42	Improve the coordination of measurements.	Government		Organisational control	No
43	Review secrecy concerning water depth.	Government		Administrative instrument	No
44	Improve availability of environmental data.	Government, several authorities		Action, organisation control	No
45	Supplement knowledge of water depth.			R&DD/build-up of knowledge	No
46	Examine geology and chemistry of seabeds.			R&DD/build-up of knowledge	No
47	Designate authority responsibility for open sea.	Government		Organisational control, policy	No
48	Create a proactive international agenda.	Government		International work	No
Fisheries and fisheries management:					
49	<i>Gotland</i> is of the opinion that long-term sustainable fishing to a great extent requires changes in the administration of the fishing industry. EU fisheries policy to date has not succeeded in creating a credible platform. A targeted policy that takes account of cod stocks and their significance for the whole of the Baltic Sea and measures to promote small-scale coastal fishing are required.	Government		Policy, International work	No

50	<i>Gotland</i> would like to see a stronger commitment to fisheries management in both coastal areas and freshwater.	Government, National Board of Fisheries		Measure	No
51	<i>Kalmar</i> is of the opinion that there is a need for solution to the problem that the areas were a ban on fishing would have the greatest effect are often in international waters.	Government		International work	No
52	In addition, <i>Kalmar</i> considers that the knowledge base regarding important recruitment grounds for fish and shallow sea areas off the coast must be improved.	Government, National Board of Fisheries		R&DD/build-up of knowledge	No
53	<i>Kalmar</i> also wants production of and information on ecolabelled fish to be promoted.	National Board of Fisheries		Informative instrument, measure	No
54	<i>Skåne</i> wants to limit trawling in more large sea areas to protect valuable seabed environments and reduce undesirable by-catches.	National Board of Fisheries, Government		Measure/administrative instrument	No
Inventories and protection:					
55	<i>Gävleborg</i> would like to see, for nature protection in marine environments, the addition of three person-years to administrative capacity for inventory and 20 person-years for formation of reserves and increased funding for purchasing of areas of land. This is judged necessary for the target to be attained by 2010.	Government		Organisational control	No
56	<i>Kalmar</i> is of the opinion that the inventory and knowledge base regarding valuable cultural environments in coastal areas and archipelagos is deficient.	Government, National Heritage Board		R&DD/build-up of knowledge	No
57	The municipalities should use area regulations and detailed plans to conserve valuable historic buildings etc. in the coastal and archipelago areas.	Municipalities		Measure	No
58	<i>Västerbotten</i> would like to see funds for the protection of marine environments as they consider the Swedish Environmental Protection Agency's current appropriation for reserve protection to be insufficient.	Government		Organisational control	No
59	In addition, <i>Västerbotten</i> would like to see an inventory and follow-up of cultural environments on the coast.	National Heritage Board		R&DD/build-up of knowledge	No
Other views:					
60	<i>Gotland</i> is of the opinion that the action plan being drawn up must become a tool to regulate and minimise disturbance in sensitive coastal and archipelago areas.	Government		Policy	No

61	<i>Värmland</i> wants the environmental quality objective of a Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos to also cover Lake Vänern. The interim targets that apply to the environmental quality objective, with some exceptions, are relevant. However, Lake Vänern is not covered by the environmental quality objective and the resources provided for protection and action programmes.	Government, Swedish Environmental Protection Agency		Policy	No
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THRIVING WETLANDS

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – MATERIAL FOR IN-DEPTH EVALUATION 2008

1	Investigate the impact of climate change on wetlands and possible adaptations.	Swedish Environmental Protection Agency, SMHI, researchers		R&DD	No
2	Research on how restoration and recreation of different types of wetlands and aquatic environments in the drainage basin can buffer water flows; effects of restoration measures on greenhouse gas flows and suitable methods to avoid increased emissions of greenhouse gases as well as the effects of bundling and regulating of watercourses.	Swedish Environmental Protection Agency, SMHI, researchers		R&DD	No
3	Restore wetlands in the forests.	Swedish Forest Agency, county administrative boards		Measure	No
4	Plan for wetlands and waters in forestry.	Swedish Forest Agency, Swedish Environmental Protection Agency, landowners		Measure	No
5	Improve consideration in forestry – information and training	Swedish Forest Agency, forestry industry		Informative instrument	No
6	Improve consideration in forestry – strengthened advice.	Swedish Forest Agency		Informative instrument	
7	Improve consideration in forestry – revised rules on consideration	Government, Swedish Forest Agency		Administrative instrument	
8	Improve consideration in forestry – possibility of prosecution under Section 38 of the Forestry Act.	Government		Administrative instrument	No
9	Improve consideration in forestry – nature conservation agreements.	Swedish Forest Agency, county administrative boards		Administrative instrument	No

10	Coordinate forest roads – duty of consultation for forest tracks.	Government	(HUM)	Administrative instrument	
11	Coordinate forest roads – contribution to collaboration on and planning of forest roads.	Government and Parliament, Swedish Forest Agency, landowners	(HUM)	Economic instrument	
12	Provide information that cross-country driving on sensitive land should be avoided.	Swedish Forest Agency, county administrative boards		Development of expertise/informative instrument	No
13	Groups exempted from the ban on driving on bare ground should draw up cross-country driving plans together with the county administrative board.	Government, county administrative boards, reindeer industry, forestry industry		Measure/policy	No
14	Clear ditches and watercourses with consideration – review of legislation and strengthened enforcement.	Government		Administrative instrument	No
15	Increased resources to the authorities so that they work on the supervision of water operations in a satisfactory manner.	Government		Organisational control	No
16	Clear ditches and watercourses with consideration – training, advice and guidance.	Swedish Forest Agency, Swedish Board of Agriculture, Swedish Road Administration, Swedish Environmental Protection Agency, county administrative boards		Informative instrument	No
17	Clear ditches and watercourses with consideration – planning, develop the log for inventory of ditches and weighing up of production and nature conservation benefit in the Living Forest Waters project.	Swedish Forest Agency, landowners		Measure	No
18	Clear ditches and watercourses with consideration – survey and collation of current knowledge.	Swedish Forest Agency		Measure	No
19	Investigate financial payment as compensatory measure.	Government, Swedish Environmental Protection Agency		Economic instrument	No

20	Implement the revised mire protection plan, long-term protection of the 381 mires which according to the revised mire protection plan remain to be protected.	County administrative boards, Swedish Environmental Protection Agency, Swedish Forest Agency		Measure	See below.
21	Implement the revised mire protection plan, strengthened resources in county administrative boards.	Government		Organisational control	
22	Conduct inventory of and utilise wetland cultural environment assets – inventory of cultural traces.	County administrative boards, National Heritage Board		Measure/ build-up of knowledge	Yes
23	Conduct inventory of and utilise wetland cultural environment assets – strengthening of work of county administrative boards	Government		Organisational control	Yes
24	Preserve the Ramsar sites.	Government and Parliament, Swedish Environmental Protection Agency		Measure	No
25	Revise the guidelines for management of the Swedish Ramsar sites.	Swedish Environmental Protection Agency		Administrative instrument	No
26	Manage and restore protected sites, analyses of needs to form the basis for planning, cost calculations and prioritisation of management and restoration of protected wetlands.	Swedish Environmental Protection Agency, county administrative boards		Measure	
27	Construct and restore wetlands, including restoration of eight large wetlands over 150 ha.	County administrative boards, Swedish Board of Agriculture, Swedish Environmental Protection Agency		Measure	
28	Draw up planning material for construction and restoration, continued resources for county administrative boards.	County administrative boards		Measure	
29	Essential that national funds for outreach activity and coordination are also earmarked over the next few years to supplement the rural areas programme.	Government, county administrative boards		Informative instrument	

30	Carry out deficiency analyses for biological diversity, the Swedish Board of Agriculture's deficiency analysis for red-listed wetland birds should be followed by analyses of other groups of animals and habitats as a basis for which types of wetlands should be restored and in which areas.	Researchers, Swedish Board of Agriculture, Swedish Environmental Protection Agency		R&DD	No
31	Make possible land planning and land replacement.	Government		Administrative instrument	No
32	Invest in new technology for management of wetlands.	Swedish Board of Agriculture, Swedish Environmental Protection Agency		R&DD	
33	Evaluate constructed and restored wetlands.	Swedish Environmental Protection Agency, county administrative boards		Measure	

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Inventories and protection:					
34	<i>Kronoberg</i> is of the opinion that more resources are required for the county administrative boards to attain the target of implementing the Mire Protection Plan. They also write that nature conservation plans for the Ramsar sites require background material and that this needs to be supplemented in particular by bird inventories. The Swedish Environmental Protection Agency should clarify in what way the county administrative boards are to work on the Ramsar sites.	Swedish Environmental Protection Agency		Measure	No
35	Finally they would like to see a commitment to supplementing the wetland forest inventory. The Swedish Forest Agency should be commissioned to do this.	Government		Organisational control	No
36	<i>Västerbotten</i> would like to see funds for the protection of wetlands as they consider the Swedish Environmental Protection Agency's current appropriation for reserve protection to be insufficient.	Government		Organisational control	No
Forest roads:					
37	<i>Västra Götaland</i> is of the opinion that there is a need for far more information on the duty of consultation for forest roads.	Government, Swedish Forest Agency, Swedish Environmental Protection Agency,		Informative instrument	No

38	<i>Dalarna</i> proposes that the prospects of introducing a duty to obtain a permit for forest roads on valuable wetlands be investigated as a way of attaching the environmental quality objectives.	Government, Swedish Environmental Protection Agency		Administrative instrument	No
Construction and restoration of wetlands:					
39	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> are of the opinion that increased provision for payment is required to encourage landowners to construct wetlands to a greater extent and "in the right place".	Government		Economic instrument	No
40	Wetland strategies are an important instrument to optimise work on wetland areas.	Swedish Environmental Protection Agency		Policy	No
41	It is important to distinguish between different types of small lakes and wetlands and guide design depending on purpose.	Swedish Environmental Protection Agency, county administrative boards		Measure	No
42	<i>Skåne</i> wants support to be established for the planning of larger wetlands. The construction of large wetlands often involves several landowners and entails high costs and therefore greater taking of risk during project planning.	Government		Economic instrument	No
43	Change the opportunities for municipalities to acquire properties through right of pre-emption so that the right of pre-emption may also be exercised for environmental purposes, e.g. construction of wetlands.	Government		Administrative instrument	No
44	<i>Västernorrland</i> would like to see restoration of wetlands.	Swedish Environmental Protection Agency, Government		Measure	No
45	<i>Kalmar</i> is of the opinion that the focus should be on both quality and quantity with respect to the target relating to the construction of wetlands and that clearer directives are required from central agencies on the issue. Wetland construction should be oriented towards encompassing nutrients, biological diversity and cultural assets. They are of the opinion that the national wetlands strategy should require constructed wetlands also to be of high quality with regard to biological diversity and cultural assets and constructed on the basis of a landscape perspective.	Swedish Environmental Protection Agency and other authorities		Policy	No
46	<i>Gotland</i> is of the opinion that the single most important initiative would be to amend the legislation so that it becomes easier to alter old water judgments so that some of the mires that have been drained can be submerged again.	Government		Administrative instrument	No

47	<i>Kronoberg</i> is of the opinion that the function of the wetlands constructed in the forest landscape is unclear. The propose that the county administrative boards be commissioned to conduct an inventory of this and the general public should be informed about how the greatest environmental benefit can be obtained in construction.	Government			No
48	Construction support (for wetlands) should be considered.	Government		Economic instrument	No
49	<i>Västra Götaland</i> is of the opinion that that so few contraventions of the Environment Code lead to prosecutions.	Government		Administrative instrument	No
50	<i>Skåne</i> wants the legislation governing drainage enterprises to be revised so that it is harmonised better with modern environmental protection legislation.	Government		Administrative instrument	No
51	<i>Västernorrland</i> wants rules for buffer zones to be revised.	Government, Swedish Environmental Protection Agency		Administrative instrument	No

SUSTAINABLE FORESTS

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH FOREST AGENCY – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

	The principal task of central government is to ensure that sufficient areas of forest land worthy of protection are given long-term protection. This task is crucial if the objective of Sustainable Forests is to be attained in the long term. In addition, central government can principally contribute to fulfilment of the objective by creating good conditions for other parties to take cost-effective measures.	Government	HUM	Administrative instrument	
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Measures and instruments that affect more than one interim target or Sustainable Forests

1	The Swedish Forest Agency should continue to develop forums in society to create increased acceptance and understanding of Sustainable Forests in particular. The existing sector councils, particularly at local level, should be developed further.	Swedish Forest Agency		Informative instrument	
2	The Swedish Forest Agency should be commissioned to develop the provisions of the Forestry Act, particularly Section 30, and examine the possibility of sanctions for certain measures.	Government		Administrative instrument	

3	The rural areas programme contains extensive advice on sustainable forestry, aimed at private forest owners. This commitment should have a key role in making the meaning of Sustainable Forests known and accepted. The advice is provided by the Swedish Forest Agency and other organisations.	Swedish Forest Agency and other authorities		Informative instrument	
4	The Swedish Forest Agency should increase its efforts in relation to advice, information and enforcement regarding general consideration in forestry. A strategy for general consideration is in preparation. An important element is to clarify the basis of assessment used in the Polytax inventory, for example through excursions.	Swedish Forest Agency		Informative instrument, measure	
5	The Swedish Forest Agency should formulate a target by 2012 regarding continuity forests and no-felling forestry.	Swedish Forest Agency		Policy	
6	The forestry industry should work towards developing soil preparation methods and forest machinery with little impact, particularly in view of the fear of soil damage due to climate change.	Forestry industry		R&DD	
7	Central government should work to ensure that ash return to forest soil increases to necessary levels.	Government		Measure	Yes
8	Central government should clear away legal, technical and economic obstacles to expanded use of GPS and digital maps in forest machinery. The maps should contain known natural and cultural assets.	Government		Administrative instrument, economic instrument	
9	Central government should develop new forms of agreement with landowners to completely present forms of agreement.	Government		Administrative instrument	

Interim target Conserving forest land of high conservation value

10	In relation to current targets, central government should formally protect a further 450 000 ha of forest land worthy of protection, of which 350 000 ha below the limit for montane forest.	Government		Administrative instrument, measure	Yes
11	In relation to current targets, forestry should voluntarily preserve a further 50 000 ha of forest land worthy of protection.	Forestry		Administrative instrument, measure	Yes
12	Central government should develop the ways of using its own land holdings in conservation work.	Government		Measure	
13	The Swedish Forest Agency and the Swedish Environmental Protection Agency should develop supplementary instruments in conservation work and also try out instruments running for a shorter time than those in use today. This should be done on a trial basis in collaboration with clients and other authorities.	Swedish Forest Agency, Swedish Environmental Protection Agency		Administrative instrument	

14	The Swedish Forest Agency and the Swedish Environmental Protection Agency should as soon as possible evaluate the experiences and views of landowners on how work relating to the formal protection of forest is undertaken.	Swedish Forest Agency, Swedish Environmental Protection Agency		Measure	
15	The Swedish Forest Agency, in consultation with stakeholders, should develop the follow-up of the voluntarily preserved forests of forestry, including developing the concept of forest land worthy of protection.	Swedish Forest Agency		Measure	

Interim target Management of formally protected and voluntarily conserved forest land

16	Increased appropriations for management. There are level-based proposals for habitat protection areas and nature conservation agreements with an estimated cost of around SEK 15 million/year.	Government		Economic instrument/ organisational control	Yes
17	Economic instruments to encourage management of voluntarily preserved forest land. The rural areas programme, added value of the forest, is given an important task. The total cost is estimated to be of the order of SEK 20 million/year.	Government		Economic instrument	Yes

Interim target Structures of biological value on productive forest land

18	The Swedish Forest Agency should increase its efforts to provide landowners with advice and information, both on dead wood and to increase the acreage of older forest with a large deciduous element.	Swedish Forest Agency		Informative instrument	Yes
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Interim target Protection of cultural heritage

	A number of measures and instruments are judged to be essential to attain the target of preserving and development the cultural heritage of the forests. A combined strategy should address issues relating to:				
19	The way in which the authorities work – requirements for uniformity and better coordination.	Government		Organisational control	
20	Stricter enforcement (Act concerning Ancient Monuments and Finds, Forestry Act).	Government, National Heritage Board, Swedish Forest Agency		Administrative instrument	
21	New procedures – try to give the Swedish Forest Agency greater responsibility for enforcement in one or a few trial counties.	Government		Organisational control	
22	Expanded and improved advice – create better dialogue with landowners, agents and contractors/implementers.	Swedish Forest Agency and other authorities		Informative instrument	
23	Comprehensive inventory of all forest land by 2015 with respect to ancient and cultural monuments.	Government		Organisational control, R&DD/ build-up of knowledge	

24	Inventory of damage – regular and recurrent inventory of fixed ancient monuments.	National Heritage Board, Swedish Forest Agency		Measure	
25	Environmental compensation grants –to encourage regeneration with little impact in ancient and cultural monuments covering large areas.	Government		Economic instrument	
26	NOKÅS – review of the provisions.	Government		Economic instrument	
27	Protection of the cultural heritage - greater attention to the subject in forest training courses	Government		R&DD, training	
28	Management methods – investigate how alternative methods can preserve the biological cultural heritage.	National Heritage Board, Swedish Forest Agency	HUM	R&DD	
29	Indicator species – identify species that point to the development of the biological cultural heritage.	Swedish Forest Agency, National Heritage Board	HUM	R&DD, build-up of knowledge	

Interim target Environment in and around water in forest landscape

	The following measures could be used to attain the interim target relating to reduced disturbance of the sensitive marginal zones around water:		(HUM)		
30	Information and training courses aimed at agriculture for the purpose of increasing knowledge and thus prioritisation of soil and water issues.	Government, Swedish Forest Agency		Informative instrument	
31	Rapid and functioning implementation of the Water Directive, which among other things means mapping and following up water quality in various bodies of water.	Water authorities, Swedish Environmental Protection Agency		Administrative instrument including build-up of knowledge	
32	Establishment of functioning water councils in line with the Water Directive, on which the forest sector is represented. Water councils are intended to form the basis of this collaboration and here represent a form of collaboration in which parties in one or more drainage basis discuss a common way of managing local water resources.	Water authorities		Measure	
33	Development and utilisation of new forms of agreement.	Government		Administrative instrument	

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

Establishment of reserves:					
34	<i>Gävleborg</i> would like to see administrative staff capacity more than doubled, with an accompanying increase in land access funds for the establishment of reserves. The establishment of reserves is a time-consuming task, and with current reserves there is no prospect of fulfilling the interim target. At present it is administrative capacity that is the limiting factor and not financial compensation.	Government		Organisational control	No

35	<i>Värmland</i> would like to see an increase in land access funds and administrative capacity for the establishment of reserves. Despite a few rounds of reinforcement of capacity, the possibility of the county administrative boards protecting large valuable areas as nature resources is still limited by administrative capacity. The combination of lack of administrative capacity on the one hand and lack of funding for habitat protection and nature conservation agreements on the other means that areas worthy of protection are sometimes "bandied around" between the authorities, which reduces effectiveness and in the worst case leads to cores of value being diminished. In addition, it is still the case the funds the Government has planned to set aside for the establishment of reserves to date will not be sufficient to attain the target.	Government		Organisa- tional control, Economic instrument	No
36	<i>Kronoberg</i> is of the opinion that more resources are needed for the process of establishing nature reserves, otherwise the interim target will not be met.	Government		Organisational control	No
37	<i>Gotland</i> is of the opinion that the Government should set aside more money for the protection of forest. Also that the county administrative boards should be given "earmarked" money for work on site protection.	Government		Economic instrument	No
38	<i>Kalmar</i> would like to see continued appropriations for the purchase of forest and more resources so that there are sufficient personnel who can work on forest protection.	Government		Economic instrument, organisational control	No
State-owned forest land:					
39	<i>Värmland</i> would like to see measures to facilitate three-way swaps of forest land in the establishment of reserves with Sveaskog as one of the parties. Many forest owners prefer compensatory land in the establishment of reserves rather than financial payment. Land swaps often take place directly in counties where Sveaskog owns land. Sveaskog's forest holding in Värmland is insignificant. On the other hand, there are other large forest owners. Three-way swaps with larger forest owners, Sveaskog and the individual might in some cases make it easier to establish reserves. Under present-day rules there is no obligation for Sveaskog to take part in this type of three-way swap. The proposal may lower the costs of establishing reserves.	Government		Administrative instrument	No
40	<i>Västra Götaland</i> considers that a significant proportion of the area of safeguarded land should be made up of state forest holdings and that central government should be able to assist with land swaps in several cases.	Government		Administrative instrument	No

Nature conservation agreements and habitat protection:					
41	<i>Västra Götaland</i> is of the opinion that the tax rules for nature conservation agreements need to be amended so that the payments can be split between periods. At present the payment for a 50-year agreement is made on a single occasion, which means that the party who signs an agreement may lose a significant portion of the payment in tax. Payment in instalments, as for EU environmental support, would make the nature conservation agreement more attractive.	Government		Economic instrument	No
42	<i>Blekinge, Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> writes that the possibility of the National Forest Agency protecting cores of value for biological diversity through habitat protection and nature conservation agreements is greatly restricted at present by lack of funds. An approximate doubling of these funds would greatly enhance the prospects of attaining the environmental quality objective.	Government		Economic instrument	No
43	<i>Gävleborg</i> would like to see an increase in the funds at the disposal of the Swedish Forest Agency for habitat protection and nature conservation agreements. The options for the Swedish Forest Agency to protect sites are limited at present by a lack of funds to compensate affected landowners. An increase in these funds would improve the prospects of attaining the environmental quality objective.	Government		Economic instrument	No
44	<i>Kronoberg</i> is of the opinion that the funds for habitat protection and nature conservation agreements need to be increased.	Government		Economic instrument	No
45	<i>Dalarna</i> proposes that the Swedish Environmental Protection Agency be commissioned to distribute appropriations for the establishment of nature conservation agreements by the county administrative boards. The county administrative boards can draw up nature conservation agreements at present, but do not have any resources. This is judged to be an important tool for the county administrative boards to facilitate the implementation of action programmes for endangered species.	Government, Swedish Environmental Protection Agency		Economic/administrative instrument	No
46	<i>Västernorrland</i> would like to see an increase in funding for habitat protection and nature conservation agreements.	Government		Economic instrument	No

47	<i>Värmland</i> would like to see an increase in the funds at the disposal of the Swedish Forest Agency for habitat protection and nature conservation agreements. The environmental objective is designed so that it can accommodate the cores of value for biological diversity that still remain. The size and character of many of these is such that they are best suited to be protected by habitat protection or nature conservation agreements. However, the prospects of the Swedish Forest Agency protecting these are greatly limited in the present situation by lack of funds. An approximate doubling of these funds would greatly enhance the prospects of attaining the environmental quality objective.	Government		Economic instrument	No
Voluntary forest protection					
48	<i>Skåne</i> wants new approaches to be tried to bring about long-term protection of forest land and to raise awareness of the need for voluntary set-asides.	Government, Swedish Forest Agency, Swedish Environmental Protection Agency,		Measure	No
49	<i>Dalarna</i> proposes that the Swedish Forest Agency should be commissioned to ensure the quality and long-term nature of voluntary set-asides of forest worthy of protection so that objectives of forest protection and biological diversity can be met.	Government		Organisational control, administrative instrument	No
50	<i>Västra Götaland</i> wants the proposals made by the Forestry Inquiry to be introduced, i.e. only areas of target class NO (nature conservation untouched) or NS (nature conservation management) or equivalent to a forestry plan to be counted as voluntary set-aside.	Government		Administrative instrument	No
51	<i>Kronoberg</i> is of the opinion that both the Swedish Forest Agency and the county administrative boards should be given resources to work on advice and courses on biological diversity to raise the quality of voluntary set-aside areas. The forestry industry should be encouraged to take responsibility for the voluntary set-asides in a more proactive manner. More resources are needed for information material.	Government		Informative instrument	No
52	Further efforts are required in the form of inventories/interviews to survey the extent and quality of voluntarily set-aside forest.	Government, Swedish Forest Agency		Measure	No
General consideration, information and advice:					
53	<i>Västra Götaland</i> is of the opinion that stronger measures are needed to deal with contraventions of the Forestry Act when even the statutory requirement of general consideration is not met. The on-the-spot fines in the Forestry Inquiry may be one way.	Government		Administrative instrument	No

54	<i>Kronoberg</i> is of the opinion that further information and advice needs to be targeted both at those who own forest and at those who work in forestry. Every year there are a number of new forest owners who need fundamental knowledge of the environmental objective.	Swedish Forest Agency, Government		Informative instrument	No
55	<i>Kalmar</i> wants the resources for advice and information on natural and cultural assets on forest land to increase.	Government		Informative instrument	No
Nature conservation burning and forest fires:					
56	<i>Södermanland, Uppsala, Värmland, Västmanland</i> and <i>Örebro</i> write that the largest forest owners and state nature reserves in particular must restore the important role of fire in the forest landscape. They would like to see a special effort to promote nature conservation burning in the nature reserves, which is of great significance for biological diversity. The Swedish Environmental Protection Agency has attempted to encourage nature conservation burning, but only a small number of county administrative boards have still carried out any burning at all.	Government, Swedish Forest Agency, Swedish Environmental Protection Agency, Sveaskog		Measure	No
57	<i>Västernorrland</i> would like to see a special effort to promote nature conservation burning in nature reserves.	Government, Swedish Environmental Protection Agency		Measure	No
58	<i>Västra Götaland</i> is of the opinion that a national policy for nature conservation planning is required which leads to an increased focus on the significance of fires as a process in the forest landscape in otherwise to target fulfilment.	Government, Swedish Environmental Protection Agency		Measure/policy	No
59	<i>Värmland</i> would like to see a system for reporting forest fires to the county administrative boards and the Swedish Forest Agency, with the local emergency services being primarily instructed to report them. Fires occasionally also happen in production forests. It is likely that the forest owner will go in and utilise economic assets after such a fire. If the authorities are routinely given information on forest fires there are opportunities to go in and protect forest.	Government		Measure/administrative instrument	No
Nature inventories and knowledge base:					
60	<i>Jämtland</i> is of the opinion that the resources to conduct an inventory of forest worthy of protection must be strengthened, as there is otherwise a risk of too much forest worthy of protection in Jämtland being felled. The forestry industry should be able to take greater financial responsibility for inventories being carried out in a quality-assured manner.	Government		Economic instrument	No

61	<i>Västra Götaland</i> is of the opinion that it is important that knowledge is improved on the needs and distribution of red-listed species and that funding for this should be provided to the ArtDatabanken species databases and universities. They would also like to see the development of and support for national forest tax assessment and appropriations for research on important measures for target fulfilment.	Government		R&DD/ build-up of knowledge	No
62	<i>Värmland</i> would like to see methodology development and implementation of elk grazing inventories. In <i>Värmland</i> forest owners hesitate about regeneration with deciduous forest, partly due to the heavy grazing pressure in growing deciduous forest. The elk grazing inventories carried out today on behalf of large-scale forestry have limitations. They therefore consider there to be a need for new efforts in the shape of inventories to a collective national and regional basis for decision-making on the issue of elk grazing.	Swedish Environmental Protection Agency		R&DD/method development, measure	No
63	<i>Kronoberg</i> would like to see good general consideration of new data about the forest after the storm. It is unclear at present how hard dead wood, an increased proportion of older forest and an increased proportion of forest dominated by deciduous trees have been affected by and after the storm.	Swedish Environmental Protection Agency, Swedish Forest Agency, Government		R&DD/ build-up of knowledge	No
Cultural heritage assets:					
64	<i>Västra Götaland</i> is of the opinion that a nationwide inventory of cultural heritage on forest land needs to be conducted and that funding for information to affected parties must be granted. The possibility of financing through the EU should be looked into.	Government, National Heritage Board		R&DD/ build-up of knowledge	No
65	<i>Kronoberg</i> is of the opinion that for the interim target of undamaged cultural heritage to be met the Forest and History inventory needs to be completed.	National Heritage Board, Swedish Forest Agency, Government		Measure	No
66	<i>Kalmar</i> writes that it takes for too long for inventories of the cultural heritage in the forest under the auspices of the Swedish Forest Agency to reach the county administrative board and become available through the digital register of ancient monuments. A more rational assessment in the field and the possibility of directly publishing objects are therefore desirable. They would like to see attention paid to and improved knowledge of the biological cultural heritage of the forest and cultural heritage assets in the forest.	Swedish Forest Agency, National Heritage Board		Measure, Informative instrument	No
67	<i>Kalmar</i> would also like to see intensified enforcement and information/advice on ancient monuments on forest land.	Government, Swedish Forest Agency, National Heritage Board		Informative instrument, Administrative instrument	No

Other views:					
68	<i>Värmland</i> would like to see government grants for the fencing of forest regeneration on land with good conditions for deciduous forest. Most deciduous trees have difficulty growing to full size with the present-day pressure of grazing by wildlife. An effective measure, but one which is too expensive for the private forest owner, is to fence areas in.	Government		Economic instrument	No
69	<i>Gotland</i> is of the opinion that the role of the environmental objectives in permit reviews under the Environmental Code should be strengthened, that tougher requirements should be set for the forestry industry to take its sector responsibility, that various players in the market who have an impact on the environmental objective should report on their efforts and asks for a system of sanctions, but does not develop this in more detail.	Government		Administrative instrument	No

A VARIED AGRICULTURAL LANDSCAPE

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
SWEDISH BOARD OF AGRICULTURE – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008					In sector report, summing-up on pages 31–32.

Status of arable land and long-term production capacity

1	Continued and enhanced advice on compaction of subsoil under the advisory project "Focus on Nutrients"	Swedish Board of Agriculture		Informative instrument	Yes
2	Continued research on long-term effects of driving heavy machinery in combination with crop rotation and the significance of cultivation systems for the soil structure and research on the environmental effects of adversely affected soil structure.	Swedish Environmental Protection Agency, Swedish University of Agricultural Sciences		R&DD	Yes
3	Measures in relation to cadmium are proposed under A Non-Toxic Environment, interim target 9.				

Meadow and pastureland

4	Management of meadow and pastureland – the Rural Development Programme.	Swedish Board of Agriculture		Measure	Yes
5	Restoration of meadow and pastureland – the Rural Development Programme.	Swedish Board of Agriculture		Measure	Yes
6	Redistribution of grazing livestock, analysis.	Swedish Board of Agriculture		Measure/ R&DD	Yes

Arable landscape

7	Fallow land as stubble, expand the parts in the Rural Development Programme.	Government		Economic instrument	Yes
8	Variation in crops, investigation – Rural Development Programme.			R&DD	Yes
9	Organic production on the plains, analysis.			R&DD	Yes
10	Management of cultural traces – the Rural Development Programme.			Measure	Yes

Buildings and built environments

11	Restoration of smaller traditional buildings – the Rural Development Programme.	Government, National Heritage Board		Measure	Yes
12	Establishment of new cultural reserves.	Government, National Heritage Board	HUM	Measure/ Administrative instrument	Yes
13	Operation of cultural reserves.	Government, National Heritage Board		Measure	Yes
14	Management of pastures in forests - the Rural Development Programme.	Government, National Heritage Board		Measure	Yes

Cultivated diversity

15	Gene banks and clone archive, including evaluation.	Government		Measure	Yes
16	Documentation	Government		Organisational control, Measure	Yes
17	Research and prebreeding.	FORMAS, Swedish Farmers' Foundation for Agricultural Research (SLF)		R&DD	Yes
18	R&D	Government		R&DD	Yes

All nature and culture-related interim targets

19	Information – the Rural Development Programme.	Government		Informative instrument	Yes
20	Evaluation of effects of environmental payments on biological diversity.	Government		Organisational control	Yes
21	Follow-up and evaluation of management measures in each county.	Government		Organisational control	Yes
22	Deficiency analysis				Yes
23	Research: Targeted initiative for development and evaluation of new management measures.	Government, FORMAS		R&DD	No

Livestock genetic resources

24	Gene banks, information, sustainable breeding etc.	Government		Measure, informative instrument	Yes
25	Payment to farmers keeping livestock of Swedish breeds threatened with extinction.	Government		Economic instrument	Yes
26	Support for equestrian activities.	Government		Economic instrument/measure	Yes

GMOs

27	Research	Government, FORMAS		R&DD	No
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NATIONAL FOOD ADMINISTRATION – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

28	Draw up recommendations for the industry with regard to communication on organic foods in accordance with previously reported assignment.	Swedish Consumer Agency, National Food Administration		Informative instrument	Possibly in previously submitted report.
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COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

General comments on EU agricultural payments and the rural development programmes:					
29	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that Sweden and the counties should make use of the opportunities to support the work on environmental objectives in the EU's agricultural support and rural development. Many objectives are entirely dependent on support for the users who carry out traditional management of the land. Several of them also write that a decisive problem today is that profitability in livestock farming based on grazing is too low.	Government, Swedish Board of Agriculture, county administrative boards		Economic instrument	No
30	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> also point to deficiencies in the regulations on the basis of the environmental objectives.	Government		Administrative instrument	No
31	<i>Kalmar</i> is of the opinion that increased information and targeted advice are entirely necessary so that the land can be managed correctly and so that the environmental payments can be put to best use.	Government, Swedish Board of Agriculture		Informative instrument	No

Management of meadows and pastureland:					
32	<i>Västra Götaland</i> writes that management of meadows has very little to do with modern agriculture. Current levels of payment are based too much on meadows being of significance for production of fodder. Expansion therefore requires the payment to fully offset all the costs associated with traditional grassland management. An increase in levels of support, particularly for the most valuable land, is very important in general. They are also of the opinion that there is a need for higher additional payment for small semi-natural grasslands that are expensive to manage. Finally that the mosaic landscape support ought not to come under "Selected environment" as the money will not be sufficient there.	Government, Swedish Board of Agriculture		Economic instrument	No
33	<i>Stockholm, Södermanland, Uppsala, Värmland, Västmanland</i> and <i>Örebro</i> would like to see increased provision for environmental support to appropriate traditional management of land where assets are best promoted in a way other than annual mowing or annual intensive grazing. The rules relating to this environmental support are designed so that by far the greater part of the funding goes to land managed annually with the focus on creating a dense and short sward. There is land where the natural assets are favoured by mowing less often or by management with greater spatial variation in intensity.	Government, Swedish Board of Agriculture		Economic instrument	No
34	<i>Kalmar</i> would like there to be assistance in the signing of agreements between tenant farmer/user and landowner which would facilitate traditional grazing in new fields.	Swedish Board of Agriculture		Administrative instrument	No
35	There is a need for new hedges in woodland and intermediate country and support for the costs of fencing is desirable.	Government		Economic instrument	
Small-scale habitats and culture-bearing landscape elements:					
36	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> write that the levels of support for the management of small-scale biotopes need to be raised. Together with <i>Stockholm</i> they are additionally of the opinion that the levels of support for management of culture-bearing landscape elements need to be raised. The presence rate of increase in the number of elements preserved is not sufficient for the environmental quality objective to be met.	Government		Economic instrument	No
37	<i>Värmland</i> would like there to be better central support for work on small-scale habitats. A strategy has been developed for the plains, but how the work is to be undertaken is more differentiated for the rest of the country. Nor is there any information on how many small-scale biotopes there are today. The plains strategy would need to be broadened and developed to apply to the whole country.	Swedish Board of Agriculture, (Government)		Measure, (organisation control)	

Buffer zones:					
38	<i>Blekinge, Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that the rules for buffer zones need to be revised so that the greatest environmental benefit and benefit for biological diversity can be achieved, for example bushes and trees should be permitted to be established in the zone.	Government, Swedish Board of Agriculture		Administrative instrument	No
39	The level of support also needs to be raised.	Government		Economic instrument	
Buildings and other proposals relating to the cultural environment:					
40	<i>Södermanland, Uppsala, Västmanland and Örebro</i> are of the opinion that it is important that measures for preservation of buildings of historic value are accommodated in the rural development programme.	Government, Swedish Board of Agriculture		Economic instrument	No
41	<i>Blekinge</i> writes that for farm buildings there is a need for an explicit ambition to use the funds that exist in the areas of the cultural environment and agriculture. The National Heritage Board and the Swedish Board of Agriculture should take the initiative for a common action programme.	Government, (National Heritage Board and Swedish Board of Agriculture)		Organisational control, policy	
42	<i>Västra Götaland</i> is of the opinion that there is a need for increased appropriations for the creation and management of cultural reserves. They also write that their follow-up shows that the number of ancient monuments cared for has decreased and that it is essential that the levels of payment in the support are revised.	Government		Economic instrument	No
Cultivation, production and consumption:					
43	<i>Södermanland, Uppsala, Västmanland and Örebro</i> write that the support for organic cultivation needs to be reviewed so that it becomes possible for support also to be granted for organic forage cultivation. This would facilitate the production of organic milk, for example. The support makes it easier to convert to organic cultivation, resulting in reduced environmental impact. Forage is a basic requirement for healthy organic cultivation.	Government		Economic instrument	No
44	<i>Västra Götaland</i> would like to see initiatives to influence consumers to demand more meat from semi-natural grassland and dealers to market it more.	Swedish Board of Agriculture, county administrative boards, National Food Administration, Swedish Consumer Agency		Informative instrument	No

45	<i>Västra Götaland</i> is also of the opinion that the system of production place number for grazed livestock is awkward and needs to be simplified. There is otherwise a risk of users stopping grazing valuable areas because they have their own production place number, with increased administration for the user.	Swedish Board of Agriculture, (Government)		Administrative instrument	No
46	<i>Västerbotten</i> would like to see grants for the development of local food markets and semi-natural grassland projects.	Government		Economic instrument	No
Other proposals:					
47	<i>Södermanland, Uppsala, Västmanland</i> and <i>Örebro</i> are of the opinion that there is a need to adopt a position on GMOs and rules to avoid risks associated with introduction.	Government		Policy, Administrative instrument	No
48	<i>Kronoberg</i> is of the opinion that recreating wetlands and restoring natural fodder-producing land is a very important measure. The measures taken should be demand-driven and based on local commitment. Of particular value is the historical basis, which means that establishment and restoration should be targeted at areas that have an equivalent history. For the target to be achieved it also needs to become easier to dam or convey water where appropriate.	Swedish Environmental Protection Agency, Swedish Board of Agriculture, county administrative boards		Measure	No
49	<i>Västra Götaland</i> would like to see continued government commitment to municipal and local nature conservation efforts that promote the links between nature conservation, public health and recreation.	Government		Measure, Economic instrument	No
50	<i>Blekinge</i> is of the opinion that in general there is a need for a better knowledge base and more funds for this purpose in order to attain the environmental quality objective. Funds for follow-up are also lacking.	Government		Organisational control, R&DD/build-up of knowledge	No
51	<i>Kalmar</i> is of the opinion that increased knowledge regionally is required on cultivated diversity and endangered livestock breeds so that the interim targets relating to these assets could be regionalised, followed up and attained.	Government, Swedish Board of Agriculture, Swedish Environmental Protection Agency		R&DD/build-up of knowledge	No

A MAGNIFICENT MOUNTAIN LANDSCAPE

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – MATERIAL FOR IN-DEPTH EVALUATION 2008

1	Requirements for cross-country driving plans are implemented.	Government	(HUM)	Administrative instrument	No
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2	Environmental monitoring in the mountain area is developed with respect to changes in vegetation, soil damage, damage to ancient monuments and other cultural environments.	Swedish Environmental Protection Agency, county administrative boards		R&DD/ build-up of knowledge, measure	No
3	Survey and review of the sanctions for driving on bare land are carried out with the Swedish Environmental Protection Agency as the responsible authority in collaboration with the county administrative boards in the mountain counties.	Swedish Environmental Protection Agency, county administrative boards in the mountain counties		Measure	No
4	Limit values for noise from quad bikes in European directive 2000/14/EC.	Government		International work	No
5	Improved register statistics for quad bikes, including noise data.	Swedish Road Administration		Measure	No
6	Investigate the need for expanded quad bike regulation areas.	County administrative boards in the mountain counties		Measure	No
7	Information measures and enforcement issues relating to quad bike traffic.	Swedish Environmental Protection Agency, county administrative boards in the mountain counties		Informative instrument	No
8	Review of the issue of enforcement to see whether there is a possibility, through amendments to current regulations, of sharing responsibility for enforcement between affected authorities in a better way.	Government		Administrative instrument	No
9	Continued long-term protection and management of environments in the mountains with high natural, cultural and outdoor leisure assets, in particular the establishment of cultural reserves.	Government	HUM	Administrative instrument	Yes
10	Efforts to increase the build-up of knowledge on important cultural environments, both in and outside protected environments.	Government, National Heritage Board		Organisational control, R&DD/build-up of knowledge	Yes
11	Increase commitment to restoration and management of historical assets in the mountains.	Government, county administrative boards in the mountain counties, National Heritage Board		Measure	Yes

12	The county administrative boards in the mountain counties are commissioned to conduct an investigation on the impact of various development companies on outdoor leisure assets in the mountains and to present proposals on high a level of development different areas can tolerate.	Government		Organisational control	Yes
13	Supplementary knowledge base is developed to propose build-up of knowledge on cultural assets in nature reserves and national parks and measures for conservation and maintenance of cultural environments and biological cultural heritage.	Government, National Heritage Board	HUM	R&DD/build-up of knowledge	Yes
14	Environmental monitoring for the mountain environment is revised to provide a basis for follow-up of the status of biological diversity.	Swedish Environmental Protection Agency		Measure	No
15	The Saami Parliament and the Mountains Delegation are commissioned to investigate in collaboration and propose how an inventory of reindeer grazing can be carried out and how it is possible through changes in the structure of reindeer grazing to counteract the negative effects of climate change on the mountain environment.	Government		Organisational control	No
16	An investigation is carried out to examine in which mountain areas conflicts can arise between natural, cultural and outdoor leisure assets on the one hand and mineral extraction on the other. The investigation should also propose possible measures.	Government		Organisational control	No
17	Guidelines are drawn up regarding where in the mountains an expansion of wind power can take place without adverse effects on natural, cultural or outdoor leisure assets by the Swedish Energy Agency, the Swedish Environmental Protection Agency and the National Heritage Board.	Government	HUM	Organisational control	No

A GOOD BUILT ENVIRONMENT

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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NATIONAL BOARD OF HOUSING, BUILDING AND PLANNING – MATERIAL FOR IN-DEPTH EVALUATION 2008

Sector report

Economic instruments

1	* E 1. Introduce new environmental objective-related knowledge development programme (KUP) for physical planning.	Government	HUM	Economic instrument	Yes
2	*E 2. Implement overhaul of financing of knowledge base for public users when it is used for public purposes.	Government	HUM	Organisational control	Yes, but cost unclearly described.
3	* E 3. Initiate research and development on (environmental) impact assessments, noise, waste, cultural environment, transport mileage, energy use and indoor environment.	Government	(EET)	R&DD	Cost not apparent.

Administrative instruments

4	* A 1. Introduce new provision on natural gravel sources in the Ordinance (1998:899) on Environmentally Hazardous Activity and Health Protection.	Government	HUM	Administrative instrument	Cost not apparent.
5	* A 2. Develop keeping of register and onward reporting of results from OVK (mandatory ventilation inspection).	Government, National Board of Housing, Building and Planning		Administrative instrument	Cost not apparent.
6	* A 3. Clarify the responsibility for the environmental objectives (including the cultural environment, human health and efficient utilisation of natural resources) in the owner directives of the state-owned companies and the agency instructions of government agencies.	Government		Organisational control	Cost not apparent.
7	* A 4. Develop methods so that greater account can be taken of environmental objectives in impact assessments both at national level (for example in formulation of laws, new instruments, rules, regulations and in inquiries) and at regional local level.	Government		Administrative instrument, organisation control	Cost not apparent.
8	* A 5. Strengthen and increase the prospects for good application of the Planning and Building Act through expanded and qualitatively better consultation between the county administrative boards and the municipalities and clarify the responsibilities of the county administrative boards according to the Planning and Building Act with regard to planning and building in accordance with the proposals presented by the National Board of Housing, Building and Planning in June 2007.	Government	HUM	Administrative instrument, organisation control	Yes
9	* A 6. Press for international agreements and directives to steer the automotive industry towards less noisy tyres and vehicles.	Government	EET	International work	No
10	* A 7. Press for international agreements and directives to reduce quantities of waste in conjunction with production and consumption of goods.	Government	(GRK)	International work	Cost not apparent.

Informative instruments

11	* I 1. Commission the county administrative boards to develop knowledge base/guidance for the municipalities.	Government	HUM	Informative instrument	Cost only partially described.
12	* I 2. Establish national centre for an environmentally sound transport system.	Government		Informative instrument, organisation control	No
13	* I 3. Establish knowledge centre for noise issues.	Government		Informative instrument, organisation control	Yes, depending on level of aspiration.

14	* I 4. Develop knowledge base/guidance, directed at consumers/households.	Swedish Consumer Agency, National Board of Housing, Building and Planning and other authorities		Informative instrument	No
15	* I 5. Commission central government agencies to develop knowledge base/guidance for municipalities and county administrative boards.	Government		Organisational control, Informative instrument	No

Other proposals from sector report

16	Criteria for environmentally sound construction.	National Board of Housing, Building and Planning, (Government)	HUM	Administrative instrument	In sector report, but deficiencies in economic terms.
17	Environmental indicators for individual construction projects + for environmental work of the construction and property sector.	National Board of Housing, Building and Planning		Measure	In sector report.
18	Clarifications in construction legislation in demolition and refurbishment (see text in italics below). <i>Requirement for the demolition plan to be based on an actual inventory by an expert.</i> <i>Requirement for notification of demolition including when part of a building is demolished.</i> <i>Increased knowledge requirements for quality manager.</i> <i>Requirement for final certificate.</i>	Government	(GRK)	Administrative instrument	The measures are also included under the environmental quality objectives of A Non-Toxic Environment (page 28, no. 39) and A Protective Ozone Layer (page 40, no. 9). Impact assessment is contained in the background report for A Non-Toxic Environment, Annex 1, page 54.
19	Economic support to implement in-depth project plans in refurbishment.	Government		Economic instrument	

NATIONAL HERITAGE BOARD

20	Vitalise the national interest instrument for the cultural environment.				
21	Establish and develop cultural reserves or listed buildings.				
22	Research efforts				

23	Information and training efforts.				
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SWEDISH ROAD ADMINISTRATION – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

24	Government grants to the municipalities for noise control measures continue and ordinances are revised so that grants can also be obtained for inventories and preparation of implementation plans.	Government	EET	Economic instrument	
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SWEDISH ENERGY AGENCY – SECTOR REPORT, DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

25	Ecolabelling with division into classes (A, B, C etc.) should be linked to the recently introduced energy declarations, with the building regulations as minimum value in the environmental classification. The building regulations need to be followed up and requirements should be set for adjustments in cases where the rules are not complied with.	Government	EET	Administrative instrument	Yes, sector report.
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SWEDISH CIVIL AVIATION AUTHORITY – SECTOR REPORT, DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

26	Equivalent assessment for noise guidelines.	Government		Administrative instrument	
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NATIONAL RAIL ADMINISTRATION – SECTOR REPORT, DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

27	Investigation of opportunities for state support for replacement of brake systems on freight wagons.	Government		Economic instrument	No
28	Targeted track grinding (monitoring of occurrence of grooves and waves).	National Rail Administration, (Government)		Measure	Yes, sector report.
29	Rail noise reducers in densely populated areas.	National Rail Administration, (Government)		Measure	Yes, sector report.
30	Erection of noise screens.	National Rail Administration, (Government)	EET	Measure	Yes, sector report.

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

31	Planning basis for A Good Built Environment <i>Skåne</i> would like to see development of an urban development programme for a good built environment in the towns and cities to deal with complex cross-sectoral issues in a similar way to the rural development programme. It may concern sustainable planning and construction in towns and cities and develop the relationship between the town and countryside.	Government, National Board of Housing, Building and Planning		Economic instrument	No
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32	<i>Södermanland, Uppsala, Västmanland and Örebro</i> write that the municipalities' resources to develop programmes and strategies generally are small. Also that the county administrative boards have limited resources to provide the municipalities with planning material. The environmental work makes increased demands on planning resources to handle intermunicipal issues such as water management, wind power and external trade establishment better. Targeted funds to strengthen work on physical planning need to be supplied to the county administrative boards.	Government		Organisational control	No
33	In addition they state that for the Environmental Code and the Planning and Building Act to have an impact at municipal level and for scope for interpretation not to be too wide, national guidance and checks are required on how the planning instrument is complied with regionally and municipally.	Swedish Environmental Protection Agency		Administrative instrument, Informative instrument	No
34	<i>Örebro</i> proposes a requirement for plan-related environmental objectives to be addressed in the comprehensive plans.	Government		Administrative instrument	No
35	<i>Västra Götaland</i> considers that interim target 1 should focus on desirable future status instead of programmes and strategies. The objective is fulfilled with the present-day interim targets if all the municipalities have the programmes mentioned irrespective of whether the intentions of the programmes are disregarded in everyday decisions.	National Board of Housing, Building and Planning, Government		Policy	No
36	<i>Blekinge</i> would like to see improved coordination between Planning and Building Act and Environmental Code.	Government		Administrative instrument	No
37	In addition, support for measures in public planning for example for municipalities and county administrative boards for work on implementation of the interim target on planning material.	Government		Economic instrument	No
38	<i>Kronoberg</i> is of the opinion that the municipalities need to be given economic resources for the planning objective.	Government		Economic instrument	No
39	Transport noise <i>Södermanland, Uppsala, Västmanland and Örebro</i> propose that a powerful noise reduction programme with both information and the possibility of grants to deal with transport noise existing residential built environment be introduced.	Government		Informative instrument, economic instrument	No

40	<i>Västra Götaland</i> wants it to be established how the guide values for transport noise as adopted by the Swedish Parliament are to be applied. The account given to the Government by the National Board of Housing, Building and Planning has not been adopted. This means, for instance, that there is a risk of different interpretations undermining the purpose of the parliamentary decision. Today health issues tend to occur exceptionally in many planning matters.	Government		Administrative instrument	No
41	The county administrative board also wants speed restrictions in built-up areas to be used as a way of attaining both the target of reducing transport noise and other targets.	Government, Swedish Road Administration		Administrative instrument	No
42	<i>Blekinge</i> would like to see a commitment to noise protection measures next to large infrastructure facilities.	Government		Economic instrument	No

A RICH DIVERSITY OF PLANT AND ANIMAL LIFE

	Proposal	Made to	Presented in strategy	Type of proposal	Reference to impact assessments
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SWEDISH ENVIRONMENTAL PROTECTION AGENCY – MATERIAL FOR IN-DEPTH EVALUATION 2008

1	Each sector authority should separately give an account of how the activity, and the instruments at the authority's disposal, preserve and favour endangered species.	Government		Organisational control	No
2	Meta-analysis should be conducted with the purpose of presenting an overview of population changes among endangered species in protected areas up to the present.	Swedish Environmental Protection Agency		R&DD/build-up of knowledge	No
3	Programme of measures for species where the pressure of fishing is part of the threat scenario.	Government, National Board of Fisheries		Measure	No
4	Further appropriation for assignments on valuation of biological diversity.	Government		Organisational control	See government assignment of National Institute of Economic Research
5	Each county administrative board should draw up at least two landscape strategies for landscape sections with high and potentially high natural assets and cultural environment and/or outdoor leisure assets by 2015. The strategies should be drawn up on the basis of general guidance to be prepared by the Swedish Environmental Protection Agency in 2008.	Swedish Environmental Protection Agency, county administrative boards		Policy	Yes, see objectives report.

6	Draw up a national strategy for land use, protection and management from a climate-based perspective.	Government, Swedish Environmental Protection Agency		Policy	No
7	Measures such as the strategy and the action plan for dealing with importing, movement and release of alien species and genotypes should be incorporated into the work on environmental objectives when possible.	Swedish Environmental Protection Agency, etc..		Measure	No, should be done in conjunction with drawing-up of strategy.
8	The Swedish Environmental Protection Agency should draw up a strategy, in consultation with the National Heritage Board and after consultation with other affected authorities, on how the biological cultural heritage can be managed so that important natural and cultural assets are retained (page 8g).	Government	HUM	Organisational control, policy	No
9	A new wildlife monitoring system.	Government		Measure	Approach described in objectives report.
10	A national analysis of needs for the occurrence of habitat types in the Species and Habitats Directive.	Government		Analys	No, possibly via Swedish Environmental Protection Agency appropriation.
11	Make LONA a permanent measure.	Government	HUM	Economic instrument	Yes, see objectives report.
12	An addition should be made in the ordinance on government grants to local nature conservation projects to the effect that applications for grants should elucidate whether the project can contribute to promoting green structure as described in the municipalities' comprehensive plans.	Government		Administrative instrument	No, not relevant.
13	Market government grants to stimulate interest among municipalities and municipal foundations in establishing nature reserves.	Swedish Environmental Protection Agency, county administrative boards		Economic instrument, (informative instrument)	Yes, see objectives report.
14	Government grants to municipalities and municipal foundations for establishment of nature reserves.	Government		Economic instrument	Yes, see objectives report.
15	Expand the programmes for protection and administration of nature close to built-up areas to counties other than the metropolitan counties.	Government		Organisational control, policy	No
16	At least 150 000 hectares of forest are managed in a recreation-oriented away.	Swedish Forest Agency		Measure	Yes, see objectives report.

17	Development of skills and expertise/information for landowners and information campaigns aimed at different population groups on the resource of nature close to built-up areas.	Swedish Forest Agency		Informative instrument	No
18	A system for national follow-up of the assets of nature close to built-up areas and their accessibility for the population.	Swedish Environmental Protection Agency, Swedish Forest Agency		Measure	Yes, see objectives report.
19	Draw up overview of processes, tools and resources that can be used by different parties to promote nature close to built-up areas and make it accessible. In addition, needs for resources and improved instruments should be identified and reported in the form of a proposal on future development areas.	Swedish Environmental Protection Agency, Swedish Forest Agency	HUM	Measure	Yes, see objectives report.
20	The ArtDatabanken species database should produce a red-list index in conjunction with work ahead of the 2010 red list.	Government		Organisational control	No
21	Research programmes for increased knowledge on biological diversity in a changed climate.	Government		R&DD	Yes, see objectives report.
22	Sweden needs a greatly improved and expanded system for monitoring of species. A proposal is to give the Artportalen species portal more resources to be developed into a cost-effective tool for species monitoring. Priority is primarily to be given to resources for national monitoring of all species covered by the programme of measures.	Government		Organisational control, build-up of knowledge	No
23	Inventory of occurrence of endangered species in protected areas.	Government, Swedish Environmental Protection Agency, ArtDatabanken		Organisational control, Measure	No
24	Set aside sufficient funds for operation and quality assurance of Artportalen and other reporting systems (GBIF, FishBase).	ArtDatabanken, Swedish Environmental Protection Agency		Measure	No
25	The assignment of the Swedish Museum of Natural History should be expanded to cooperation in the Museum's cooperation organisation NAMSA to collaborate directly with other museums and other important parties.	Government		Organisational control	No

NATIONAL RAIL ADMINISTRATION – SECTOR REPORT, DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

26	Build-up of knowledge on how railway installations and rail traffic affect the natural environment and measures to prevent and compensate for damage.	Government, National Rail Administration, Swedish Environmental Protection Agency		R&DD/build-up of knowledge	Yes, sector report.
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27	Development of forms of planning for infrastructure projects.	Government, National Rail Administration, Swedish Environmental Protection Agency, possibly other authorities		Organisational control, R&DD, (Measure)	Yes, sector report.
28	Development of methodology to assess and mitigate intrusion effects.	National Rail Administration, Swedish Environmental Protection Agency		R&DD	Yes, sector report.
29	Development of way of working to ensure biologically and economically effective measures for compensation (Species and Habitats Directive, Environmental Liability Directive).	National Rail Administration, Swedish Environmental Protection Agency, possibly other authorities		R&DD	Yes, sector report.

COUNTY ADMINISTRATIVE BOARDS – DOCUMENTATION FOR IN-DEPTH EVALUATION 2008

30	<i>Västra Götaland</i> argues that there is a need for general measures so that the everyday landscape fulfils the requirements for its species, e.g. strengthening of general consideration in the forest and habitat protection in aquatic environments.	Government		Administrative instrument	No
31	Resources are needed for an overview of all water judgments and review of those that are outdated.	Government		Administrative instrument	No
32	The municipalities need to produce more in-depth comprehensive plays to that they can weigh up conservation and development better..	Municipalities		Policy	No
33	The county administrative board needs to have more say on the comprehensive plays of the municipalities.	Government		Administrative instrument	No
34	Measures in Action Plan for the Marine Environment (Swedish Environmental Protection Agency, Report 5563) should be implemented.	Government, Swedish Environmental Protection Agency etc.		Measure	No
35	Halt boat-borne alien species.	Government		Measure, most instruments	No
36	Describe the nature below the surface.	Government		R&DD/ build-up of knowledge	No
37	<i>Kalmar</i> is of the opinion that the level of knowledge on the presence of endangered species must increase.	Government		R&DD	No

38	Information and advice on management of the everyday landscape must increase.	Swedish Environmental Protection Agency, Swedish Forest Agency etc.		Informative instrument	No
39	Increased knowledge and targeted work on biological cultural heritage in all landscape types.	Government	HUM	R&DD/build-up of knowledge	
40	It is necessary to analyse on the basis of a species perspective whether the planned site protection is sufficient to ensure long-term biological diversity.	Swedish Environmental Protection Agency		Measure	
41	Improve conditions for agricultural enterprise in woodland and intermediate country.	Government		Economic instrument	
42	Greater resources for restoration of meadow and pastureland, aquatic and forest environments.	Government		Organisational control	
43	Increased knowledge on meadow and pastureland.	Government, Swedish Board of Agriculture		R&DD/build-up of knowledge	
44	Increased differentiation of management and clearer focus on marginal zones, significance of ecotones and verge environments.	Swedish Board of Agriculture, Swedish Forest Agency, Swedish Environmental Protection Agency, county administrative boards		Measure	
45	National coordination is important between different types of strategic work, e.g. landscape strategy, work under the Water Directive, forest strategy, wetland strategy, programme of measures for endangered species etc., all to target resources as strategically as possible to deal with management of assets in the landscape.	Government		Organisational control, policy	

PROPOSALS WHICH ARE OF A GENERAL NATURE AND/OR ARE AIMED AT SEVERAL UNSPECIFIED ENVIRONMENTAL QUALITY OBJECTIVES OR, FOR EXAMPLE, CROSS-CUTTING ISSUES RELATED TO THE OBJECTIVES

	Measure	Proposer (sector reports)	Made to	Environmental quality objective	Type of measure/instrument	Comments and reference to Impact Assessment
1	Endeavour to influence EU decisions on environmentally related food issues.	National Food Administration	Government	All, but principally A Varied Agricultural Landscape	Administrative instrument	

2	Investigate how risks of environmental impact from accidents should be dealt with in the municipal action programmes and in accident investigations.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	Administrative instrument	No
3	Draw up guidelines on how county administrative boards and municipalities can weigh environmental risks in accidents into the granting of permits for different operations under the Environmental Code.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	Administrative instrument	No
4	Assess the needs for special objectives for safety in environmental objectives work at regional level and present proposals to the county administrative boards on measures that can be implemented to integrate the safety issues better into work on environmental objectives.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	Administrative instrument	No
5	Investigate a statutory duty on producers to supply data to authorities on the properties of products, which includes the environmental impact of the products.	Swedish Consumer Agency	Government	All	Administrative instrument	No
6	Initiate a review of the legislation to upgrade current laws to include a broad environmental concept and an all-embracing view of landscape.	National Heritage Board	Government	All	Administrative instrument	
7	Improve the conditions for the work of the county administrative boards on environmental objectives to giving them joint assignments in the broad concept of environment.	National Heritage Board	Government	All	Administrative instrument	
8	The broad environmental concept must be included and clearly expressed in all policy areas from the outset.	National Heritage Board	Government	All	Administrative instrument	
9	Verified environmental declaration as alternative to environmental certification.	Swedish Agency for Economic and Regional Growth (NUTEK)	Government, most authorities	All	Administrative instrument	
10	Propose sector targets for the environmental work of the agency.	National Food Administration	National Food Administration, Government	All	Administrative instrument	
11	Develop strategies on how the different government protection instruments are to collaborate and interact with one another.	National Heritage Board	Government, most government agencies	All	Administrative instrument	

12	Investigate possibility of differentiated environmental charge outside the LTO cycle.	Swedish Civil Aviation Authority	Government	Reduced Climate Impact, Clean Air, Natural Acidification Only	Economic instrument	
13	Flexible environmental tax.	Swedish Agency for Economic and Regional Growth (NUTEK)	Government		Economic instrument	Yes, in annex to sector report.
14	Disseminate knowledge on environmental effects of accidents to parties at regional and local level.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	Informative instrument	No
15	Implement the National Maritime Administration's proposals for strategy on how information to consumers on the environmental properties of boat engines can be improved and clarified and to encourage replacement of less environmentally friendly engines which are in use.	National Maritime Administration	Government	Clean Air, Natural Acidification Only, Reduced Climate Impact	Informative instrument	No, possibly in previous communication to government.
16	Knowledge of home and consumer issues is to become a core subject in upper secondary school, and teaching on sustainable consumption is to be included in this subject in primary and lower secondary school.	Swedish Consumer Agency	Government	All	Informative instrument	Possibly in SOU 2005:51.
17	A national commitment to more S.M.A.R.T. food in the public sector and boost in knowledge of food, health, economics and environment.	Swedish Consumer Agency	Government	All	Informative instrument	Possibly in SOU 2005:51.
18	Pursue the issue of public right to information on the environmental performance of products at EU level (in the spirit of the Århus Convention)	Swedish Consumer Agency	Government	All	Informative instrument	No
19	Work to bring about improved consultation processes and public participation ahead of changes and administration.	National Heritage Board	National Heritage Board (public administration)	All	Informative instrument	
20	Inform about the work on the sector within and outside the agency.	National Food Administration	National Food Administration	All	Measure	
21	Make the agency's dietary recommendations environmentally sound.	National Food Administration	National Food Administration	All	Measure	Emphasised in GRK as being particularly important.

22	Discuss environmental issues with the food industry.	National Food Administration	National Food Administration, county administrative boards	All	Measure	
23	Decisions in all policy areas should as far as possible be subjected to environmental assessment and impact assessment.	National Heritage Board	Government, government agencies	All	Measure	
24	Review governing documents.	National Food Administration	National Food Administration, Government	All	Measure	
25	Discuss environmental issues with the food industry.	National Food Administration	National Food Administration, county administrative boards	All	Measure	
26	Develop the view of the National Food Administration on organic foods.	National Food Administration	National Food Administration	All	Measure	
27	Strengthen own expertise with regard to ordering and assessing analytical tools (primarily lifecycle analysis). Develop routines to produce environmental impact assessment in conjunction with new decisions in exercise of authority.	National Food Administration	National Food Administration	All	Measure	
28	Review governing documents.	National Food Administration	National Food Administration, Government	All	Measure	
29	Develop the view of the National Food Administration on organic foods.	National Food Administration	National Food Administration	All	Measure	
30	Draw up proposals for implementation of the European Landscape Convention.	National Heritage Board	National Heritage Board	Overall environmental objective issue cultural environment	Measure	
31	Coordination of the points of view and approaches of authorities in certain environmental issues so that consumers do not encounter contradictory messages and propensity to action is not diminished.	Swedish Consumer Agency	Government agencies (not specified which)	All	Measure	No
32	Decisions in all policy areas should as far as possible be subjected to environmental assessment and impact assessment.	National Heritage Board	Government, government agencies	All	Measure	

33	Conduct a survey of foreign substances which the National Food Administration regularly analyses.	National Food Administration	National Food Administration	All	R&DD	
34	Coordination of research resources in the consumer area.	Swedish Consumer Agency	Government	All	R&DD	No
35	The subject of “sustainable design” is to become mandatory in university-level training for engineers and architects.	Swedish Consumer Agency	Government	All	R&DD	Possibly in SOU 2005:51.
36	Increased basic knowledge of the environmental impact of medicines.	Medical Products Agency	Government	Principally A Non-Toxic Environment, but also Good-Quality Groundwater and Flourishing Lakes and Streams	R&DD	No
37	Increased knowledge of possible environmental risks posed by cosmetics and hygiene products.	Medical Products Agency	Government	Principally A Non-Toxic Environment, but also Good-Quality Groundwater and Flourishing Lakes and Streams	R&DD	No
38	Develop methods and tools to assess the environmental effects of accidents at regional and local level.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	R&DD	No
39	Continue work on developing models for how to use accident investigations as an instrument in enforcement activity.	Swedish Rescue Services Agency	Swedish Rescue Services Agency	All	R&DD	No
40	Develop the use of voluntary set-aside as a tool for protection.	National Heritage Board	Government, authorities	Overall environmental objective issue cultural environment	R&DD	
41	Develop strategic and long-term monitoring of the cultural environment which is reported in regular cultural environment accounts.	National Heritage Board	National Heritage Board	Overall environmental objective issue cultural environment	R&DD	
42	Develop the use of regional landscape strategies as an arena for the broad concept of environment.	National Heritage Board	National Heritage Board, and other authorities	Overall environmental objective issue cultural environment	R&DD	

43	Be commissioned to intensity build-up of knowledge relating to cultural environment assets.	National Heritage Board	National Heritage Board (Government)	Overall environmental objective issue cultural environment	R&DD	
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PROPOSALS FROM THE COUNTY ADMINISTRATIVE BOARDS IN OTHER POLICY AREAS, OF A GENERAL NATURE AND/OR FOCUSING ON SEVERAL UNSPECIFIED ENVIRONMENTAL QUALITY OBJECTIVES

	Strategic cooperation between policy areas	Made to	Type of proposal	Comments and reference to impact assessment
1	<i>Skåne</i> writes that the efforts to bring about cross-sectoral collaboration between the area of environmental policy and the police areas of public health, culture, energy and transport have been successful and should be continued. The role of work on environmental objectives should be strengthened and strategic cooperation should be built and expanded to include further policy areas. They give several examples, see below.	Government, government agencies		No

Regional development and commercial policy

2	<i>Skåne</i> mentions that several government assignments have drawn attention to the link between regional development and environmental policy, most recently an assignment to Swedish Agency for Economic and Regional Growth (NUTEK) and the Swedish Environmental Protection Agency in 2006. The county administrative board judges the assignments to have been valuable, but considers there to be a need for integration of environmental objectives into development, growth and structural fund programmes to be further strengthened. They also write that environmentally driven commercial development has development potential and should be given greater priority in work on the environmental objects and that the skills and expertise of the county administrative boards on these issues need to be strengthened.	Government, Swedish Agency for Economic and Regional Growth (NUTEK), Swedish Environmental Protection Agency, county administrative boards	Economic instrument, administrative instrument	No
3	<i>Västra Götaland</i> points out that the regions have many and heavyweight instruments at their disposal, such as development programmes, growth programmes and county transport planning, but that they do not have a formal assignment to work on the environmental objectives. They write that it would be significant if the regions could be encouraged to work more actively on the environmental objectives.	Government, regional associations		No

4	<i>Stockholm, Södermanland, Uppsala, Västmanland and Örebro</i> write that the environmental objectives are still not sufficiently integrated into the work on regional development. They are of the opinion, however, that the new rural development programme provides new opportunities to combine work on the environmental objectives with positive business development in the countryside. Stockholm mentions the unfamiliarity of dealing with environmental issues in work on business development. Also that this work is made easier by clear objectives, grant criteria, systems for basis of assessment and follow-up and dialogue with and information to contractors. The others write that policy on trade and industry should utilise the growth potential that exists in the environmental work and encourage projects and measures which, in addition to business development, also assist towards attainment of the environmental objectives.	Government, Swedish Agency for Economic and Regional Growth (NUTEK), Swedish Environmental Protection Agency, county administrative boards and other authorities	Economic instrument, administrative instrument	No
5	<i>Dalarna</i> propose that central support functions in relation to regional and municipal level in work on business development and the environment be developed and strengthened. Existing central authorities that have tasks here should be better coordinated. They additionally judge that the linking of development and growth programmes to work on environmental objectives, environmentally driven growth etc. should be strengthened further, so that funds distributed under these programmes contribute to attainment of the environmental objectives.	Government, Swedish Agency for Economic and Regional Growth (NUTEK), Swedish Environmental Protection Agency		No
6	<i>Västernorrland</i> also points to the significance of environmentally driven business development.	Government, Swedish Agency for Economic and Regional Growth (NUTEK), Swedish Environmental Protection Agency, etc.		No

Education policy

7	<i>Skåne</i> writes that sustainable development means taking account of a large number of objectives and interests. They are of the opinion that the education system needs to promote a greater multidisciplinary element in education and that education on sustainable development should therefore be encouraged.	Government, school authorities		No
8	<i>Södermanland, Uppsala, Västmanland and Örebro</i> would like to see nationally produced study materials targeted at schools to help teachers to find a number of interdisciplinary projects on which to cooperate in the area of the environmental objectives.	Government, school authorities		No

9	<i>Gävleborg</i> writes that everyone is reached through school and that it is important the environmental objectives are clarified in teaching. They propose that the work on the environmental objectives in primary and lower secondary school be strengthened and developed and also note that the environmental objectives are suited to upper secondary school. They go on to say that it is vital that resources are set aside for the developing of teaching skills and that the task is clarified with regard to the environmental objectives. Finally they note that there is a lack of good educational material on the environmental objectives targeted at schools and that it is important that there is information material of various kinds.	Government, school authorities		No
10	<i>Västernorrland</i> also points to the significance of environmental objectives in schools.	Government, school authorities		No
11	<i>Västerbotten</i> wants to develop programmes on "Teaching for Sustainable Development" in schools, universities and colleges and adult education.	Government, school authorities		No

Consumer policy and international development cooperation

12	<i>Skåne</i> is of the opinion that the possibility of assisting in work aimed at attaining the environmental objectives should be strengthened by adequate information having to be provided on the effects and contents of goods and services with regard to the environment and that the attention of affected authorities should be drawn to the need for new forms of environmentally related consumer information.	Swedish Consumer Agency and other government agencies	Informative instrument	No
13	<i>Södermanland, Uppsala, Västmanland and Örebro</i> also consider it to be important to strengthen consumer power as a means of driving development in line with the environmental objectives. Environmental and health information on goods is important in this context, and it is also important that the prospects for actively conveying information in society are improved. They additionally propose that a grant be introduced which makes it possible for organisations and municipalities to apply for funds for information campaigns on the environment.	Government	Informative instrument, economic instrument	No
14	<i>Jönköping</i> considers that the structure of environmental objectives needs to be supplemented by objectives relating to consumption. They are of the opinion that this is particularly important in areas in which Sweden does not have its own right to determine legislation, principally the area of chemicals. They go on to mention several examples of such objectives and say that the government's objective of public consumption of organic foods can serve as a model and that this should also be included in the structure of environmental objectives.	Government, Swedish Environmental Protection Agency		No
15	<i>Jämtland</i> considers that it should become even easier as a consumer to make good environmental choices when shopping. They are of the opinion that requirements should be laid down for manufacturers and importers of electrical and electronic products. They go on to say that just as a future vehicle tax is to be based on the vehicle's fuel consumption, it would be desirable for the same principle also to apply to other consumer products.	Government, Swedish Consumer Agency and other authorities	Informative instrument	No

16	<i>Dalarna</i> argues that changed patterns of consumption are of key importance to attain the environmental objectives, and that if ecologically sustainable development is to be attained, it is crucial that Sweden and other developed countries contribute to sustainable development globally. There are goals and strategies for ecologically sustainable development in consumer policy and global policy for sustainable development. These partially plug gaps in the structure of environmental objectives and additionally provide a more comprehensive picture of work towards ecologically sustainable development. The intention is for these objectives also to be met regionally and locally. This is done to a small extent. They propose central initiatives targeted at the regional and local level to make the environmental objectives visible and communicate them in these policy areas. In addition to identify measures regionally and locally that can contribute to these objectives. Examples of issues that could be elucidated are: food consumption, importing of feedstuffs, procurement of wood material. The county administrative board and regions can be given tasks regionally here.	Government	Possibly informative instrument	No
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Rural development policy

17	<i>Skåne</i> argues that the links between environmental objectives and rural development have been strengthened by the new rural development programme. They would to see the Swedish Board of Agriculture's follow-up of this coordinated where applicable with the follow-up of the environmental objectives. They go on to say that the county administrative boards can be given equivalent assignments at regional level.	Government, Swedish Board of Agriculture		No
18	<i>Södermanland, Uppsala, Västmanland and Örebro</i> write that the government and the national authorities in various ways can influence the prospects of attaining the environmental objectives by conducting an active policy on rural areas.	Government, Swedish Board of Agriculture, Swedish National Rural Development Agency and other authorities		No

Housing policy

19	<i>Skåne</i> writes that there have been several national initiatives to integrate the environmental objectives into physical planning. They propose that the municipal comprehensive plan in future amendments to the Planning and Building Act be developed into a strategic tool that makes an active contribution to attainment of the environmental objectives. They go on to propose that the intermunicipal and regional perspective should be given greater emphasis in the physical planning so that expansion and housing development can be combined with a long-term sustainable transport system.	Government, National Board of Housing, Building and Planning	Administrative instrument	No
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Protection against and preparedness for accidents and other strains

20	<p><i>Skåne</i> writes that several environmental objectives have links with issues concerned with protection against and preparedness for accidents and severe strains. They mention here the efforts of the Swedish Rescue Services Agency in relation to the environmental objectives and write that there is reason for the central authorities responsible for emergency planning and protection against accidents to jointly clarify how their operations can contribute to the environmental objectives and how roles and responsibilities should be distributed. They go on to say that county administrative boards and municipalities may need support in their work on integrating environmental objectives into protection/preparedness.</p>	<p>Most central agencies, principally the Swedish Rescue Services Agency</p>		<p>No</p>
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APPENDIX 2

Impacts of the environmental quality objectives

Preface

The Environmental Economists Group in the Unit for Environmental Economics and Sustainable Production and Consumption at the Swedish Environmental Protection Agency has summarised the impact assessments in the objectives reports in the 2008 in-depth evaluation on behalf of the Environmental Objectives Council. The aim has been to summarise existing assessments in as uniform a way as possible. No supplementary assessments have been made but obvious questions have to some extent been addressed and gaps have been closed where supplementary data have been found to be readily available. Drafts of summaries have been reconciled with those responsible for the

objectives, who have been given an opportunity to make changes and additions. This means that the summaries may contain certain information not available in the objectives reports. It may also be the case that information has been updated after this synopsis has been completed as changes and additions to the impact assessments have been continuously in progress. It has not been possible to include all updates and changes.

The Environmental Economists Group has not reviewed the impact assessments factually, and the contents have consequently not been evaluated.

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Introduction

BACKGROUND

The in-depth evaluation of the environmental quality objectives included proposing new interim targets with associated measures and policy instruments and assessing their impact. A report has been drawn up for each environmental quality objective which, among other things, contains impact assessments. It can sometimes be difficult to obtain an overview of the impact assessment as it may be divided into various chapters in the report and may not always be expressed in a uniform manner. This report is therefore intended to describe the impacts of the individual interim targets in a uniform and concise manner and to provide an overview of costs associated with attaining a particular target. It may also be of interest to draw conclusions that transcend the individual targets.

AIM

The purpose of this report is to summarise the impact assessments for the combined proposals in the Environmental Objectives Council's in-depth evaluation of the environmental objectives in 2008.

LIMITATIONS

The costs indicated in this summary are only intended to represent orders of magnitude. For further information and sources, reference should be made to the objectives report for the environmental quality objective concerned. The estimates of costs and benefits contained in the objectives reports have not been reviewed or questioned. This report has been prepared alongside the work on the three action strategies and at the same time as additions and amendments have been made to the impact assessments at the level of objectives with assistance from authorities responsible for the objectives. New information may, however, have emerged since this report was completed.

TARGET GROUP

The principal target groups are judged to be the Environmental Objectives Council and the Ministry of the Environment, but others with a particular interest in the impacts of attaining the environmental quality objectives may also benefit from reading the report.

STRUCTURE OF THE REPORT

We have tried as far as possible to describe the impact for each environmental quality objective and interim target in a uniform way. We begin with a general analysis of problems for whole environmental quality objectives and then go on to describe reference alternatives, proposed measures and policy instruments and economic impacts of these for each interim target. The report concludes with a summary of costs to society and central government of attaining the environmental objectives, based on the data on costs contained in the environmental objectives reports and supplements received subsequently from the government agencies.



Reduced Climate Impact

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

The wording of this environmental quality objective is unchanged.

Problem analysis

Human activities affect the climate, and the effects of global warming are serious for both the environment and the economy.

World sea levels have already risen. The average temperature and acidification of the seas have increased at the same time. Cold winter days and nights with frost have become more uncommon, while the number of very warm summer days has risen. Heavy downpours have become more common in most parts of the country. More intensive and prolonged periods of drought have, however, been observed in the tropics and subtropics.

Ongoing climate change will have serious consequences for economic growth and development. The cost may very well amount to an average loss of global GDP of the order of 5-10%. The cost would rise if effects for example on human health and social aspects of migrations of peoples as a result of floods were included in full. If climate change also results in lower agricultural production, food prices would rise sharply and an ever greater proportion of the resources of society would be required for food production.

INTERIM TARGET

Greenhouse Gas Emissions

CURRENT INTERIM TARGET

As an average for the period 2008-2012, Swedish emissions of greenhouse gases will be at least 4% lower than in 1990. Emissions are to be calculated as carbon dioxide equivalents and are to include the six greenhouse gases listed in the Kyoto Protocol and defined by the IPCC. In assessing progress towards the target, no allowance is to be made for uptake by carbon sinks or for flexible mechanisms.

No interim target Swedish greenhouse gas emissions for 2020 has been established. The previous Swedish Government expressed its view in Government Bill 2005/06:184 that Sweden would be able to reduce its emissions by 25% in 2020 in comparison with 1990.

REFERENCE ALTERNATIVE

Globally a rise in temperature of between 1.8 and 4°C is expected at the end of this century compared with the end of the 20th century if nothing further is done to limit climate impact.

Swedish greenhouse gas emissions are expected to decrease by around 2% by 2020 in comparison with 1990 if no further measures are taken.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

There are opportunities to limit greenhouse gas emissions principally in the transport, energy supply and industry sectors. The measures are concerned with improving energy efficiency and changing fuels. In addition, there is the option of investing in measures to limit emissions in other countries.

To reduce emissions within the installations covered by the EU Emissions Trading Scheme, it is proposed that a restrictive allocation of emission allowances should be done centrally in the EU. In addition, a greater proportion of emission allowances should be auctioned.

To reduce emissions in the transport sector, EU-wide emission requirements for new cars, a rise in and index-linking of vehicle fuel taxes, increased

carbon dioxide differentiation of vehicle tax, basing the rules of the benefit value of a free car on carbon dioxide and a commitment to the EU target of 10% vehicle biofuels by 2020 are proposed. Direct climate investment subsidies and grants from the Rural Development Programme for conversion from oil in greenhouses and agriculture, forestry and fishing are also proposed.

Cost-effective measures such as digestion of farmyard manure to produce biogas, energy efficiency and fuel conversion in industry and the phasing-out of remaining oil use in the housing sector were also identified. However, there is a need here to investigate which policy instruments are most appropriate.

In addition, central government purchases of emission reduction units in other countries can be made.

ECONOMIC IMPACTS

Households

Households are most affected by the changed management of the transport sector.

The proposed increase in tax on petrol results in a loss of prosperity of around SEK 100m for example for journeys not made and other changes in travel habits. The redistribution of resources in the economy (transfers) will be SEK 2,400m, which results in an average cost increase of just over SEK 600 per car owner. This effect is not equally great for all households in the country and varies with size of household, type of car and how dependent people are on their cars. The distribution effect is estimated to be greater for households with diesel cars. A regional distribution effect of vehicle fuel taxes is that households in rural areas which are normally more dependent on cars and have cars with higher fuel consumption than average may face up to 15% higher expenditure on fuel as a result of an increase in fuel taxes in comparison with the average household.

The proposed change in vehicle tax principally affects private motoring. Loss of prosperity and distribution effects are expected to represent a slight positive net effect for households. This is partly due to energy-efficient cars having lower fuel costs per kilometre. Proposed changes to benefit value have significantly greater effects for the choice of more energy-efficient cars than the vehicle tax proposal. If no reduction is made in the benefit

value of green cars, the net effect of our proposal with cars provided as a benefit that exist at present will be an increased average cost for the benefit-car motorist of SEK 6,000. If motorists driving a car provided as a benefit adapt to the change by choosing energy-efficient cars, the increase in cost can be turned into a saving.

Industry

Different sectors are differently placed with regard to bearing the costs associated with climate targets and the application of policy instruments. The policy instruments that most affect the competitiveness of industry are the trading scheme and the increase in diesel tax.

According to model calculations of long-term effects on manufacturing industry of the EU emissions trading scheme, the trading sector as a group will have substantially reduced gross profit margins, but will see small changes in total production volume and profits. In addition, there will be a substantial increase in demand for labour. The trading scheme has most impact on production and employment in the non-metallic mineral products industry. The metal products, rubber and plastic industries and other industry are affected least.

The proposed rise in diesel duty affects both the haulage industry and manufacturing industry.

Central government

The proposed changes in management of the transport sector produce revenue for public finances. Central government also faces increased expenditure for the purchase of emission reduction units in other countries and a commitment to direct climate investment subsidies. As an aggregate figure, these changes in policy instruments lead to increased central government revenue of SEK 7,000 to 13,000 million per year from 2010 to 2020, while expenditure increases by a sum of less than SEK 1,000 million per year.



Clean Air

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

The wording of this environmental quality objective is unchanged.

Problem analysis

Emissions of various air pollutants cause harm to human health, agriculture, forestry and buildings. Several air pollutants also contribute to the increasing greenhouse effect.

- The interim target for sulphur dioxide has been met in all Swedish municipalities for a number of years.
- A large proportion of urban areas in Sweden have carbon dioxide levels that exceed the interim target on very busy streets.
- The interim target for ozone concentrations was exceeded at all measuring sites in Sweden in most years over the period 1990-2006.
- Particulates are judged to be the type of air pollution that causes the greatest health problems in urban areas in Sweden. Current interim targets are exceeded in many places today.
- The most significant emissions of benzo(a)pyrene today are from wood burning.

INTERIM TARGET

Sulphur Dioxide

CURRENT INTERIM TARGET

A level of sulphur dioxide of 5 µg/m³ as an annual mean will have been achieved in all municipalities by 2005.

This interim target has been met throughout the country.

REFERENCE ALTERNATIVE

The interim target has been met throughout the country trends suggest that this situation will persist.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

The Swedish Environmental Protection Agency proposes that the interim target be withdrawn from the system of interim targets and no proposals are therefore made measures either. However, the measures and policy instruments proposed for shipping in interim targets under Natural Acidification Only are important so that we can continue to be below the interim target level throughout the country.

Follow-up is required to check that the concentrations stay below 5 µg/m³. This applies in particular to places not affected by emissions from international shipping and port traffic, as well as individual places containing industry that emits sulphur dioxide. Sulphur dioxide is an important indicator for these sources of emissions.

INTERIM TARGET

Concentrations of Nitrogen Dioxide

PROPOSAL FOR REVISED INTERIM TARGET

From 2010 onwards, concentrations of nitrogen dioxide of 60 µg/m³ as an hourly mean and of 20 µg/m³ as an annual mean will be and large not be exceeded. The hourly mean may not be exceeded for more than 175 hours per year.

The current interim target (which applies until 2010) has not been attained, and it is proposed that this interim target be retained but re-worded so that it continues to apply after 2010.

REFERENCE ALTERNATIVE

With present-day trends and projections it will be very difficult to attain the interim target by 2010. Although emissions of nitrogen oxides from road traffic are falling, the proportion of nitrogen dioxide in the total quantity of nitrogen dioxides in emissions is increasing, as the relative share of nitrogen dioxide has risen and more ozone is available to convert nitrogen oxide to nitrogen dioxide. Future levels of nitrogen dioxide will depend firstly on total nitrogen dioxide emissions and secondly on future ozone levels.

IMPACTS

Table 1. Potential and costs up to 2010: Policy instruments.

	NOx reduction, total	NOx reduction in urban areas	Effect on level of NO ₂	Socio-economic impacts	Impacts for public finances
Congestion tax	100–500 tonnes/year	10% in city according to the Stockholm trial	Max 5 %	+ 1.4 billion per year	+ SEK 831 million in Stockholm alone (excl. operation and investment costs)
Benefit taxation of parking	100 tonnes/year	~10% in towns and cities	~ 2 %	- Increased journey time - Decreased convenience	+ Increased tax revenue?
Policy instrument ¹ for scrapping of cars without catalytic converter	2,000 tonnes/year		1–3 % ²	+ SEK 430 million per year.	If grant for scrapping, increased expenditure for central government
Kilometre tax on heavy goods vehicles	1,340–2,440 tonnes/year		Heavy goods vehicles account for a large share of the contribute to concentration	+–0	Increased tax revenue of SEK 5 billion per year. Increased administrative expenses for the Swedish Tax Agency. SEK 4 million per year and non-recurring cost of SEK 4 million.
Policy instruments in shipping	Small effect up to 2010 due to lack of policy instruments at present. 75,000 tonnes from ships that bunker in Sweden up to 2015 according to interim target under Natural Acidification Only.		Probably important.	SEK -460 million up to 2015 according to interim target under Natural Acidification Only. In addition, risk of re-flagging depending on choice of policy instruments.	Different costs depending on choice of policy instruments.
Raised energy duty on petrol and diesel	Example calculation with increased fuel duty of 45% results in 5% lower vehicle mileage and a reduction in emissions of NOx of around 1,000 tonnes by 2010.	If vehicle mileage decreases in urban areas, emissions will decrease there.	Some decrease.	Costs of reduced prosperity as a result of cancelled and more expensive journeys.	Increased tax revenue.
Total excl. shipping	~ 4,500 tonnes/year	~ 20 %	~max 10 %	SEK +1,830 million excluding costs that have not been monetarised.	+ Increased tax revenue - Expenditure on grants, where applicable - Increased admin. costs.

1. Differentiated vehicle tax with respect to age of vehicle with addition for vehicles without a catalytic converter and where appropriate in combination with compensation for scrapping of older cars to mitigate the effects of distribution
2. Including prohibition of cars without a catalytic converter

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Measures

- Limit traffic mileage.
- Increase the efficiency of transport.
- Limit emissions from older vehicles and machines and vehicles with high emissions.

Policy instruments

The reduction in NO_x emissions is estimated for the policy instruments listed below. It is uncertain what effect these would have on levels of NO₂. Nationwide models to estimate changes in levels due to individual measures are under development.

- Congestion charge in Stockholm, Göteborg and Malmö in accordance with the Stockholm Trial model.
- Apply the rules on taxation of benefit of free parking in full.
- Introduce policy instrument for scrapping of cars with no catalytic converter
- Introduce kilometre tax for heavy goods vehicles
- Introduce policy instrument in shipping according to the proposed interim target under Natural Acidification Only.
- High energy duty on petrol and diesel
- Alter the taxation of the benefit of a free car.

INTERIM TARGET

Ground-Level Ozone – Protection of Human Health

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, concentrations of ground-level ozone will not exceed 100 µg/m³ as an 8-hour mean. This value is to be calculated as a running average over the last three years, and may not be exceeded on more than 35 days per year.

REFERENCE ALTERNATIVE

There is a certain downward trend for the maximum 8-hour mean. However, it is not realistic to believe that there will be time for the international measures required to meet the interim target to be implemented by 2010. Carbon dioxide emissions from shipping, which are of great significance, are additionally increasing.

The annual economic costs of the adverse impact of ground-level ozone on vegetation in Sweden at the current level of ozone pollution, aggre-

gated for the whole country, have been estimated at SEK 160 million for agricultural crops and SEK 340 million for forest, giving a total of SEK 500 million. In addition there are the costs of effects on health. At EU level these are estimated at EUR 4-5 billion.

POSSIBLE MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

More efficient transport and reduced exposure

See interim targets of Concentrations of nitrogen dioxide and Emissions of non-methane volatile organic compounds, in particular the proposals for measures and policy instruments for shipping. A study is in progress on the significance of national emissions.

INTERIM TARGET

Emissions of Volatile Organic Compounds

The current interim target, “By 2010 emissions in Sweden of volatile organic compounds (VOCs), excluding methane, will have been reduced to 241,000 tonnes”, has been met.

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, emissions of non-methane volatile organic compounds (NMVOCs) in Sweden, in tonnes per year, will be in line with the country’s undertaking under a new National Emission Ceilings Directive.

REFERENCE ALTERNATIVE

Emissions of NMVOCs are falling in Sweden and in the rest of Europe. Projections to 2020 point to a continued decrease in emissions from the transport sector. For construction machinery and energy production there is further potential to reduce emissions if measures are taken to reduce emissions from snowmobiles and wood burning. Industrial processes point to some increase in emissions. Projections for solvent and product use, which at present is the sector causing the greatest emissions, point to emissions in 2020 at the same level as today.

INTERIM TARGET

Concentrations of Particles

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, concentrations of particles of 30 µg/m³ as a 24-hour mean for PM₁₀, 10 µg/m³ as annual mean for PM_{2.5} and 18 µg/m³ as an annual mean for PM₁₀ will not be exceeded. The 24-hour mean concentration may not be exceeded on more than 35 years per year.

REFERENCE ALTERNATIVE

It will be very difficult to attain the interim target by 2010. The interim target is currently exceeded in many places. Trends and projections indicate that this situation is persisting.

The trends for measured concentrations of PM10 and PM2.5 suggest that levels are not falling.

By applying risk coefficients developed by WHO and the levels of particulates measured in Sweden, the total number of premature deaths has been estimated at around 5,000 for Sweden as a whole, which is equivalent to a shortening of life expectancy of around 12 months (Forsberg et al. 2004).

INTERIM TARGET

Concentrations of Benzo(a)pyrene

CURRENT INTERIM TARGET

A level of benzo(a)pyrene of 0.3 ng/m³ as an annual mean will largely not be exceeded by 2015.

This target remains unchanged.

Table 2. Measures and policy instruments to reduce NMVOC emissions.

Measure	Instrument
Scrap wood-fired boilers not approved under the building regulations of the National Board of Housing, Building and Planning (BBR).	Environmental classification system for firing equipment with associated differentiated environmental charge.
Make sure that households switch to best available technology when replacing a wood-fired boiler.	
Replace old light off-road vehicles with new ones with better emissions characteristics and improve permeability.	Introduce environmental classes for light off-road vehicles in accordance with the American emission requirements.
	Introduce policy instruments for early scrapping.
Change over to alkylate petrol in outboard engines and other small petrol engines.	Information on the advantages offered by alkylate petrol.
	Improved opportunities to supply fuel.

IMPACTS

Table 3. Impacts of measures and policy instruments to reduce NMVOC emissions by 2020.

Measure/policy instrument	Reduction in NMVOC emissions	Socio-economic impacts	Impacts for public finances
Wood-fired boilers	4,500 tonnes	+ SEK 800 million per year.	SEK 0 – households are responsible for costs of measures
Light off-road vehicles	26 000 tonnes ⁴	The costs are probably low ⁵	If grants for scrapping are introduced the costs will rise.
Alkylate petrol	Uncertain ⁶		

3. No assessment of what increased permeability causes, in either benefit or cost.

4. Provided older off-road vehicles have been replaced by new ones which meet the USEPA requirements by 2020.

5. Source: Fridell E. m.fl. (2007) Emissioner från små arbetsmaskiner (Emissions from construction machinery). IVL report B1711.

6. NMVOC emissions from pleasure boats outboard engines are estimated at around 7 000 tonnes in 2005.

POSSIBLE MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

Table 4. Impacts of measures and policy instruments to reduce particulate emissions.

Measure	Instrument	Reduced particulate emissions	Reduced particulate level	Socio-economic impacts	Impacts for public finances
Reduced use of studded tyres in urban areas/ regions with high levels of particulates.	Local studded tyre damage in urban areas/ regions with high levels of particulates.		Calculations for Stockholm show that a decrease in proportion of studded tyres from 75% to 20% would reduce 24-hour means by 30–50 micrograms/m ³ .	The socio-economic benefit of winter tyres with studies exceeds the costs provide the proportion of studded tyres does not fall below the 20% required to roughen up the road surface.	Tax revenue from the studded tyre tax.
	Information initiatives.				Cost of information campaign.
	Differentiated parking charges.				
Wood burning ⁷	Environmental classification of boilers with associated differentiated registration fee.	Approx. 2,400 tonnes by 2015			
More efficient transport and reduced exposure ⁸					
Light off-road vehicles and other machinery ⁹					

7. For a description of measures, policy instruments and costs, see the interim target Emissions of Volatile Organic Compounds.

8. See the interim target Concentrations of Nitrogen Dioxide

9. See the interim target Concentrations of Nitrogen Dioxide

REFERENCE ALTERNATIVE

Future trend for sources that produce PAH emissions is towards substantially reduced emissions.

Emissions from traffic are expected to fall further, while it is expected that increased use of bio-fuels in small-scale heating may lead to increased emissions. The prospect of attaining the interim target depends on a reduction in emissions from small-scale wood burning.

POSSIBLE MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

Wood burning

The estimated reduction in benzo(a)pyrene is around 0.5 tonnes by 2020.

For a description of measures and policy instruments and an estimate of the costs of these by

2020, see the interim target Emissions of Volatile Organic Compounds.

INTERIM TARGET

Ground-Level Ozone – Protection of Vegetation

PROPOSAL FOR NEW INTERIM TARGET

By 2015, concentrations of ozone during the growing season will be reduced so as to achieve an acceptable level of exposure and thus avoid damage to vegetation, i.e. the value of AOT40 from April to September will not exceed 20,000 µg/m³-h, calculated as an average over the last five years.

REFERENCE ALTERNATIVE

A rough estimate of the economic benefit that arises with regard to the impact of ozone on vegetation in Sweden, if the proposed interim target is

met over the area of the whole country, compared with present-day ozone pollution, is SEK 150 million annually.

This interim target can be met for most of the land area of the country by 2020. A higher level of aspiration is required, however, to attain the interim target by 2015.

MEASURES

See interim target Ground-Level Ozone – Protection of Human Health.



Natural Acidification Only

The acidifying effects of deposition and land use must not exceed the limits that can be tolerated by soil and water. In addition, deposition of acidifying substances must not increase the rate of corrosion of technical materials located in the ground, water main systems, archaeological objects and rock carvings.

It is proposed that the wording of the environmental quality objective be revised.

Problem analysis

Despite extensive reductions in emissions in Europe, this environmental quality objective will not be attained by 2020 as the critical burden for acidification of lakes is still estimated to be exceeded on 12% of the area of lakes. Three out of four existing interim targets for the acidification objective have already been met (the number of lakes and watercourses affected by acidification, acidification of forest soil and the interim target for emissions of sulphur dioxide). Further measures are required for the interim target on nitrogen oxide to be attained. Shipping is a significant source of emissions of both sulphur and nitrogen oxides.

INTERIM TARGET

Acidified Fresh Waters

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, the proportion of fresh waters acidified as a result of human activities will not exceed 25% in south-west Sweden or 5% in central and south-east Sweden. In northern Sweden, no increase in acidification will occur.

Definition:

The interim target is defined in terms of numbers of lakes with an area of more than 1 hectare and watercourses with a catchment area larger than 2 km². Limed waters which according to the national environmental quality criteria are classed as affected by acidification will also be considered to be acidified.

REFERENCE ALTERNATIVE

The projection to 2010 points to a reduction of acidification of lakes and watercourses by a further few tenths of a per cent.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

The change in this interim target does not require any physical measures beyond those proposed for other interim targets. On the other hand, the new wording of the interim target makes greater demands on follow-up than previously. A higher number of samples lakes is required to achieve the same accuracy in estimating the proportion of acidified lakes in each region as for the country as a whole.

IMPACTS

Regionalisation of the interim target requires greater area-coverage monitoring of lakes, but it is not possible to calculate how much greater on the basis of data available at present. The inclusion of lakes with an area of 1-4 ha and acidified limited lakes in the interim target does not lead to an increased need for follow-up.

INTERIM TARGET

Acidified Forest Soils

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, the area of forest land in south-west Sweden with high or very high soil acidity will be reduced by 20% compared with 2000. In other acidified areas of Sweden, a continued improvement will be seen.

REFERENCE ALTERNATIVE

More intensive agriculture, with greater extraction of biomass, which is not offset for example by return of ash, can adversely affect the ability of forest soil to recover from acidification.

POSSIBLE MEASURES

To enable this interim target to be achieved, there is a need for emissions of acidifying sulphur and

nitrogen to decrease internationally but also nationally (see other interim targets). There is a need for reductions in emissions decided upon internationally to be implemented, but also for new lower emissions ceilings for acidifying substances to be set in the negotiations in the EU on a new ceilings directive. The impact of acidification from forestry must not increase either.

IMPACTS

As this interim target principally depends on reduced emissions from other countries, it is difficult to perform an impact assessment linked to the need for measures. The follow-up of the revised interim target does not entail any further costs or changes in comparison with previous follow-up of interim targets.

INTERIM TARGET

Sulphur Dioxide Emissions

CURRENT INTERIM TARGET

By 2010 emissions of sulphur dioxide to air in Sweden will have been reduced to 50,000 tonnes.

This target has been met. No new interim target is proposed.

REFERENCE ALTERNATIVE

According to the projection which extends to 2020, sulphur emissions will continue to decrease to 29 000 tonnes by 2020 with policy instruments already introduced.

POSSIBLE MEASURES

No new measures are proposed. Swedish emissions of sulphur are very low, it is expected that they will fall further, and their share in deposition in Sweden is marginal. Further measures in Sweden are very expensive in relation to the costs of measures in other countries and in shipping. In 2020 it is also estimated that Swedish emissions will be close to what it is technically possible to achieve, and there is little potential for non-technical measures for Swedish emissions. Measures are proposed under the interim target of Emissions from Shipping to reduce emissions of sulphur and nitrogen from shipping.

INTERIM TARGET

Nitrogen Oxide Emissions

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, emissions of nitrogen oxides to air in Sweden will have been reduced to 130,000 tonnes.

REFERENCE ALTERNATIVE

Projected total NO_x emissions for 2010 are 154,000 tonnes and for 2015 are 138,000 tonnes.

POSSIBLE MEASURES

Measures can be taken for road transport, construction machinery, industry, shipping and housing to reduce nitrogen oxide emissions.

Some possible measures are:

- Increase the load factor on trucks.
- Use better trucks from the environmental point of view.
- Transfer freight from road to other modes of transport.
- Reduce emissions in energy production in fixed incineration plants.

POSSIBLE POLICY INSTRUMENTS

- Introduce a kilometre-based tax for heavy goods vehicles (>3.5 tonnes total weight).
- Raise the NO_x charge to SEK 60/kg NO_x and extend it to cover fixed combustion plants where the combustion products are used for heating, drying or other treatment of objects or materials.

INTERIM TARGET

Acidifying Effects of Forestry

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the acidifying effects of forestry in acidified areas will not exceed levels that are offset by natural processes.

REFERENCE ALTERNATIVE

It is assumed in the reference alternative that the current level of return of ash in the acidified region will be retained while the area of extraction of biomass with a clear acidifying effect increases by 30%.

POSSIBLE MEASURES

Increased return of ash in acidified areas where the extraction of base cations in forestry exceeds weathering (at a depth of around 50 cm in the soil)

Measures such as screening, buffer zones and increased deciduous admixture should be considered so that measures in forestry do not result in increased leaching of nitrogen and organic substances.

POSSIBLE POLICY INSTRUMENTS

- Increased and routinely repeated information to combined heat and power plants, landowners and other parties on the need for compensation. (No. 1)
- Better follow-up of how different regions and categories of landowners each separately fulfil the target, which is communicated more clearly and routinely to the world at large. (No. 2)
- Take measures that counteract co-firing pure wood fuels and fuels with higher levels of heavy metals, which makes the ash non-returnable. (No. 3)
- Grant fewer permits for landfilling or use of returnable ash other than return. (No. 4)
- Make ash in the forest industry subject to some form of landfill tax. (No. 5)

IMPACTS

Table 5. Impacts of policy instruments to reduce NOx emissions.

Policy instrument	NOx reduction by 2015	Socio-economic impacts	Impacts for public finances
Kilometre tax	2,300 tonnes	SEK -1.8 billion per year ¹⁰	SEK -900 million per year ¹¹
NOx charge	7,100 tonnes (6,200 tonnes for existing installations and 900 tonnes for new ones)	The average cost of the reduction in emissions at the installations subject to payment of charge at present is estimated at around SEK 25 per kilogram, while the cost in new operations is expected to be around SEK 35 per kilogram. The total costs are therefore estimated at around SEK 185 million.	Increased cost of SEK 20 million per year in administrative expenses for the newly added installations. ¹²

10. The costs of reduced production and employment (~ SEK 900m/year), investments, operation and control (SEK 900m per year), as well as administrative costs for the Swedish Tax Agency (SEK 4 million in annual cost and non-recurring cost of just over SEK 4 million).

11. Costs of investments, operation and control and administrative for the Swedish Tax Agency (see above).

12. Swedish Environmental Protection Agency report 5356, Förslag för kostnadseffektiv minskning av kväveoxidutsläpp (Proposals for cost-effective reduction of carbon dioxide emissions), 2004

INTERIM TARGET

Emissions from Shipping

PROPOSAL FOR NEW INTERIM TARGET

By 2015, emissions of sulphur dioxide from ships bunkering in Sweden will have been halved and emissions of nitrogen oxides will have decreased compared with 2005.

REFERENCE ALTERNATIVE

Projections point to 25% higher emissions of nitrogen oxides in 2015 than in 2005, and sulphur dioxide emissions are expected to fall by 25%.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Action

- To reduce sulphur emissions from ships flue gases can be scrubbed with seawater or a change can be made to fuel with a lower sulphur content.
- To reduce emissions of nitrogen from ships it is possible to make simple and advanced engine modifications, use water injection or humid air motor (HAM) technology or install catalytic converters.

Instrument

National policy instruments

- Tightened differentiation of fairway dues.
- Emission requirements for passenger vessels.
- Procurement requirements.
- NOx charge (as in Norway).

IMPACTS

Table 6. Impacts of return of ash.

Measure	Policy instrument	Impacts for public finances	Socio-economic impacts
Return of ash			SEK 6–16 million per year depending on how great the extraction of biomass is. The cost is borne by those who produce ash.
	No. 1	SEK 230,000–700,000 per year depending on what the alternative way of dealing with the ash is.	SEK 230,000–700,000 per year depending on what the alternative way of dealing with the ash is.
	Nos 3–4	Increased costs.	Increased costs.
	Follow-up	Costs to the Swedish Forest Agency of around SEK 0.7–1.8m per year	Estimated costs to the Swedish Forest Agency of around SEK 0.7–1.8m per year depending on level of aspiration.

Environmentally differentiated support for shipping.

International policy instruments

- Trading in SO_x and NO_x.
- NO_x charge system.
- Tightened emission requirements for sulphur through IMO or the EU, 0.5%.
- Environmentally differentiated shipping support in the EU.
- National governments purchase reductions from ships.
- Emission requirements for passenger vessels.

COSTS AND ACTION POTENTIAL OF INDIVIDUAL MEASURES

Changing over a fuel with a lower sulphur content costs around SEK 10-20/kg and reduces emissions by between 40 and 80%. Scrubbing costs SEK 3-4/kg sulphur and reduces emissions by 75%.

Measures to reduce NO_x emissions cost between SEK 0.14/kg NO_x (simple engine modifications) and around SEK 7/kg NO_x (catalytic converter). Simple engine modifications reduce emissions by 20% and with a catalytic converter emissions can decrease by as much as 90%.

COSTS AND ACTION POTENTIAL OF PACKAGE OF MEASURES

If all the ships that bunker in Sweden change to fuel with 0.5% sulphur content and half of ships install far-reaching NO_x treatment, emissions of sulphur can be reduced by almost 40 ktonnes by

2015 (a halving of emissions compared with the reference scenario in 2015) and emissions of nitrogen can decrease by almost 80 ktonnes (a reduction of around 40%). The costs of taking measures are between SEK 0.8 and 2.5 billion per year. If the measures are to be put into effect, strong policy instruments need to be implemented. See below.

IMPACTS OF POLICY INSTRUMENTS

National policy instruments

- Emission requirements on ships may lead to increases in ticket prices on ships concerned of 1–3%
- Procurement requirements can lead to slightly increased transport costs.
- Environmentally differentiated shipping support may lead to re-flagging from Sweden

International policy instruments

- Trading in SO_x and NO_x, NO_x charge and tightened emission requirements for sulphur (0.5% sulphur content) via the IMO or the EU may lead to a slight increase in transport costs.
- Environmentally differentiated shipping support may lead to re-flagging from the EU.
- If central government runs reductions from ships, this means that central government will pay for the sector's environmental activities.
- Emission requirements on ships in the EU may lead to increases in ticket prices on ships concerned of 1–3%.



A Non-Toxic Environment

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

The wording of this environmental quality objective is unchanged.

Problem analysis

The difficulties in achieving a Non-Toxic Environment within a generation are principally due to the diffuse dispersal of substances that are harmful to the environment and human health from articles, the unintentional formation of substances and the fact that persistent and bioaccumulative substances already dispersed in the environment remaining there for a long time to come. In addition, people handle a large number of chemicals whose harmful properties have not been sufficiently studied, particularly in the working environment.

In around 50 years chemical production around the world has increased from less than 10 million tonnes to more than 400 million tonnes per year. Global production of chemicals is expected to grow by 85% between 1995 and 2020. The substances are dispersed when articles are produced, used, recycled, incinerated or landfilled. Substances are also dispersed by leakage of surface water and groundwater from contaminated sites. Some substances that have been studied in long time series in the environment are decreasing, while other substances are increasing or occur in varying trends. No clear assessment can therefore be made of the trend in the state of the environment. There are great knowledge gaps with regard to the presence and possible effects of the majority of chemicals in the environment. The majority of Swedish industrial sources today are characterised by emissions with low concentrations, but large flows for example of flue gases and waste which may, for instance, contain unintentionally formed substances such as dioxins also occur.

Strong measures are required for different arenas if a Non-Toxic Environment is to be attained. The proposed measures entail

- continued development of preventive chemical control to prevent damage before it occurs
- tightened legislation, more effective supervision and enforcement, strong implementation of new rules
- Swedish commitment to global efforts relating to chemicals
- Swedish research at a high level to develop work focused on a Non-Toxic Environment
- reduced use of hazardous substances in articles, primarily businesses that use chemicals but also other uses of articles containing hazardous substances.

INTERIM TARGET

Information on Health and Environmental Properties of Chemical Substances

PROPOSAL FOR REVISED INTERIM TARGET

By 2018, sufficient information will be available on the hazardous properties of manufactured, imported and extracted chemical substances with respect to human health and the environment.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *For medicinal products, sufficient information will be available on the environmental hazards they present, based on expected concentrations of the substances concerned in the environment.*
- *It is particularly important that information is available on chronic toxicity to aquatic organisms and on persistent, bioaccumulative and toxic (PBT) properties.*
- *Based on expected concentrations of the substances in the environment, sufficient information will be available on the environmental hazards of food additives, particularly in the case of substances that are persistent in the environment.*
- *For chemical substances manufactured or imported in significant quantities (over 10 tonnes, information will be available on the health and environmental hazards they present, corresponding to the information require-*

ments of REACH. For individual substances, a lower level of information will be acceptable only if it does not adversely affect the possibility of ensuring safe handling.

- For chemical substances manufactured or imported in smaller quantities (1–10 tonnes), information will be available on the health and environmental hazards they present, corresponding to the information requirements for substances that are currently priority low-volume substances under REACH.
- No specific information requirements are defined at present for substances manufactured or imported in quantities of less than 1 tonne.
- When methods become available that are reasonable from an animal welfare and an economic point of view, the interim target should be supplemented to include additional information requirements. Information requirements should then be made more stringent for all substances below 10 tonnes.
- For all substances, regardless of quantity, for which the information available is inadequate in relation to their handling, companies must take this uncertainty about risks into account in their assessment and perform further tests or take additional precautions to prevent damage to human health and the environment.
- Information will be available on the health and environmental hazards of nanosubstances.

The measures proposed for the interim target in brief signify:

The knowledge requirements contained in REACH are insufficient for chemical substances manufactured or imported into the EU in low volumes. The knowledge requirements in REACH must be made stricter for this group of substances. If it is to be possible for the knowledge required for virtually all substances to be made stricter, it is important that methods that fewer or no experimental animals are used are developed, validated and introduced into legislation. Research and development of test methods also essential for new risks such as nanotechnological substances.

REFERENCE ALTERNATIVE

Although the knowledge requirements in the EU's new chemicals regulation REACH may be adequate for substances in large volumes, they are dependent on future updates to the annexes to the Regulation, the wording of guidance documents and actual application. The knowledge requirements for low-volume substances are inadequate in relation to the interim target, but do signify an improvement. In the case of substances where there

is inadequate knowledge the companies must weigh uncertainty over the risks into their assessment. No legislation currently requires knowledge of the health and environmental hazards of unintentionally formed and extracted substances, for example substances formed in combustion processes.

INTERIM TARGET

Information on Dangerous Substances in Products

PROPOSAL FOR REVISED INTERIM TARGET

By 2018, anyone using a product will be provided with health and environmental information on any dangerous substances present in it. This information will be available throughout the life cycle of the product.

The measures proposed for the interim target in brief signify:

- Information requirements for articles introduced through REACH should be expanded to apply to all hazardous substances, and not just those of very high concern.
- Sweden should pursue the issue of developing requirements for information about substances in articles in the Biocides Directive and other product directives.
- Acceptance should be created nationally, in the EU and internationally, for instance in SAIM, that it is important to have information about hazardous substances in articles so that manufacturers and others can contribute to risk reduction.
- The demand for information about the substances in articles should also be encouraged in other ways. Supervision and enforcement of the rules on requirements for information about hazardous substances in articles should be expanded.

REFERENCE ALTERNATIVE

Requirements are introduced through REACH for information to be supplied on substances of very high concern. There is an EU-wide information system for chemical substances and products containing criteria for the assessment of health and environmental hazards and data for example on what hazardous substances are present. This information is to be provided in product labelling and, for products used professionally, also in safety data sheets. However, the system necessitates knowledge (see

the interim target on Information on Health and Environmental Properties of Chemical Substances) on substances contained before they can be classified according to the criteria in the rules.

Proposals are being drawn up in the European Commission for legislation on articles treated with biocidal products which may be available in 2010. This improves the prospects of attaining the interim target.

INTERIM TARGET

Substances of Very High Concern

PROPOSAL FOR REVISED INTERIM TARGET

1. *Newly manufactured products will as far as possible be free from substances of very high concern.*
2. *By 2015, products containing substances of very high concern will, throughout their life cycle, be handled in such a way that those substances are not released into the environment.*
3. *Emissions from production processes of substances of very high concern will as far as possible be reduced. By 2015, substances of very high concern will not be used in production processes unless the operator can demonstrate that no harm will be caused to human health or the environment.*
4. *The long-range transport to Sweden, by air or water, of substances of very high concern will be continuously reduced.*

This interim target applies to substances that are man-made, recovered, or extracted from the natural environment.

"Substances of very high concern" means:

- *substances that are persistent and bioaccumulative (PB substances),*
- *substances that are carcinogenic, mutagenic or toxic for reproduction (CMR substances),*
- *endocrine-disrupting or highly allergenic substances, and*
- *the heavy metals mercury, cadmium and lead.*

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

Table 7. Impact-assessed proposals to increase knowledge of chemical substances.

Proposal	Impact
EU legislation on food additives should be supplemented by requirements for the testing of environmental hazard	Increases knowledge of the environmental hazards of food additives
EL pharmaceutical legislation is supplemented by requirements for the testing of the environmental hazards of active substances	Increases knowledge of the environmental hazards of medicinal products.

REFERENCE ALTERNATIVE

REACH improves the prospects of attaining this interim target. A system of time-limited permits for substances of very high concern is introduced which largely agrees with the groups of substances covered by the interim target. The pressure on companies to replace substances of very high concern will increase. In the case of other hazardous substances, including those contained in imported articles there is a system of restrictions in REACH which is similar to the present-day Directive on Restrictions on Marketing and Use. It is uncertain how the authorisation system and rules on restriction will work in practice. Part of this uncertainty concerns the requirements in the consideration of permit applications. The assessment made is that the target will be attained in time unless further measures are implemented.

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

The measures proposed for the interim target in brief signify:

- Strategic application of permit appraisal and restrictions in REACH with the aim of applying REACH in way that contributes as far as possible to phasing out the substances covered by the interim target.
- Programme to increase knowledge of existing alternatives to hazardous substances and develop new ones. The aim of the programme is to encourage substitution and contribute to innovation in this area.
- Development of rules and policy instruments relating to articles, including the EU's mercury strategy, as well as implementation of the global chemicals strategy (SAICM) and nomination of new substances for international conventions such as the Stockholm Convention.

PROPOSED POLICY INSTRUMENTS AND MEASURES AND THEIR IMPACTS

Table 8. Impact-assessed proposals to increase the availability of information on substances that pose a health and environmental hazard in articles.

Proposal	Impact
Develop the Swedish Chemicals Agency database Varuguiden with data on the content of chemical substances of materials and articles.	Three different levels of aspiration with different costs/benefits. Increases knowledge of chemicals in articles, as well as efficiency.
The requirements for information to uses on substances of very high concern in articles are expanded to apply to more hazardous substances and consumers to receive the information without needing to specifically ask for it.	Impacts neutral from the point of view of competition for companies in the EU. Relatively small extra input by companies and government agencies. Great health benefit.
Introduce requirements for documentation in the form of a building-related logbook about what building products are built into buildings. The documentation should follow the building throughout its life.	Increased costs to the building industry and property owners. Brings about risk mitigation measures according to PPP. Reduces and prevents adverse environmental and health effects of the use of chemicals in buildings. Benefit for society/individuals outweighs costs to public finances and socio-economic costs.
The Government should pursue proposals in the EU that articles treated with biocidal products must be provided with labelling containing information about the biocides.	Increased costs for companies and government agencies justified on the basis reduced risk to human health and the environment. May increase substitution.

- Development of national action programmes for plant protection products supported by the EU strategy for sustainable use of plant protection products. The purpose of this is to counteract the use of plant protection products containing hazardous substances.

INTERIM TARGET

Reducing Health and Environmental Risks of Chemical Substances

PROPOSAL FOR REVISED INTERIM TARGET

The health and environmental risks associated with all handling of chemical substances will be continuously reduced and will by 2018 be so low that no harm will be caused to human health or the environment. Particular account is to take taken of children and sensitive groups. Over the same period, the use of chemical substances that impede recycling of materials will be reduced, so that recycling is not prevented.

REFERENCE ALTERNATIVE

It is not possible to attain the current interim target by 2010. Although known chemical risks are decreasing, new substances are appearing on the market at the same time, and new uses and technologies (e.g. nanoparticles) are being introduced. Knowledge is still lacking on the hazardous properties of many

substances and on the presence of the substances in products. New risks may thus arise.

In the longer term, REACH is expected to lead to reduced chemical risks. At the same time, hazardous chemical substances will need to be used for a long time to come. It is unclear whether REACH provides good protection for products that consist of or contain recycled waste.

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

The measures proposed for the interim target in brief signify:

- To speed up the slow development towards sustainable production of chemicals and use of chemicals, it is proposed that the Swedish Government should take the initiative to investigate the prospects for setting up an institute for sustainable production and use of chemicals. It should be possible for this institute to represent a centre of expertise for green chemistry and sustainable use of chemicals.
- Implement the new European chemicals legislation REACH which, together with changes in other legislation, is expected to contribute to increased knowledge and increased dissemination of information on risks, as well as to further rules on restrictions.

Table 9. Impact-assessed proposals to phase out substances of very high concern.

Proposal	Impact
<p>Further restrictions on lead in products:</p> <ul style="list-style-type: none"> • prohibition of lead in fishing gear • prohibition of certain consumer products in the Product Safety Directive 2001/95/EC t • authorisation for the Swedish Chemicals Agency regarding lead in consumer products 	<p>Increased costs (mostly short-term) for anglers and commercial fishermen, retailers, importers and manufacturers. Increases cost of supervision and enforcement for municipalities.</p> <p>Reduction in direct environmental and health risks for animals, humans, certain risk groups, commercial fishermen, consumers, retailers, manufacturers, those involved in flying as a sport. Reduced costs to society of health and environmental problems. Marginal impacts for government agencies as few prohibitions are expected.</p> <p>Noticeable effects on health and the environment at low net cost to society.</p>
<p>Investigate taxation of aviation gasoline</p>	<p>Increases costs for certain leisure flyers, possibly taxi flights.</p> <p>Positive health and environmental impacts, some increase in central government revenue. Incentives for environmentally sound technological development.</p>
<p>Review the exemptions in the Ordinance (1998:944) with regard to use of cadmium, in particular exemptions for cadmium in artists' paints.</p>	<p>Costs for supervisory and enforcement agencies initially increase. Marginal practical impacts for those affected. Cost of measures not great in relation to benefit.</p>
<p>Expanded information to consumers that low-energy lamps contain mercury and have to be collected, and press for near-consumer collection of these lamps.</p>	<p>Mercury in the waste stream decreases. Socio-economic cost and cost to public finances lower than the gains for society.</p>

- Existing and future directives containing requirements on safety of products need to be at least at the same level as REACH.
- Market-driven policy instruments should be encouraged, for example with various forms of tools that make it easier for purchasers and customers to demand less hazardous products.
- Active work on product choice is a key to attaining this interim target.

INTERIM TARGET

Guideline Values for Environmental Quality

CURRENT INTERIM TARGET

By 2010 guideline values will be established by the competent authorities for at least 100 selected chemical substances not covered by interim target 3.

This target has been attained and now new interim target is proposed in this area.

INTERIM TARGET

Remediation of Contaminated Sites

PROPOSAL FOR REVISED (COMBINED) INTERIM TARGET

By 2015, priority contaminated sites will have been remediated to such an extent that the problem will be solved no later than 2050. Collated, clear and quality-assured information on contaminated sites will be generally available no later than 2015.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Identification of priority sites will ensure that contaminated sites posing very high risks to human health or the environment are remediated first. Particular priority will be given to sites which pose acute risks to humans on direct exposure or which, now or in the near future, threaten important water sources or valuable natural environments.*
- *Generally available information on contaminated sites will ensure that sufficient data on potential and confirmed contaminated sites are available and capable of being utilized to avoid sites being used in ways that cause harm to human health or the environment.*

Table 10. Impact-assessed proposals to reduce risks to health and the environment in all handling of chemical substances.

Proposal	Impact
National action programme against use of plant protection products containing substances of very high concern and to reduce dependence on chemicals.	Cost to public finances of drawing up action programme: SEK 8–10m. Annual socio-economic cost (borne by central government), negotiation programme for the period 2010–2014: approx, SEK 100m.
Adequate opportunities to introduce new or retain old action plans the Plant Protection Products Ordinance to reduce risks of pesticides.	No material changes in Sweden. May entail short-term economic losses for a relatively small company.
Thematic strategy for use of biocidal products to reduce risks in use and dependence.	No full impact assessment. Good prospects of the benefits outweighing the costs.
Label goods treated with biocidal products with information on the biocide concerned. Supplements the information requirement for articles in REACH.	Significant impacts may arise for import businesses in particular. Impacts neutral from the point of view of competition in the EU. Better information for consumers, professional users and government agencies on uses and quantities of biocides. Increased costs in businesses and government agencies justified by reduced risks to health and the environment.
Develop the Ordinance (1998:901) on Self-Inspection by Operators. List of products should include presence and classification of hazardous substances.	The administrative burden for municipalities and government agencies may either increase or decrease. The increase in costs for businesses is estimated at between SEK 1,600 and 8,000 per year.
Review of the waste tax and exemption of more types of waste from it.	The advantages (reduced risk of dispersal of hazardous substances and reduced workload for supervisory and enforcement agencies) outweigh the drawbacks (reduced revenue for central government, reduced recycling of waste).
Tighten requirements for demolition notifications and demolition plans in Planning and Building Act.	Reduced incorrect handling of hazardous waste from the building sector. Benefits outweigh increased costs for operators and supervisory and enforcement agencies.
Investigate financial support for small and medium-sized enterprises in the testing procedure for biological pesticides and introduction of these onto the market.	Socio-economic cost (borne by central government): Investigation work around SEK 2m. Extensive health and environmental benefit in relation to net cost to society.
Investigate financial support for research on biotechnical organisms for control purposes.	Annual investment from public finances of SEK 5–10m over five years. The benefit of the proposal is judged to be large in relation to the sums invested.
The Swedish Chemicals Agency contributes to EU cooperation on supervision and enforcement.	Better product information in the EU, safer Swedish handling of chemical products.
Target for chemical-related requirements to be considered for product groups that may pose chemical risks. Clear away obstacles to purchasers making demands with regard to risks of chemicals.	Great environmental benefit (reduction of risk) for relatively low commitment of resources. Costs of updating procurement criteria justified on the basis of revenue.

REFERENCE ALTERNATIVE

The greatest driving forces in remediation activity are the environmental objective, the legislation and the Swedish Environmental Protection Agency's technical appropriation 34:4, Cleanup and restoration of contaminated sites. More than 80,000 potentially contaminated sites have been identified to date. Of these, 1,500 are estimated to pose very great risks to health and the environment and 15,000 to be capable of posing great risks. It is estimated that 35 sites that have posed very great risks will be remediated by the end of the period covered by the interim period. The build-up of knowledge and resources and targeted activities and efforts entail an increased pace of work. The county administrative boards have identified 25 sites around the country suspected of posing acute risks, of which around 30 will be remediated or have temporary protection by 2010. New sites posing an acute risk will be encountered in the future, and not all will therefore be identified and remediated by 2010.

If conditions remain favourable, it is anticipated that the sites that pose the greatest risk will have been remediated by 2050 and that the interim target will be met. If there is limited development of this activity, the rate of cleanup will continue to be too low to attain the targets, as bottlenecks in the system are not dealt with.

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

The measures proposed to attain the interim target in brief signify:

More measures, for instance in organisation and legislation, are proposed to resolve the greatest bottlenecks and improve the efficiency of remediation efforts. These efforts will lead to a quicker pace of cleanup and will therefore improve the prospects of attaining the targets.

INTERIM TARGET

Unintentionally Produced Substances

PROPOSAL FOR NEW INTERIM TARGET

By 2015, information will be available on the formation, sources, emissions and dispersion of the most important unintentionally produced substances. By the same date, studies will have been made of the environmental and

health properties of the substances in question. Releases to the environment of these unintentionally produced substances will be continuously reduced.

The current interim target on dioxins in foods is withdrawn.

REFERENCE ALTERNATIVE

The current interim target can be attained by 2010. However, the programmes can only lead to reductions in dioxins in foods in the longer term. High costs of analyses in particular mean that the body of data and knowledge is increasing slowly. It is difficult to identify cost-effective measures for present-day types of emissions, both from industrial and from secondary and diffuse sources.

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

The proposed measures for this interim measure mean in brief:

- Sweden should press for the Stockholm Convention and other international agreements to be implemented and complied with nationally and internationally and contribute towards their development.
- Encourage research on sources, environmental and health properties for substances formed unintentionally.
- Develop analytical and sampling methodology as well as sampling practice so that costs are reduced and so that knowledge can be increased and self-inspection improved.

INTERIM TARGET

Dietary and Occupational Exposure to Cadmium

PROPOSAL FOR REVISED INTERIM TARGET

By 2015 the dietary and occupational exposure of the population to cadmium will be at a level that is safe from a long-term public health point of view.

REFERENCE ALTERNATIVE

Supply and removal are closely in balance on arable land. The supply of cadmium through commercial fertiliser and sludge has continued to decrease. Deposition from other countries is expected to continue to decrease. But although aerial deposi-

Table 11. Impacts of proposals to reduce the environmental problems with contaminated sites.

Proposal	Impact
Cleanup of all approximately 1500 sites in risk class 1 by 2050, as well as cleanup of as large a proportion of risk class 2 as possible. Examination of as many sites in the highest risk classes as possible.	Total cost (by 2050) around SEK 45 million. The cost to public finances is just over half that figure. Annual cost to public finances: SEK 600m per year + same sum from private operators.
System for retaining and disseminating information on contaminated sites up to 2015.	Inventory and database activity: around SEK 35 million up to 2015. The costs then decrease.
Review of the sharing of responsibility for contaminated sites in the Ordinance (1998:900) on Supervision and Environment pursuant to the Environmental Code.	Increases initial costs to central government. However, the costs will be relatively low compared with the size of the technical appropriation and are expected to quickly lead to large gains. The policy instruments are also expected to lead to reduced costs for businesses and future generations. Increased environmental benefit, better utilisation of resources, reduced future costs to central government are some other gains with the proposals.
Revise and develop the rules on remediation in the Environmental Code.	
Organisation and sharing of responsibility for remediation activity should be investigated for more effective utilisation of resources.	
Investigate more long-term requirements for cleanup of new contamination. Guidance for preventive purposes. Investigate the possibility of retaining information on suspected and proven contamination in property.	

Table 12. Impacts of proposals on dietary and occupational exposure to cadmium.

Proposal	Impact
Low limit values for cadmium in phosphorus fertilisers and feedstuffs. Possible tax in the EU and reduced emissions of cadmium to the atmosphere.	The costs depend on how low the limit value is. Several businesses are little affected. Significant decrease in exposure with consequent effect on health.
Lowered levels for supply of cadmium with waste sludge to levels in action plan for return of phosphorus.	Lower costs if the limit value is set at proposed levels. Substances in the sludge that prevent dispersion impeded.
Encourage work in industry, for example through the limit values for cadmium in soil and crop and lowering of cadmium levels in mineral fertilisers.	Focus on cadmium problems. Causes farmers for example to demand fertilisers with low levels of cadmium, Cost to public finances SEK 5–10 million.

tion of cadmium has decreased, the levels in soil, the supply of cadmium to arable land, availability of cadmium in arable land and uptake of cadmium in crops through plant breeding and selection of varieties etc. will not decrease unless further measures are taken. It is uncertain whether it is realistic to attain the interim target several years before the generational target.

PROPOSED MEASURES AND POLICY INSTRUMENTS AND THEIR IMPACTS

The measures proposed in brief signify:

- Continue to pressure for reduced supply of cadmium to arable land and through limit values, taxation and emission reductions.

- Continue to develop tools to actually reduce cadmium levels in foods.
- Devise a national, scientific evaluation of risk for cadmium, in which a national tolerable daily intake (TDI) of cadmium is established.

A Protective Ozone Layer



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

The wording of this environmental quality objective is unchanged.

Problem analysis

A depleted ozone layer increases UV radiation at the earth's surface, which affects:

- Health, for example skin damage and cancer, inhibits the immune system, damage to eyes.
- Ecosystems, which has negative effects on agricultural crops, reduced growth of forest, adverse effects on aquatic species.
- Materials, by limiting the useful life of products.

The problem is caused by emissions of ozone-depleting substances, i.e. stable volatile chlorine and bromine compounds which can reach the layers of the atmosphere. These compounds include CFCs, HCFCs, halons, 1,1,1-trichloroethane, carbon tetrachloride, methyl bromide, HBFCs and bromochloromethane. Ozone depletion is a global issue as the effect on the ozone layer is the same regardless of whether emissions occur. Emissions of ozone-depleting substances in Sweden are principally caused today by leakage from stored quantities of insulating materials. Some use of existing equipment containing ozone-depleting substances

remains, however, and a few uses remain where there are no acceptable alternatives from the point of view of health and safety.

INTERIM TARGET

Emissions of Ozone-Depleting Substances

CURRENT INTERIM TARGET

By 2010 the great majority of emissions of ozone-depleting substances will have ceased.

The current interim target is expected to be met by 2010 with a sharp decrease in emissions between 1990 and 2010. The Swedish Environmental Protection Agency considers that work on the environmental quality objective of A Protective Ozone Layer can be pursued without interim targets. No new interim target is therefore proposed.

REFERENCE ALTERNATIVE

The stored quantities that remain are difficult to dispose of and often have a life that extends beyond the horizon of the environmental quality objective. The assessment of the interim target is based on two previous proposals being implemented, a ban on the use of HCFCs and tightened requirements for building and demolition plans (hazardous waste) which also come under the environmental objective of A Good Built Environment.

PROPOSED POLICY INSTRUMENTS AND THEIR IMPACTS

Table 13. Impacts of proposals to reduce emissions of ozone-depleting substances.

Proposal	Impact
Prohibition of the use of HCFCs as working medium in existing cooling, heating and other air-conditioning systems by 2020.	Completes the phase-out of HCFCs, as there has already been a ban on replenishing since 2002, and speeds up conversion to other refrigerants, which reduces the risk of leakage from existing equipment. Low cost, most conversions will take place as a result of the ban on replenishing.
Tighten requirements for demolition notifications and demolition plans in Planning and Building Act.	Reduced incorrect handling of hazardous waste from the building sector. Benefits outweigh increased costs for operators and supervisory and enforcement agencies. This proposal is also discussed under A Non-Toxic Environment and A Good Built Environment.



A Safe Radiation Environment

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

It is proposed that the wording of the environmental quality objective be revised.

Problem analysis

WHAT IS THE PROBLEM?

- Radioactive substances could be dispersed to the environment and pose a risk to the environment and health. In addition, there is uncertainty with regard to the effects of the radiation on plants and animals from various operations.
- The number of new cases of skin cancer is continuing to increase every year, and the number of deaths is continuing to rise.
- Electromagnetic fields (EMFs) are a cause of concern for many people, and a small group of people link acute health problems (e.g. headaches, fatigue, sleep problems) to exposure to EMFs.

WHY IS IT A PROBLEM?

- There is no overarching plan for dealing with all radioactive waste. The final storage of nuclear waste has not been resolved, and there are certain types of non-nuclear radioactive waste that have not been adequately described. In addition, there are no radiation protection criteria for certain landfilling of non-nuclear radioactive waste.
- Despite knowledge on the risks of skin cancer, people's sun-bathing habits mean that they do not reduce their exposure.
- The group of people said to have electrical sensitivity perhaps do not receive the right support and care from society while the causes underlying the symptoms they experience have not been clarified.
- More and more equipment in society, at the workplace and in the home, carries EMFs.

WHAT CAUSES THE PROBLEM?

There are complex and technical questions that need to be answered in connection with the development of long-term final disposal of spent nuclear fuel. Many people have a positive attitude towards spending time in the sun and having a suntan, and a change of attitude is needed in society if the number of cases of skin cancer is to decrease. The rapid technological development that results in exposure to EMFs may be either a positive or a negative factor. New applications may increase the level of exposure, but in some cases exposure may decrease due to new, improved technology.

HOW EXTENSIVE IS THE PROBLEM?

If all nuclear power reactors in operation today are used for 40 years, SKB (Swedish Nuclear Fuel and Waste Management Co.) calculates that around 9,000 tonnes of spent nuclear fuel will gradually have to be finally disposed of. SKB also estimates that a total of around 170,000 m³ of demolition waste from the demolition of all nuclear power plants, treatment plants and Studsvik will be restored in the final repository which is to be built for this purpose. It is difficult to estimate the volume of radioactive waste from non-nuclear activities and the cost of disposing of this. The uncertainty over costs is further increased by the fact that it has not yet been clarified in which final repository all the different types of non-nuclear radioactive waste should be placed.

Skin cancer is one of the most rapidly increasing forms of cancer in Sweden. The number of skin cancer deaths rose by 11% between 1997 and 2003. The number of new cases of malignant skin cancer in 2005 was just under 6,000. The number of cases for the least serious form, basal cell carcinoma, was more than 37,000 in the same year. The socio-economic cost of all these cases totalled SEK 1.25 billion, of which SEK 580 million was medical expenditure.

Proposed measures: Assess effects of radiation on plants and animals

REFERENCE ALTERNATIVE

There is uncertainty over the effects of various activities on plants and animals. There is no clear interpretation of the expression “protect the environment against harmful effects of radiation” in the Radiation Protection Act, which complicates applying for permits for activities. This could also lead to incorrect decisions on permits for activities.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Effects on plants and animals caused by emissions of radioactive substances from activities should be assessed in conjunction with an assessment of the effects of ionising radiation on human health. There is a need for international consensus to develop on methodology and criteria for it to be possible for such an assessment to be made. This methodology and criteria developed could then be used to assess the risks of harmful effects on plants and animals from existing activities and environmental protection issues could be included in the revision or drafting of new regulations or guidance.

ECONOMIC IMPACTS

Expanded examination of permit applications and additional work in preparing or revising regulations may entail further input of work principally for the new Swedish Radiation Safety Authority. Some time will be spent by a small number of operators to include environmental effects in EIAs etc. However, more complete EIAs result in a more reliable basis for decisions, which may instead improve the efficiency of the authority’s and operator’s efforts.

INTERIM TARGET

Disposal of Radioactive Waste

PROPOSAL FOR NEW INTERIM TARGET

By 2020, systems for safe disposal of all radioactive waste will be in place.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Decisions will have been made, under a national waste plan, on methods of dealing with all radioactive waste; these will include decisions on how disposal of spent nuclear fuel is to take place.*

- *Long-term responsibility for management and final disposal of all types of radioactive waste will be determined.*
- *A solution will have been found to the problem of long-term preservation of information about final disposal facilities (repositories) for long-lived radioactive waste, including their location and contents.*
- *Historical and orphan radioactive waste will have been disposed of.*

REFERENCE ALTERNATIVE

Risk of radioactive non-nuclear waste ending up in landfills or in forests and soil, due to lack of knowledge among operators and lack of financial, legal and practical systems. The waste may thus pose an environmental and health risk. Valuable information final storage may be lost or be made difficult to access, which may pose risks to the environment and health.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Good prospects for a sustainable solution to handling, with clear responsibilities and ownership can be created through an investigation of how the non-nuclear waste is to be disposed of. The investigation represents a basis for the national waste plan which is proposed. A national waste plan provides an overview of all the radioactive waste streams in society, the sharing of responsibility, design and time of commencement of operation of various repositories. The waste plan will demand expanded cooperation between authorities and input from various parties concerned. An international information archive on repositories of highly radioactive nuclear waste would make a valuable contribution to waste safety from an international point of view.

ECONOMIC IMPACTS

Increased central government expenditure for the Swedish Radiation Safety Authority and other parties for the preparation of waste plans. The proposed measures are estimated to cost around SEK 4.5 million and are principally of a non-recurring nature.

INTERIM TARGET

Incidence of Skin Cancer

CURRENT INTERIM TARGET

By 2020 the annual incidence of skin cancer caused by ultraviolet radiation will not be greater than it was in 2000.

The current formulation of the target is retained.

REFERENCE ALTERNATIVE

The trend towards increased incidence of skin cancer is continuing. Lack of knowledge among staff who work with children and adults in the vicinity of children. More difficult to introduce UV-related issues into the planning of outdoor environments for children. Lack of clear tasks in central government agencies means that work on preventive measures is not prioritised.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Strengthening of the preventive work of authorities, municipalities and operators in preschools and schools with the aim of reducing exposure for children and young people.
- Increase knowledge of UV among future teachers, preschool and leisure personnel, as well as child healthcare personnel.
- Find forms of cooperation with other parties who can pass on existing knowledge of UV.
- Possibility of introducing 18 age limit for sunbathing in solaria for the public is being studied.
- Develop an indicator that follows children's UV exposure, and consequently be able to point to identify the effort of action taken at an early stage.
- County councils press for more studies to be carried out. The prospects of making more early diagnosis are improved by annual outpatient naevus clinics, which may lead to fewer deaths from skin cancer and in the long term reduced healthcare costs.

ECONOMIC IMPACTS

Public expenditure on information and training and preventive efforts. Regular naevus tests entail a total cost to the county councils of around SEK 2 million per year. In addition to this are the costs (medical treatment, sick leave from work etc.) that arise as a consequence of skin cancer being discovered. As the number of work-years lost can be reduced due to fewer deaths, a cost saving of around SEK 9 million per year can be made. If an age 18 limit is introduced in solaria, this will have impacts for the solarium industry in the form of reduced demand and possibly closure of unmanned solarium facilities for the public. The proposed measures are estimated to cost around SEK 8 million in the first year and then around SEK 3.5 million annually.

INTERIM TARGET

Exposure to Electromagnetic Fields

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, exposure to electromagnetic fields in workplaces and other environments will be so low that human health and the environment will remain protected.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *There will be a programme of continuous environmental monitoring of exposure to EMFs among the public and employees, with regularly issued reports. These reports will cover exposure among the public and employees in various environments and for various applications, for fields ranging from 0 Hz to 300 GHz.*
- *There will be a programme of continuous and effective supervision of activities entailing risks of harmful exposure to EMFs.*
- *Risk assessments, based on the overall scientific state of knowledge of environmental medicine and of exposure levels, will exist for various EMF applications. These assessments will be updated annually.*
- *All the local and regional supervisory agencies concerned will possess relevant knowledge of EMFs.*
- *A plan for communication of information about risks to the public will have been drawn up by the agencies concerned, in cooperation with operators.*
- *The county councils and primary care services will be kept informed about the state of knowledge and a common view will prevail on the kind of care that should be provided for people suffering from, or worried about, damage to their health.*

REFERENCE ALTERNATIVE

Inadequate knowledge of what underlies electrical sensitivity may mean firstly that relevant measures are not implemented and secondly that irrelevant measures are taken. Knowledge is lacking on new applications, which complicates the work of the authorities on risk assessments. A combined picture of exposure in the area of the working environment is lacking, which increases the risk of personnel being exposed to harmful radiation.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

The measures proposed focus on monitoring and surveying exposure to EMFs, as well as training on EMFs and risks to health. An investigation into the causes underlying electrical sensitivity and environmental monitoring of the EMF exposure for both

employees and the public would improve the level of knowledge and provide a basis for justified and relevant measures.

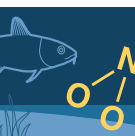
IDENTIFY AND DESCRIBE

THE ECONOMIC IMPACTS

Research, training, information, surveying and environmental monitoring mean that input is required from a number of government agencies, county administrative boards, municipalities and other affected parties in society. The proposed measures are estimated to cost around SEK 25 million, almost all of a non-recurring nature.

AS AN AGGREGATE FIGURE

The proposals to improve radiation protection activity for the environmental objective and interim targets to be met cost nearly SEK 40 million in non-recurring investments, plus nearly SEK 5 million a year.



Zero Eutrophication

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

The wording of this environmental quality objective is unchanged.

Problem analysis

Eutrophication of coastal waters is now one of the most serious environmental problems in the Baltic and the Skagerrak and Kattegatt, and has had a number of adverse effects on the marine environment such as reduced visibility depth, oxygen-free seabeds and overgrowth of shallow bays - which may require considerable remedial effort in the future. In addition there are significant problems of eutrophication in lakes, watercourses, forest soil and groundwater. Supply of nutrients beyond the quantity that can be credited to nature leads to threats to human health, biodiversity and natural resources.

Agriculture and private and municipal sewers represents the dominant sources of emissions for the nutrient salt pollution (nitrogen and phosphorus) of the sea. A number of measures have already been taken with the aim of reducing the nutrient load from these sources, focusing on nitrogen in recent decades. The transport sector also accounts for a significant share of emissions with regard to nitrogen oxides.

INTERIM TARGET

Phosphorus Emissions

PROPOSAL FOR REVISED INTERIM TARGET

By 2016, action will have been taken to reduce Swedish waterborne anthropogenic emissions of phosphorus compounds to the Baltic Sea by 290 tonnes from the level of 1997–2003, in accordance with HELCOM's preliminary burden-sharing formula.

Emissions have been calculated to have fallen by 14% (350 tonnes) between 1995 and 2005.

A decrease of 20% means that emissions have to decrease by 500 tonnes by 2010. Approximately 150 tonnes of phosphorus therefore remained in 2005 for the interim target to be met. It is estimated that the ban on phosphates in detergents will reduce the nutrient load by a further 50 tonnes, which means that in principle measures are required for 100 tonnes of phosphorus.

INTERIM TARGET

Nitrogen Emissions

PROPOSAL FOR REVISED INTERIM TARGET

By 2016, action will have been taken to reduce Swedish waterborne anthropogenic emissions of nitrogen compounds to the Baltic Sea by 20,780 tonnes from the level of 1997–2003, in accordance with HELCOM's preliminary burden-sharing formula.

Emissions have been calculated to have fallen by 24 % (13,400 tonnes) between 1995 and 2005. A decrease of 30 % means that emissions have to decrease by around 17,000 tonnes by 2010. Approximately 3,500 tonnes of nitrogen therefore remained in 2005 for the interim target to be met. Calculations of nitrogen leaching from arable land (root zone leaching) points to a decrease of around 5,000 tonnes of nitrogen between 1995 and 2005, which means that the target up to 2005 has been met and two-thirds of the sector target for agriculture of 7,500 tonnes less root-zone leaching by 2010 has been met.

REFERENCE ALTERNATIVE

If the nutrient load of nitrogen and phosphorus to the sea areas south of the Åland Sea does not decrease according to the emission levels stated in the interim targets, the environmental effects that arise as a result of eutrophication cannot be expected to decrease. Implementation of the Water Regulation may be expected to mean that we will come closer to the target without measures decided upon nationally and it should be possible for the situation to be improved particularly where there is strong local impact. However, the

large-scale impact that applies for example to the Baltic Proper requires more general measures. In addition, the Swedish water authorities (which are responsible for instance for implementation of the Water Regulation) do not have the tools required to decide on measures in all sectors. Work under the Baltic Sea Action Plan (BSAP) will also drive work on measures in the marine environment.

Despite emissions to air and water having decreased and continuing to do so, no clear effects are visible with regard to eutrophication in the environment. This is principally due to Swedish coastal waters and sea areas being severely eutrophicated, long recovery periods, and a large

proportion of the emissions coming from diffuse sources, principally agriculture. Most of all, however, it is due to Sweden not having sole control of the situation, which makes it difficult to reduce eutrophication in all the countries around the Baltic and Skagerrak and Kattegatt do not undertake to reduce the nutrient load.

It will therefore be difficult to meet the environmental quality objective of Zero Eutrophication even if further measures are implemented. Preliminary calculations of our future climate situation also indicate increased precipitation, which may make it more difficult to still to meet the objective. The impact of the large-scale natural

Table 14. Summary of measures, potential and total cost to reduce waterborne emissions of nitrogen and phosphorus.

Measure	Effect in reduction (tonnes)		Total cost SEK million/year
	Nitrogen	Phosphorus	
New			
Reduced soil cultivation	795–2,940	Possible effect in long term	0–176
Mussel farming	450	35	16.2
Drainage	300	2.6	23–115
Lime filter drains		1	6.5–33.3
Land covered with grass	330	0.66	12.4–96.4
Dams	100	10	9.5
Existing			
Wetlands	1,300	4.3	49
Catch crops	500	Marginal	41.5
Buffer zones	Possibly	7.5	32–341
Spring soil cultivation	500		32–36.5
<i>Additions to single-household sewage systems</i>			
Coastal areas	103	24	231
Inland	88	21	162
<i>New investment single-household sewage systems</i>			
Coastal areas	185	35	1,000
Inland	158	30	700
<i>Joint facility</i>			
Coastal areas	185	35	1 000
Inland	158	30	700
Total	5,092–7,297	236.1	4,107–4,615

processes which may periodically completely overshadow anthropogenic impact is another critical factor which it is difficult to assess.

Another aspect in this connection is the impact a change in the climate may have, where a change in the climate means, for instance, more frequent episodes of extreme weather events. The sub-report to the Commission on Climate and Vulnerability shows that increased incidence of floods may mean that pollutants are spread over a larger area than previously assumed. This may in particular pose a risk of infection spread of infection, but it also has impacts on eutrophication, which are difficult to judge in the present-day situation.

POSSIBLE MEASURES AND THEIR IMPACTS

The impact assessments provide an idea of what socio-economic impacts the proposed measures have. All the proposed measures and their total cost and effect on the interim targets are presented in Table 14. The figures shown as ranges point to the degree of variation in the costs. In addition, all the figures are subject to various degrees of uncertainty, which is emphasised in the impact assessment.

Proposed measures have the potential to reduce nitrogen emissions by around 5,100–7,300 tonnes/year and phosphorus emissions by 236 tonnes/year at the site of the measures at a cost of between SEK 4.1 and 4.6 billion per year. However, the result is subject to great uncertainty. It should be emphasised that the decrease takes place at the source for the measures and not at any specific receiving body of water. This means that the aggregate potential of the proposed measures must exceed the targets set for Phosphorus Emission and Nitrogen Emissions for it to be possible for these to be met. It is likely, however, that the proposed measures are sufficient to achieve the necessary reduction described in these interim targets, although it is doubtful whether it can be attained by 2010.

Many of the proposed measures have an effect on both nitrogen and phosphorus, which makes such measures attractive with a view to the debate taking place on which nutrient salt should be focused on to reduce eutrophication in the Baltic. It is too early to decide whether these measures are the most cost-effective ones as there may very well be other measures that are more cost-effective which for various reasons we have not

been successful in capturing under this work. Such measures should also be analysed in order to achieve cost-effectiveness.

Some of the measures presented in Table 14 are notable for also generating secondary effects which may be either negative or positive. Remediating private wastewater treatment systems signifies other environmental/health gains in addition to removal of nutrients, as other types of pollutants such as heavy metals, PAHs, PCBs, pharmaceutical residues and microorganisms are reduced at the same time. Measures that reduce nutrient leakage to water also have positive effects for several other environmental quality objectives, such as the level of nitrates in groundwater, which relate to water quality. As well as removal of nutrients, wetlands also contribute to promoting biodiversity and recreation, which are positive effects that reduce the cost of this measure and benefit the environmental quality objective of Thriving Wetlands. On the other hand, wetlands may possibly give rise to increased emissions of methane gas, which has an adverse effect on the climate objective and is likely to increase the cost of this measure.

POSSIBLE POLICY INSTRUMENTS

How great the effects are for public and private finances depends on which policy instrument is used to generate the measures referred to above. If, for example, only government subsidies are used to create incentives for the implementation of the proposed measures, the cost to public finances will be of the same order of magnitude as the total cost shown in Table 14, plus the administrative costs of the policy instrument in question. If taxes are used, on the other hand, the economic costs to businesses are of this order of magnitude, while central government receives tax revenue (less associated administrative costs).

The Swedish Environmental Protection Agency has been asked by the Swedish Government to draw up proposals for models for systems of charges which can contribute to improving water quality and conditions for life in the Baltic, Skagerrak and Kattegatt in a cost-effective way. The Swedish EPA has also been requested to analyse the possibility of such a system of charges including trading in emissions allowances for phosphorus and nitrogen. By setting a sector-wide system of this type, which would cover both dif-

fuse and point sources, the potential to meet the environmental quality objective of Zero Eutrophication would increase.

A systems of charges of this type for private wastewater treatment systems could be supplemented by increased information, skills training and better supervision and enforcement. With regard to the agriculture sector, the system of charges would finance the most cost-effective measures in this sector. Mussel farming could also be financed through this policy instrument. Under this policy instrument the costs to public finances would only be made up of the administrative costs of handling the system, while the costs of measures would be paid by the polluters.



Flourishing Lakes and Streams

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

The wording of this environmental quality objective is unchanged.

Problem analysis

As a result of land use, many aquatic environments have decreased in extent, been fragmented or become isolated. Water regulation/hydropower, transport, development and land use, for instance in the form of forestry, change shoreline and aquatic environments physically, while also affecting the quality of water. These changes mean that many species have decreased in range or number. There are around 100 freshwater-related species in Sweden today which are judged to be threatened by lack of, or changes to, habitats. Human activity also changes the composition of species in lakes and watercourses by moving or introducing plant or animal species or fish populations. Globally the dispersal of alien species is judged to be second greatest threat (after habitat destruction) to biological diversity. In aquatic environments the problem is tangible and can cause changes to ecosystems through changed competition between species, genetic changes or spread of diseases.

Changes in land use may also result in damage or disappearance of historical monuments. There is often scanty knowledge of cultural relics alongside water, which complicates protection, restoration and information initiatives on natural and cultural environment assets alongside lakes and watercourses.

As well as the physical habitat, emissions of acidifying and eutrophication substances and the use of chemicals are of great significance to fulfilling the objective of Flourishing Lakes and Streams, as water quality is crucial in attaining good ecological

status. However, measures in these areas are dealt with under the environmental quality objectives of A Non-Toxic Environment, Zero Eutrophication and Natural Acidification Only.

INTERIM TARGET

Conservation of Natural and Cultural Environments

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, two-thirds of natural and cultural environments of particular national value, and in the vicinity of lakes and watercourses, will be conserved on a long-term basis.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Defined conservation objectives will be met in two-thirds of natural environments of particular value.*
- *By 2015, two-thirds of cultural environments of particular value will have achieved good conservation status.*
- *The qualities of aquatic environments for recreation and tourism will be used in a sustainable manner.*

REFERENCE ALTERNATIVE

The forces driving impacts on lakes and watercourses remain or are increasing. Examples that can be mentioned are lack of wood raw material for the forest industry, the increasing pressure for shoreline development and the increasing need for hydropower as a disruption and power reserve in the change-over to renewable energy sources. Access to a diversity of natural and historical assets is decreasing.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

This interim target will be attained by:

- Developing a cross-sectoral approach with “conservation plans” for landscape segments with valuable aquatic environments.
- At least four areas per county having “conservation plans” for larger demarcated areas containing limnic natural environments and/or water-related cultural environments of particular national value.

- Giving at least 300 areas with high natural assets long-term protection.
- Giving long-term protection to designated historical assets in at least 150 areas.
- Caring for or maintaining at least 100 environments in such a way that their historical qualities are maintained and developed. ekonomiska konsekvenser

ECONOMIC IMPACTS

Socio-economic impacts

The socio-economic costs, primarily restrictions in forestry close to lakes and watercourses and restoration.

Impacts for public finances

Central government faces expenses in the payment of compensation to landowners in various forms of protection, in paying off hydropower plants and for restoring certain objects particularly worthy of protection.

A rough estimate of costs to public finances for the period 2011–2015 is around SEK 100–140m/year. Large parts of the costs relate to cultural assets fall within the limits of existing grants to government agencies or the Rural Development Programme and are not mentioned in the impact assessments relating to cultural environments.

INTERIM TARGET

Restoration of Lakes and Watercourses

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, good conditions for species and habitats will have been restored in one-third of watercourses and lakes of national value or potential value that are judged to be in need of restoration.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Restored environments will, in the long term, be able to achieve favourable conservation status.*
- *Measures will be planned and implemented taking the cultural environment into account and in such a way as to avoid damage to ancient monuments and remains.*

REFERENCE ALTERNATIVE

Access to a diversity of natural and historical assets is decreasing.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

This interim target will be attained through:

- At least 200 areas with water courses having been restored.
- At least 50 lakes having been restored.
- Measures will be planned and implemented with great respect for existing cultural environmental assets and so that ancient monuments are not damaged.

ECONOMIC IMPACTS

Both the socio-economic costs and the costs to public finances have been quantified at around SEK 150–90m/year, for the period 2011–2015.

INTERIM TARGET

Good-Quality Drinking Water – Surface Water

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, all bodies of surface water used for the abstraction of drinking water will meet Swedish water quality standards with respect to pollutants resulting from human activities There must be no deterioration of the present quality of untreated water.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Water quality standards will have been adopted.*
- *Water protection areas, with relevant regulations and boundaries, will be in place for all bodies of surface water providing more than 10 m³ a day as an average or serving more than 50 persons.*

REFERENCE ALTERNATIVE

Programmes of measures under the EU Water Framework Directive contribute to the possibility of this interim target being met.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Limit the dispersal of toxins and eutrophication or acidifying substances, but also reduce the physical impact on bodies of surface water.

ECONOMIC IMPACTS

The costs of strengthening the work of the county administrative boards on the protection of sources of drinking water are estimated at between SEK 2.5 and 12m/year for the period 2011–2015.

INTERIM TARGET

Releases of Species and Management of Fish Populations

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, releases and handling of fish and other organisms, and fishing, will be undertaken in ways that do not adversely affect biodiversity.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *There will be no deterioration in the status of naturally occurring habitats, species and populations in the fresh-water system.*

REFERENCE ALTERNATIVE

The inadvertent dispersal of fish and other organisms and overfishing are continuing.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

This interim target will be attained through:

- Counteracting illegal and unintended dispersal of fish and other organisms.
- Local administration of fish and fishing with thoroughly considered management measures and fishing regulations will contribute to preserving natural, fishing and recreational assets.
- The county administrative boards will draw up a list of and if necessary establish no-fishing areas that provide a reference for the fishing resource in lakes and watercourses.

ECONOMIC IMPACTS

Socio-economic impacts

In the short term losses of prosperity may possibly arise for anglers from both local administration and fishing-free areas. Costs of complying with current laws and regulations are not calculated with regard to release and handling of fish.

Good-Quality Groundwater



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

The wording of this environmental quality objective is unchanged.

Problem analysis

WHAT IS THE PROBLEM?

- The supply of groundwater is not equally good throughout the country, and the quality of groundwater is threatened by human impact and a changed climate.
- The groundwater often lacks protection.

WHY IS IT A PROBLEM?

- Clean groundwater is an essential requirement for human health and rich flora and fauna.
- The water supply in society is not prepared for the changes described by the Commission on Climate and Vulnerability.
- Inadequate or poor protection poses a risk to the quality of the groundwater and polluted groundwater may lead to ill-health.

WHAT CAUSES THE PROBLEM?

- Emissions of substances with an environmental impact to water, soil and air. Substances that end up on the soil may reach the groundwater together with permeating groundwater.
- Insufficient protection of groundwater formations, where water can be naturally purified.

HOW EXTENSIVE IS THE PROBLEM?

There are regional problems with groundwater quality in southern Sweden and in many coastal districts, and there are also local problems due to polluting point sources. Groundwater is inadequately protected at many water sources.

INTERIM TARGET

Protection of Groundwater

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, long-term protection from development activities that restrict the use of water will be provided for water-bearing geological formations of importance in meeting present and future water supply needs.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *geological formations of particularly great importance in meeting water supply needs will be designated as resources of national interest,*
- *water protection areas, with associated regulations, will be in place for all municipal water supply sources,*
- *water protection areas, with associated regulations, will be in place for all groundwater bodes that could be of importance in meeting future water supply needs,*
- *county administrative boards or other regional bodies, and local authorities, will have up-to-date water supply plans or the equivalent that can serve as a basis for the elaboration of local authority comprehensive plans and regional development programmes,*
- *no extended or new permits will be granted for the extraction of natural gravel from deposits that are of great value for the supply of drinking water,*
- *all water protection areas, including the associated regulations, will be regularly reviewed and, where necessary, revised.*

REFERENCE ALTERNATIVE

It is very expensive to replace nature's own water treatment with technology. Climate change will make new and increased demands on municipal water treatment plants. With protection that regulates various activities, formations carrying groundwater can continue in future to be used for high-quality drinking water, even in a changed climate. It is not easy to find a good location for a major new water source, and investigation and construction costs may be from a few tens of millions of SEK to more than a billion for larger bodies of water. The alternative cost to not protecting the groundwater may therefore be very high.

INTERIM TARGET

Groundwater Levels

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, the use of land and water will not cause changes in groundwater levels that adversely affect the water supply, soil stability, or the animal and plant life of adjoining ecosystems.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *good quantitative status as defined in the Ordinance on Water Quality Management,*
- *all groundwater sources providing more than 100 m³ a day will be the subject of an environmental court judgment relating to the abstraction of water,*
- *county administrative boards and local authorities will be aware of groundwater-dependent ecosystems and take them into account when issuing permits,*
- *local authorities will be aware of large withdrawals of groundwater,*
- *underground construction, drilling for the purposes of water abstraction and extraction of energy, and hard landscaping will not result in harmful changes to groundwater levels,*

REFERENCE ALTERNATIVE

Excessive abstraction and a changed climate may alter the quality of groundwater and the stability of the soil. Both rising and falling groundwater levels may pose quality problems, damage due to settlement, shortage of water and impact on surrounding ecosystems. Shortage of water may lead to a need for more Bolmen projects, having to convey water, at great cost, from other parts of the country to areas where the groundwater is not adequate.

INTERIM TARGET

Good-Quality Drinking Water – Groundwater

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, all bodies of water used for the abstraction of water intended for human consumption, and providing more than 10 m³ a day as an average or serving more than 50 persons, will meet Swedish standards for good-quality drinking water with respect to pollutants resulting from human activities.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *good quantitative status as defined in the Ordinance on Water Quality Management will be achieved,*
- *programmes of measures, as provided for in particular in the Ordinance on Water Quality Management, will be effective.*

REFERENCE ALTERNATIVE

Drinking water of inferior quality poses a risk to human health. If the groundwater is polluted the pollution persists longer and it is almost impossible to decontaminate the store. Climate change in itself may lead to new drinking water-related problems.

INTERIM TARGET

Private Water Supplies

PROPOSAL FOR NEW INTERIM TARGET

By 2020, drinking water from private water supplies will comply with Swedish guidelines.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *the use of groundwater for private water supplies will not be restricted by pollutants resulting from human activities,*
- *groundwater-based drinking water obtained from private supplies will have been tested in accordance with the recommendations of the National Board of Health and Welfare,*
- *new drilled wells will comply with the requirements set out in the Geological Survey of Sweden's guidance on drilling of heat pump boreholes and water walls, and suitable groundwater will be used for water supplies,*
- *guidance will be available on the construction of wells in superficial deposits,*
- *drinking water from private supplies will comply with the water quality recommendations set out in the National Board of Health and Welfare's general guidelines on precautionary measures relating to drinking water,*
- *if treatment of raw water is necessary, easily operated, cost-effective and environmentally sound methods of treatment will be used to comply with the National Board of Health and Welfare's recommendations on drinking water quality,*
- *information on areas with a risk of elevated concentrations of harmful substances will be given in local authorities' comprehensive plans, as a basis, for example, for planning permission decisions.*

REFERENCE ALTERNATIVE

The use of private drinking water wells is increasing, and the siting of the well, well design and water treatment, where applicable, are crucial to the quality of the drinking water. Over a million people depend on their own well water throughout the year, and an equal number during parts of the year. These people do not always share in the benefit of the other three interim targets, and the health of ever larger groups is consequently subject to risks, and increasing risks, with increased

migration to holiday home areas and with climate change.

Possible Measures and Instruments to Attain the Four Groundwater Interim Targets

All the interim targets would benefit from:

- The groundwater being protected better than at present, including for the future.
- Planning tools and support for decision-making that includes groundwater.
- Guidance being drawn up for introducing water supply that is sustainable in the long term in public planning.
- The country administrative boards and local authorities drawing up water supply plans.
- Regulating systems for water and energy wells being simplified.
- Better monitoring of groundwater.
- The requirements for pricing of emissions to groundwater and surface water in the Water Directive being investigated.
- Groundwater issues being emphasised in other contexts in those sectors whose activities have a great impact on groundwater.
- More effective supervision of activities that may have an impact on groundwater.
- Better preparedness for dealing with accidents and during and after an accident.

- For the new interim target, all households with private water will be encouraged to send in water samples, and then where appropriate will be encouraged to rectify the water quality deficiencies identified by the analysis.

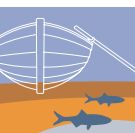
ECONOMIC IMPACTS

In relation to public finances, strengthened resources are needed for those who are given broader tasks in work on the protection of groundwater directly or indirectly through permits and supervision, but in the longer term better support for decision-making will facilitate work on groundwater. In the short term, however, an estimated sum of SEK 30 to 40 million must be provided for government agencies and county administrative boards to support the work and step up its pace. In order to make further progress in this work, support is needed for local authorities to conduct better groundwater investigations, protect groundwater and support private well owners. The costs of this are estimated at SEK 250–500 million. Jeopardising groundwater quality so much that new water supply solutions are required, on the other hand, is very expensive, and this should be taken into account in the socio-economic analysis.

In private economic terms, this may prove costly for private households whose water analyses point to a need to take measures. Insofar as the public acknowledges that it has to contribute for example to the cost of water improvement measures for young families on low incomes, this may also have effects for public finance.

Table 15. Aggregate costs of SGU proposals.

Proposal	Cost
Individual interim target	SEK 1/year SGU
Water supply plan	SEK 0.5m
Regional water supply plans	21 county administrative boards x SEK 1m
Monitoring	SEK 5–20m
Water protection area	SEK 2m
Water protection area local authorities	At least SEK 250m
Landfill	
Swedish Road Administration	SEK 1–5m
Road protection	–
Increased number of enquiries to local authorities concerning drinking water	–



A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos

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

The wording of this environmental quality objective is unchanged.

Problem analysis

THE PROBLEM IS:

- Threats to biodiversity.
- Threats to natural and cultural assets.
- Threats to fishing.
- Threats to use of resources.
- May cause ecosystem changes.

THIS IS A PROBLEM BECAUSE:

- Coastal zones are important production and nursery environments for many species, including fish. These environments are particularly sensitive to both external impact and exploitation.
- Many marine ecosystems are particularly sensitive to collapse of stocks, due to their long recovery period. These marine ecosystems fulfil a number of vital functions that are fundamental to the development of society.
- Despite restrictions on construction and development, the unaffected valuable and sensitive areas that remain continue to be under severe pressure from many interests.

- The effects of pressure of fishing are fateful for biodiversity.
- Valuable cultural assets are being lost.

ACTIVITIES THAT CAUSE THE PROBLEM ARE:

- Expansive fishing.
- Eutrophication.
- Oil transport.
- Boat traffic.
- Heavy pressure of development.
- Increased population pressure, for instance in conjunction with tourist industry in sensitive areas.

The development of the shoreline is continuing unabated, threatening the prospects of preserving the high recreational assets generated by pristine natural and cultural environments in coastal areas. Oil transport is increasing substantially and the number of alien species in the Baltic is rising. The situation for several commercially important fish stocks has been critical for several years, and the collapse of stocks threatens stocks of cod in the Baltic, Kattegatt and North Sea in particular. Marine ecosystems are threatened with complete elimination due to their long recovery period.

INTERIM TARGET

Conservation of Marine Natural Assets

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, a representative network of marine areas of high conservation value, covering at least 15% of Sweden's total marine area, will be established and conserved.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *The areas will be distributed over Sweden's marine geographical regions and will include all habitats occurring in the regions concerned.*
- *Favourable conservation status will be achieved.*
- *Long-term protection will be in place for at least 10% of Sweden's marine area.*
- *For the remaining 5% included in the network, 'marine conservation plans' or corresponding management arrangements will be in place to ensure that the marine natural assets of the areas are conserved.*
- *By 2010, three no-fishing areas (in inshore and offshore waters) will be established in the Baltic Sea and three in the Kattegatt and Skagerrak, for evaluation by 2015.*

REFERENCE ALTERNATIVE

The forces driving impacts on the marine areas and coastal and archipelago environments persist or will increase in the future. Unless protection or conservation measures for assets in the marine environments are implemented, it may be assumed that the biodiversity of marine-biological assets will be adversely affected.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Marine mapping and inventories are required in order to be able to identify the marine areas most worthy of protection. To implement these measures, there is principally a need for policy instruments in the form of targeted economic support for the county administrative boards in establishing few marine nature reserves and reviewing existing nature reserves. The approach for long-term conservation additionally needs to be developed through marine conservation plans and management plans for designated BSPA areas. Better coordination of a national network is required so that this activity will work smoothly in the future. In addition legislation and areas of responsibility for management and nature protection in the economic exclusion zone need to be clarified.

ECONOMIC IMPACTS

Costs to public finances

- Marine mapping: SEK 7,000–38,000/km². The cost depends on how large an area needs to be mapped and by what method, which cannot be estimated at present.
- Inventory of bottom flora and fauna: Total around SEK 140 million.

- Funding to develop working methods: around SEK 1.5m per year over a three-year period.
- Costs for support of county administrative boards in establishing new marine nature reserves and review of existing coastal reserves and collection of knowledge ahead of other conservation measures: Total around SEK 200m. The cost depends greatly on the mapping work.
- Costs of monitoring: SEK 44,000 per year per reserve or alternatively SEK 26 per ha per year. If 15% of the water within the economic exclusion zone is to be protected, this means around SEK 29 million per year for monitoring.

Socio-economic costs

It is very difficult at present to estimate the socio-economic costs entailed by the establishment of protection for valuable marine environments and the impact of this on private individuals and companies. These costs vary greatly depending on location and orientation of the protection and on parties involved. According to an example calculation, costs to protect 10 and 15% of Swedish waters out to the economic exclusion zone are estimated at around SEK 37 million per year for a 10 per cent target and around SEK 56 million for a 15 per cent target.

INTERIM TARGET

Restoration of Inshore Habitats

PROPOSAL FOR NEW INTERIM TARGET

By 2020, by means of restoration measures, good conditions will be created for high biodiversity and natural recruitment of fish in shallow inshore environments.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *By 2012, the relevant authorities will have identified disturbed but potentially valuable, shallow inshore habitats important for biodiversity, as well as freshwater habitats important for coastal fish populations, and drawn up regional action programmes for their restoration.*
- *By 2015, half the sites included in action programmes will have been restored.*

REFERENCE ALTERNATIVE

Shallow protected areas are one of the most significant coastal habitats for a large number of species of fish, birds, invertebrates and aquatic plants. Many of these areas at present are disturbed by human activities. If no measures are taken there

is a risk of biodiversity in these environments decreasing further or natural recruitment processes being substantially worsened. These environments (in freshwater) offer important refuges when changes in coastal areas, for example due to the climate or changes of ecological systems, mean that the recruitment of species in coastal areas is eliminated. This buffering capacity has been substantially reduced over the last 100 years due to drainage, lowering of lakes and obstacles to migration.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Restoration measures need to be implemented in many of the disturbed inshore environments, for example recreating free migration routes for fish, restoring disturbed/lost spawning and nursery grounds, establishing wetlands and replanting vegetation, e.g. sea grasses.

This work has started by drawing up programmes of measures with the aim of recreating free migration routes for fish, restoring disturbed/lost spawning and nursery grounds, establishing wetlands. The need should also be revised in order to be able to prioritise efforts. The programmes of measures should also be planned and implemented so that valuable cultural environments are not damaged. This interim target is coordinated with relevant targets for the restoration and establishment of wetlands to optimise the benefit of the initiatives taken. There are probably also great opportunities to reduce costs of maintenance/management of restored objects if measures can be combined with support for grazing as overgrowth is then prevented.

ECONOMIC IMPACTS

Costs to public finances

Costs of drawing up programmes of measures are estimated at around SEK 1 million per year for two years for each county, i.e. a total of 28 million for the fourteen coastal counties. Great resources are needed to implement necessary restoration measures, although precise calculations cannot be made until the programmes of measures have been completed. A rough estimate to restore areas important for coastal populations of pike and perch in the counties from Kalmar to Uppsala is a total of around SEK 800 million.

INTERIM TARGET

Use of the Coastal and Archipelago Landscape

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the natural, cultural and recreational assets of the coastal and archipelago landscape will be conserved and enhanced through sustainable use.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Local authority comprehensive plans will provide guidance for, and regional development programmes, other instruments and arrangements for regional/local cooperation will lend support to, sustainable use and development within the small-scale structures and diversified economics of the coastal and archipelago areas.*
- *Natural and cultural heritage assets will be known and accessible.*
- *The coastal and archipelago landscape will be accessible for outdoor pursuits and recreation.*
- *The area of islands, islets and coastal meadows used for grazing will increase.*
- *Buildings and built environments from different periods in the coastal and archipelago landscape will be managed in such a way as to maintain diversity.*
- *The number of particularly valuable environments where cultural assets are conserved on a long-term basis will be no less than 50.*

REFERENCE ALTERNATIVE

The environmental quality objective of A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos cannot be met unless the planning and management of the coastal areas is improved and coordinated across the various sectors, with the aim of developing long-term sustainable use of the resources on land and in the water. Several of the interim targets, e.g. the quality aspect in the interim target Conservation of Marine Natural Assets, cannot be met unless surrounding areas have well developed planning and management.

The lack of good and available information leads to reduced awareness and ignorance of built environment in one's own district. The possibility of using these areas for local and regional development is lost at the same time. Unless other measures are taken, this means that people's access to a diversity of historical assets is diminished.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Expanded work on municipal comprehensive plans and regional development programmes for coastal and archipelago areas is essential if this interim target is to be met. Introduction of more cultural reserves and review of existing nature reserves for a selection of cultural environments which are not given sufficient protection through existing legislation. Update the regional natural and cultural environment programmes and make them accessible. Improved coordination of different forms of support in favour of the unique assets of the archipelago and training in care of buildings and landscape in and outside protected areas.

ECONOMIC IMPACTS

Costs to public finances

A total of around SEK 60 million per year (over the period from 2010 to 2015), of which administrative costs to government agencies amount to SEK 25 million per year. In addition there is around SEK 230,000 per year for investigation of collaborative processes. (For specified cost items see impact assessment in the annex to the report on the environmental quality objective A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos.)

INTERIM TARGET

Bycatch

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, bycatch of marine mammals and seabirds will have no more than a negligible adverse impact on the populations concerned or the ecosystem.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Bycatch must not threaten favourable conservation status or prevent that status being achieved.*
- *Quantitative milestone targets will be set in conjunction with the drawing up of action plans.*

REFERENCE ALTERNATIVE

Seal and cormorant populations will continue to increase. Bycatches of grey seal, cormorant and common seal on the west coast will be more than 1% of the population in 2010. Growing populations of seals and cormorants will cause increased economic losses due to damage to fishing.

POSSIBLE MEASURES

Continued development of fishing gear. A ban on fishing with passive/fixed gear due to bycatches of seal and cormorant would entail very high losses of income for small-scale coastal fishermen. Estimates of recreational fishing and fishing as a secondary occupation with quantity-catching gear, similar to the estimates made in commercial fishing, and possible restrictions on this fishing. The types of leisure fishing which will be principally affected by any measures to reduce bycatches are fishing as a secondary occupation and subsistence fishing. Possible restrictions on subsistence fishing and the development of fishing gear for this purpose may have both positive and negative impacts on the possibility of undertaking this fishing.

POSSIBLE POLICY INSTRUMENTS

An action plan should be drawn up for reduced bycatches of marine mammals and birds, which it is proposed should include the development of a certification system in which fishermen who use fishing methods that reduce bycatches are awarded green certificates. The system should be based on voluntary participation.

ECONOMIC IMPACTS

Costs to public finances

Administrative costs may arise for government agencies in connection with the introduction of a certification system. The system could be founded through charges payable for participating fishermen or through tax funds. Money from the European Fisheries Fund can contribute to the funding in an initial stage.

Socio-economic costs

Certain administrative costs may arise for government agencies in connection with the establishment of a certification system. As the system would be voluntary, the costs to the individual fishermen would be lower than the income the fishermen receive from taking part in the system. Continued development of fishing gear might reduce bycatches while the profitability of fishing rises. A thriving coast and archipelago is a target within the environmental quality objectives. It is judged that the development of gear that takes place could benefit the preservation of fishing communities. It is principally the small-scale coastal fishermen who are affected by seal and cormorant damage.

On the basis of a calculation of the total damage in fixed gear, the total losses in Swedish commercial fishing are estimated to exceed SEK 50 million for 2004, of which damage to gear totals SEK 20 million (National Board of Fisheries 2004). Statistics on bycatches in both commercial fishing and leisure fishing mean that measures can be taken where they are most cost-effective. Any development of gear and restrictions on leisure fishing with quantity-catching gear may have both positive and negative impacts on the possibility of undertaking this fishing.

INTERIM TARGET

Catches and Recruitment of Fish

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, catches of fish, including bycatch, will have been brought into line with the ecological carrying capacity and resilience of the seas, by means of responsible and sustainable fishing of viable fish populations.

REFERENCE ALTERNATIVE

If the overcapacity in the fleet is not adapted to the resource/population of fish, profitability in fishing will be further worsened and more populations will be overexploited. In areas where there are already severely overexploited populations today, and which are therefore particularly sensitive, there may be a risk of collapse of population. Further depletion of populations will probably result in a reduced fishing industry with small prospects of recovery. If no changes take in management methods used nationally and in the EU, the problems of large volumes of more lowly valued species being discarded and of excess catches and illegal fishing will probably continue and possibly increase.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Overcapacity in affected fisheries should be phased out. Selective fishing methods and gear need to be developed. Routines to improve control of fishing are also needed. Knowledge of fishing and ecosystem-based management needs to be increased. However, it is not possible to meet the present-day interim target through measures in Sweden alone, and the costs depend on the implementation of measures internationally (see impact assessment from the National Board of Fisheries in an annex to the objectives report). Knowledge of ecosys-

tem-based management needs to be improved for ecologically and socio-economically optimal management. Co-administration can increase local influence in administration. The development of selective gear can contribute to reduced catching of sensitive species and sizes of fish.

Among other things support for scrapping and conversion to other activities, catch fees, transferable individual quotas, effort regulation, zoning and targeted licences for specific fisheries, more effective monitoring of fisheries, support for use of selective gear and changes to the national fishing rules.

The costs depend on how possible policy instruments are formulated. Fisheries policy in the EU is also largely common, and Sweden is dependent on the decisions taken in the EU for the target to be met. Active influence in the EU system is therefore important to achieve results. The rules regarding access to the resource may also need to be reformed to control fishing more clearly and co-administration may be required for increased local influence.

ECONOMIC IMPACTS

Costs to public finances

Costs of unemployment benefit may decrease in the longer term if fishing becomes profitable. Co-administration requires resources for the agencies who take part in co-administration. A commitment to more active influence in the EU may require resources (see impact assessment from the National Board of Fisheries in annex to objectives report).

Socio-economic costs

The socio-economic gain from the proposals is judged to be high. Positive effects from the socio-economic point of view include increased stocks, protection of species taken as bycatches, less damage on bottoms (due to fewer trawling hours) and improved ability to recover for disturbed ecosystems. A smaller fishing fleet that fishes at higher profitability and is managed in an ecosystem perspective will mean better management from the socio-economic point of view.

INTERIM TARGET

Impacts of Shipping

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, shipping will operate in such a way that the spread of alien species is prevented, waste is properly disposed of, discharges of oil and other harmful substances do not

occur, and low levels of noise are achieved in sensitive coastal and archipelago areas.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- By 2015, all ships engaged in international trade which call at Swedish ports will have approved technical systems for treating ballast water that prevent the spread of alien species.
- By 2015, ships engaged in domestic trade will have taken suitable measures based on risk analyses performed in accordance with guidelines supporting the Ballast Water Convention.
- The number of waste receptacles, toilets and waste reception facilities in archipelago areas will have increased to meet existing needs.
- The number of illegal discharges of oil will have decreased compared with 2007.
- By 2015, areas with low levels of noise will be established in every county.
- By 2015, we will have a better understanding of the effects of underwater noise on marine mammals and fish.

REFERENCE ALTERNATIVE

If further measures are not taken, this will lead to increased spread of alien species, increased quantity of waste in coastal and archipelago areas, increased risk of emissions of oil and other harmful substances and increased level of noise in sensitive areas, which also has an adverse impact on biological diversity.

POSSIBLE MEASURES

- Draw up targeted monitoring programmes for alien species and develop a reporting system for alien species.
- Dispose of waste collected in fishing gear.
- Dispose of waste from pleasure boat and expand toilets and waste reception facilities in marinas and natural harbours.
- Reduce emissions of hydrocarbons from pleasure boat engines.
- Increase knowledge of the effects of underwater noise and identify coastal and archipelago areas sensitive to noise.

POSSIBLE POLICY INSTRUMENTS

Information to the shipping sector, pleasure boat owners and the general public.

OTHER

Important that Sweden ratifies the Ballast Water Convention and prosecutes illegal discharges of oil.

ECONOMIC IMPACTS

Costs to public finances

Draw up monitoring programme for alien species by developing a reporting programme: Around SEK 400,000 in purchasing cost and around SEK 100,000 in annual operating costs.

Dispose of waste from fishing gear: Certain administrative costs may arise as a central government agencies may need to coordinate the work. However, these costs are very difficult to estimate as they depend on how the work is organised.

Build more toilets and waste reception facilities in marinas: certain administrative costs may rise for instance for supervision and enforcement. It is difficult to estimate these costs as they depend on the extent of the expansion.

Reduce emissions of hydrocarbons from pleasure boat engines: Information initiatives are required, example of costs of information campaign around SEK 400,000.

Increase knowledge of the effects of underwater noise: The costs of the proposed project for build-up of knowledge at government agencies are estimated at a total of around SEK 20 million for the government budget.

Identify coastal and archipelago areas sensitive to noise: The costs of the work on the county administrative boards on the establishment of the areas are estimated at an average of around SEK 100,000 per area, which is charged to the government budget.

Socio-economic costs

Dispose of waste from fishing gear. Calculated on the basis of previous experience, the cost of the fisherman's time to dispose of the waste is estimated at around SEK 18,000 per tonne of waste. It is estimated that one bound could collect an average of around 4 tonnes per year, i.e. around SEK 80,000 per year and boat. The lower extra cost that arises for having equipment for collection on board the vessels and receiving and handing over waste should be covered by external funding. This cost is expected to be included in ordinary waste management.

Expansion of toilets and waste reception facilities in marinas. The costs depend entirely on how many new waste facilities altogether are needed

around the country and on the choice of way in which the expansion should proceed. The operating costs for collection of the waste depend greatly on what type of infrastructure is chosen, stationary or mobile facilities. On the basis of an example calculation where the assumptions have been made that a further 100 waste facilities with toilets are built in the Stockholm archipelago and that 200 facilities are converted to long-composting toilets, the costs have been estimated at around SEK 2 million per year, of which operating costs total around SEK 500,000 per year.

Thriving Wetlands



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

The wording of this environmental quality objective is unchanged.

Problem analysis

Wetlands and ponds have been drained, lakes have been lowered and watercourses have been straightened. Habitats for plants and animals dependent on wetlands have decreased, while the residence time of the water in the drainage basin has been shortened, which contributes to eutrophication of seas, lakes and watercourses.

Up to a quarter of Sweden's original area of wetland is judged to have disappeared. The wetland inventory shows that more than 80% of the remaining wetlands are affected to varying degrees by human interventions such as drainage, agriculture and forestry, roads and off-road driving and peat extraction. Almost of a fifth of wetlands are greatly affected hydrologically, in their entirety or locally, or are judged to have been completely destroyed. This means that the functions of the wetlands in purifying water, equalising water flow rates, sequestering carbon and regulating the local climate are adversely affected. The ecological conditions for various species are also impaired, and more than 200 wetland-related species are considered to be endangered.

Wetlands have historically been crucial to food production in large parts of the country and the cultural assets of the wetlands are often closely bound up with their natural assets. Reduced mowing of wetlands also reduces the prospects of preserving cultural traces and the value of wetlands for the cultural heritage. However, there is insufficient knowledge to ensure care of the cultural environments of the wetlands.

INTERIM TARGET

Consideration for Wetlands

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the natural and cultural heritage assets of valuable wetlands will no longer be adversely affected by human activities.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Land drainage, peat extraction and damage from off-road driving will not occur.*
- *Felling and other forestry measures will be carried out with ample consideration for the environment.*
- *Roads will be constructed in such a way as not to cause damage.*

REFERENCE ALTERNATIVE

New ditching has declined sharply as a consequence of tightened regulations on land drainage and now represents less of a threat to wetlands than previously. However, changed hydrology remains a threat to wetlands. Impact on the vegetation and water-managing capacity of the wetlands increases after the actual ditching. There is also a risk of ditch cleaning, like protective ditching, leading to further hydrological impact and outflows of nutrient-loaded and turbid water. Knowledge of the extent, environmental effects and productive benefit of cleaning is inadequate. The legislation in the area is unclear and authorities apply it differently. There is a risk of ditch cleaning operations continuing to a large extent with an impact on hydrology without fulfilling any production targets.

Environmental consideration in forestry does not meet the statutory requirements on general consideration. Driving across wetlands may cause severe damage to soil and water conditions, for example outflows of sediment-rich and mercury-polluted water. There are good prospects of improving compliance in forestry. The challenge is to find effective cultivation methods that are gentle on soil and water.

PROPOSED MEASURES AND POLICY INSTRUMENTS

Better consideration of wetlands and aquatic environments in the implementation of forestry measures so that damage to soil and water is avoided and marginal zones are left. Development of green forestry plans to take account of soil and water management and hydrology in the drainage basin. Coordination of forest roads and establishment of off-road driving plans and transport routes with a view to reducing the impact on wetlands. Improved consideration of the environment in the clearing of ditches and watercourses.

Possible policy instruments are information and training, strengthened agency advice, revised rules on consideration in the Forestry Act and possibility of imposing sanctions, nature conservation agreement and compensation for encroachment, as well as a general duty of consultation and contributions to collaboration in the building of forest roads.

ECONOMIC IMPACTS

Costs to public finances

The costs of administrative activity to public finances are estimated at around SEK 6.5m/year over the period 2008–2015. This includes contributions to planning and collaboration in the construction of forest roads of SEK 7m/year. The costs of nature conservation agreements and compensation cannot be estimated.

IMPACTS FOR THE ENVIRONMENT

By avoiding damage to soil and water, the risk of adverse impact on vegetation and water quality is reduced. Increased areas of marginal zones and undamaged small-scale habitats mean that habitats for both common and endangered species are preserved in the everyday landscape. Marginal zones, where forest changes to wetland or aquatic environment, are often varied environments with a high diversity of species. Small-scale habitats requiring consideration such as springs and marshes are crucially important for many species and animals and can serve as refuges in a heavily cultivated landscape. Although more knowledge is needed on the effect of climate change, it is likely that wetlands that functional well provide ecosystem services, for example linked to the hydrology of the landscape, which society will become even more dependent on in the future.

INTERIM TARGET

Wetland Conservation

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the natural and cultural environment in particularly valuable wetlands will be conserved.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *The conservation objectives adopted will be met for at least 90% of wetlands.*
- *All mires listed in the Mire Protection Plan for Sweden will enjoy long-term protection,*
- *Cultural traces will be identified and documented.*

REFERENCE ALTERNATIVE

If nothing is done beyond decisions taken, even wetlands with particularly high natural assets will probably continue to be affected by human activities. A deficient knowledge base makes it impossible to safeguard the cultural assets of wetlands. Human access to a diversity of cultural assets decreases and tangible and intangible cultural asset is adversely affected, and historical knowledge is depleted.

PROPOSED MEASURES AND POLICY INSTRUMENTS

The implementation of protection of mires in the Mire Protection Plan for Sweden is one of the principle measures to conserve biodiversity in a national network of particularly valuable mires. Long-term protection is needed for another approximately 380 mires. Of the order of 85,000 hectares of land need to be taken out of forestry in order to establish long-term protection. There is a need for knowledge of the historical assets of wetlands to increase in order to ensure that the historical assets of wetlands are preserved.

Policy instruments to be used are central government funding of land purchase, compensation for encroachment and nature conservation agreements, as well as strengthened resources for the county administrative boards, for ongoing conservation work and implementation of inventories of the cultural environment.

ECONOMIC IMPACTS

Costs to public finances

Costs of public finances of implementing the remaining nature conservation-related part of the Mire Protection Plan total SEK 283 per year for the period

2007–2015. The aggregate cost of a cultural environment inventory (2010–2015) of all 381 objects is around SEK 1.7m per year. The cost of strengthening historical expertise, equivalent to 0.5 full-time equivalent posts per county administrative board, is around SEK 8 million per year.

Socio-economic costs

The socio-economic costs of loss of production for forestry in site production in this case can be estimated to amount to a sum similar to the costs to public finances (excluding costs of inventory of the cultural environment).

IMPACTS FOR THE ENVIRONMENT

Conservation of a network of mires with high natural assets signifies a great benefit for biodiversity throughout the country. Mires are of also of significance to the climatic climate and water management in the landscape. Pristine mires may be of great value for outdoor pursuits and hunting, particularly in regions where the landscape is otherwise intensely exploited. Better knowledge makes it possible to draw attention to and utilise the historical assets of wetlands, which in the longer term increases the quantity of cultural traces preserved in wetlands.

INTERIM TARGET

Wetlands on Agricultural Land

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, at least 5,000 hectares of wetlands will be established or restored on agricultural land.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Biodiversity will be fostered through habitat creation and improvement.*
- *At least eight large (>150 ha) wetland areas or lakes in the agricultural plains will be re-established.*
- *Wetlands will be designed with reference to the natural and cultural environment of the surrounding landscape.*
- *Cultural traces will be preserved and exposed to view.*
- *The nitrogen removal effect will amount to at least 650 tonnes a year.*

REFERENCE ALTERNATIVE

Small-scale habitats on farmland – including ponds and ditches – are estimated to be disappearing at a rate of around 0.5% annually. The decrease is considered to be due to agricultural land being taken

out of production and to lack of management. Wetlands were a common feature of the older agricultural landscape, and a large proportion of natural and cultural assets were related to these environments in one way or another. Many of the species that have disappeared from the agricultural landscape or are endangered on present-day farmland are adapted to a live with ample presence of wetlands. Wetlands are of great significance in reducing the adverse effects of nutrient leaching from agricultural land, and their flow-equalising effect limits both flooding and problems with erosion. Taken together, this means that if the proposed measures are not implemented this will lead to difficulties in meeting not just the objective of Thriving Wetlands but others such as A Rich Diversity of Plant and Animal Life, A Varied Agricultural Landscape and Zero Eutrophication too.

PROPOSED MEASURES AND POLICY INSTRUMENTS

The measures consist in the new establishment and restoration of wetlands on farmland, the preparation of combined planning data for establishment and restoration and outreach initiatives and coordination.

The policy instruments are primarily environmental payments to agriculture under the Rural Development Programme, but also further central government funding for the work of the county administrative boards and to create large wetlands.

ECONOMIC IMPACTS

Costs to public finances

The costs to public finances of this interim target may be of the order of SEK 150–200 million per year for the period 2011–2015.

Socio-economic costs

The socio-economic costs for the establishment of 5,000 ha of wetlands in this can be estimated to be similar to the costs to public finances.

IMPACTS FOR THE ENVIRONMENT

The establishment and restoration of wetlands contributes to meeting many environmental quality objectives, in particular Zero Eutrophication, Flourishing Lakes and Streams, A Varied Agricultural Landscape, A Rich Diversity of Plant and Animal Life and A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos. Rec-

reation, restoration and traditional management of wetlands on farmland create habitats for many different species. Wetland-related species increase or survive in stable populations. The situation of red-listed species is improved and common species do not have to continue to decline in the long term. Wetlands are required as recruiting environments for coastal fish populations.

The nutrient load on aquatic environments will decrease by the equivalent of 650 tonnes of nitrogen per year. Wetlands can raise the groundwater level, slow down the path of water through the landscape and even out water discharge. The risk of high flow rates and floods is consequently reduced, particularly if spill zones and their ability to accommodate natural fluctuations in water levels are recreated.

Sustainable Forests



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

The wording of this environmental quality objective is unchanged.

Problem analysis

WHAT IS THE PROBLEM?

- Threats to biodiversity.
- Threats to natural and cultural assets.
- Climate change and the increased demand for biomass are putting additional pressure on the forest ecosystem and its resilience.

WHY IS IT A PROBLEM?

A large number of interests have to reach a consensus if the Swedish forests are to be able to continue in the long term to be a basis for a strong Swedish export industry, provide a source of rich recreation and maintain the biodiversity that today is under threat. At the same time as the forest ecosystem has to cope with a changed climate, demand for biomass is increasing, which makes it all the more important to take account of environmental concerns in use of the forests so that the forest ecosystem's own living conditions are also respected. The natural functions and processes of the ecosystems have to be protected, all natural species have to be able to continue to survive in long-term viable populations with sufficient genetic variation and dispersed across their natural ranges – otherwise the biological objectives of the forests will be threatened, if they are threatened the economic production objectives will be so too in the longer term.

WHAT CAUSES THE PROBLEM?

- Felling is at the limit of what is sustainably possible.
- Sawmills and the paper and pulp industry have faced competition from the energy sector in purchasing forest raw material, while Russia is due to introduce export tariffs, which means that de-

mand for what grows in the forests is increasing, while all forest land ought to be managed with greater concern for the environment and forest land worthy of project ought to be managed on the basis of environmental objectives instead of production targets.

- Forestry methods, which, although they can deal with environmental concerns far better than previously, are used in areas worthy of protection where extra consideration is needed or where no felling at all ought to take place.
- Inadequate mapping of what needs to be protected for cultural or environmental reasons, and inadequate knowledge of how consideration should be given.

HOW EXTENSIVE IS THE PROBLEM?

If forests worthy of protection are felled, major natural assets will be lost for a very long time – hundreds of years. Such felling is taking place at present. With regard to biodiversity, the habitats of species may disappear locally. Some depletion is taking place today. Ancient and cultural monuments and relics in the forest which are damaged by felling/removal are usually lost for ever. It is more the rule than the exception for cultural assets to continue to be damaged in forestry, particularly during ground preparation activities.

INTERIM TARGET

Conserving Forest Land of High Conservation Value

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, the area of productive forest land of high conservation value that is excluded from forest production will amount to 1,600,000 ha with formal protection and 1,000,000 ha subject to voluntary conservation.

REFERENCE ALTERNATIVE

The pressure on the forests is increasing, not least because purchasers are prepared to pay more and more for biomass. This increases the risk of forest that is not protected but of high conservation value being felled. If ways of actually protecting the

stands/areas that need to be safeguarded to secure species and resilience are not found, the ability of the forest ecosystem to withstand future strains brought by climate change and bioenergy initiatives will diminish.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Central government can protect more forest.
- Central government can encourage forestry to voluntarily protect more forest of high conservation value.
- Central government can use state-owned forest in conservation efforts.
- Establishment for cultural environment reserves.

ECONOMIC IMPACTS

The cost to public finances to attain the targets in particularly by redemption by both 2010 and 2020 will be just under SEK 30 billion, while the cost stays at just under SEK 20 billion if the current trend in protection up to 2010 is not speeded up. In addition to this are socio-economic costs of the same order, as protected forests reduce the possible removal of timber. The establishment of 40 cultural environment reserves is estimated to cost just over SEK 340 million.

INTERIM TARGET

Management of Formally Protected and Voluntarily Conserved Forest Land

PROPOSAL FOR NEW INTERIM TARGET

During the period 2011–20, forest land in need of management in formally protected and voluntarily conserved areas will be managed as required.

REFERENCE ALTERNATIVE

If forest is not managed it will usually eventually become old spruce forest. Those areas of forest that have been protected in their capacity of being of particular value in some (other) way must therefore, where necessary, also be managed so that these characteristics can be fully preserved, otherwise the environments of particularly conservation value will disappear despite the protection – or even perhaps because of the protection.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Increased grants for management.
- Economic instruments that can encourage management in areas voluntarily set aside.

ECONOMIC IMPACTS

The cost of these measures to the central government budget is expected to be SEK 15 and 20 million respectively per year. To enable a comparison to be made with sums actually paid, the figures can be calculated in terms of current prices at SEK 375 and 500 million respectively (4% discount rate).

INTERIM TARGET

Structures of Biological Value on Productive Forest Land

PROPOSAL FOR NEW INTERIM TARGET

By 2020, in order to enhance and preserve biologically valuable resources, the volume of hard dead wood will increase by at least 30 million cubic metres standing volume nationwide. By the same year, the area of young and semi-mature forest with a large deciduous element will be at least maintained, and the area of mature forest with a large deciduous element will increase by at least 10%.

REFERENCE ALTERNATIVE

Dead wood and the presence of a deciduous element are very important for the conservation of biodiversity, which makes it more difficult to ensure that the aims for endangered species living in the forest are met unless this interim target is attained.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

The Swedish Forest Agency should increase its advisory and information services for landowners to persuade them to fulfil the target on their own initiative.

ECONOMIC IMPACTS

Socio-economically the possible timber felling volumes will decrease if the increased volume of dead wood in the interests is not removed and sold, which is equivalent to around a quarter of a billion SEK per year. The current value of the combined volume that remains in the forest is around two billion. Central government also misses out on part of this in lost tax revenue, but it does not have any effects on the expenditure side. An increased proportion of deciduous element can be attained

by deferring the felling of deciduous trees or by increased thinning, of which the latter is cheaper. If both methods are used, the additional cost to forestry is thought to be just over half a billion SEK.

INTERIM TARGET

Protection of Cultural Heritage

PROPOSAL FOR REVISED INTERIM TARGET

Forest land will be managed in such a way that traces of historical human use and presence are preserved and ancient monuments and the sites they occupy are not damaged. By 2015, compared with 2010, the number of other cultural remains that are damaged annually in conjunction with forestry operations will be halved.

REFERENCE ALTERNATIVE

Cultural heritage in the forests is currently disappearing at a rapid rate. The interim target needs to be met for this undesirable trend to be halted.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- The measures proposed under interim target one also facilitate this target.
- Improved advice in conjunction with felling and inventory of forest land with respect to cultural heritage.

ECONOMIC IMPACTS

As the advice leads to reduced needs for restoration, the measures may often be socio-economically cost-effective, provided the cultural assets themselves are considered worthy of the protection they have been given. The cost to central government of the advice, which can often be given together with other advice, is assumed to be around SEK 20 million per year. The cost to central government of continuing and completing the inventory of forest land with regard to ancient monuments and cultural relics which has been begun is estimated at just under half a billion SEK.

INTERIM TARGET

Environment In and Around Water in Forest Landscape

PROPOSAL FOR NEW INTERIM TARGET

From 2010, forestry operations will not entail run-off of organic or inorganic material into watercourses. When watercourses are crossed, the natural bed of the water-

course will be preserved and no barriers to migration will be created. At least 90% of the length of watercourses and lake and marine shorelines affected by forestry operations will have buffer zones, the ecological functions of which will be preserved or enhanced.

REFERENCE ALTERNATIVE

Historically, little or no consideration has been given aquatic environments in forestry. In terms of acreage and timber, large areas or volumes are not affected, but the effects on species-rich habitats close to water and on water quality, but also on recreation, are great.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Some restrictions are imposed on how forestry may be undertaken 20 metres from watercourses, which affects 2% of all product forest area.

ECONOMIC IMPACTS

Reduced removal and increased costs of forestry mean that the socio-economic costs amount to SEK 15–40 million a year, depending on how great the restrictions are in reality. The current value of the restrictions imposed on forestry would be half a billion SEK, plus or minus a few hundred million, again depending on how great the restrictions finally become in reality. As in the case of dead wood, tax revenue for central government decreases, but the central government budget is not affected on the expenditure side.

Summary

The aggregate cost of fulfilling the five interim targets for sustainable forests is around SEK 20 million in socio-economic terms in the shape of production losses, and an equal in terms of public finances in purchase of land by the state from other owners and ensuring certain management through contracts:

- Socio-economic cost: Conservation (15), dead wood (2), buffer zones and deciduous element (1) = 18 billion.
- Cost to public finances: Purchase of land (19), management contracts (1/2) = just under 20 billion.



A Varied Agricultural Landscape

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

The wording of this environmental quality objective is unchanged.

It is proposed that the environmental quality objective A Varied Agricultural Landscape be supplemented by the following specifications: The agricultural landscape will be designed so that the habitats and dispersal routes of wild plant and animal species are safeguarded and so that historical connections can be understood. The buildings and built environments of the agricultural landscape will be safeguarded and developed. The significance of the agricultural landscape for experiences of nature and outdoor pursuits will be utilised so that it contributes to good public health.

Problem analysis

WHAT IS THE PROBLEM?

- Many species in the agricultural landscape are endangered or are in decline.
- Buildings and built environments are subject to major changes.
- Cadmium pollution and subsoil compaction may pose a threat in the future.
- Traditional cultivation is endangered when many farms are abandoned, particularly in areas where the agricultural landscape has already lost land.
- Intensification of agriculture has an adverse impact on natural and cultural assets.

WHY IS IT A PROBLEM?

- The habitats of many species of the agricultural landscape are disappearing or fragmenting, which has an adverse impact on the survival prospects of the species.

- Loss of biological diversity affects the resilience of ecosystems and also the prospects of society receiving ecosystem services. Subsoil compaction and accumulation of cadmium affect the long-term production capacity of soils.
- Valuable cultural assets are being lost.

WHAT CAUSES THE PROBLEM?

- Economic and technical development in agriculture which is during the structural rationalisation towards larger and more intensively farmed units. Inadequate profitability in small-scale agriculture is leading to abandonments.
- Factors that influence the social situation of farmers, for example the possible of social network, isolation and functioning social services, impact on their willingness to engage in agriculture.

HOW EXTENSIVE IS THE PROBLEM?

The number of agricultural businesses is continuing to decrease, and former farmland is becoming overgrown in a large part of Sweden, while agriculture is becoming more intensive in the areas that remain. Both these processes lead to continued loss of species habitats and also have an adverse impact on historic monuments and relics. Environmental payments counteract these problems firstly by contributing to keeping many fields in traditional management and secondly by providing opportunities for more extensive agriculture.

INTERIM TARGET

Meadow and Pasture Land

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, meadow and pasture land will be conserved in such a way as to preserve and enhance its biodiversity and cultural heritage assets.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *At least 550,000 ha of meadow and pasture land will be conserved.*

- The area of hay meadows will increase to 30,000 ha and road verges with meadow species will be enlarged so as to represent at least 10% of the road network in the farmed landscape.
- The conservation status of habitat types and species will be improved.
- The number of trees of high conservation value will not decrease.
- Cultural traces will be conserved and exposed to view.

REFERENCE ALTERNATIVE

There is a risk of the biological and cultural heritage assets of meadow and pasture land disappearing.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Management of meadow and pasture land.
- Restoration, road verge management, joint programme for meadows and road verges.
- Implement action programme for endangered species.
- Redistribution of grazing livestock from temporary grassland to natural pasture.
- Information and follow-up.

ECONOMIC IMPACTS

The management of 0.5 million hectares of meadow and pasture land under the environmental payments is estimated to cost of the order of SEK 800 million annually. Restoration is estimated to cost SEK 25 million annually. An analysis relating to the redistribution of grazing livestock is estimated to cost SEK 2 million. The cost of drawing up a joint programme for meadows and road verges is estimated at SEK 1.3 million. In addition there are the costs of measures that follow as a result of the analysis of grazing livestock, for the management of grassland outside the agricultural payments and for implementation of action programmes for endangered species. These measures are funded under the Rural Development Programme, with the exception of maintenance of road verges, which is funded by the Swedish Road Administration.

INTERIM TARGET

Arable Landscape

PROPOSAL FOR NEW INTERIM TARGET

By 2020, the biodiversity and cultural heritage assets of arable land will be conserved and the scope for enhanced diversity will be increased.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- The total number of small-scale farmland habitats will not diminish.
- Cultural traces will be conserved and at least half will be exposed to view.
- The conservation status of threatened species will be improved.
- The adverse trend for common species will be reversed.
- The number of trees of high conservation value will not decrease.
- In the agricultural plains, the area of land set aside to promote biodiversity will be increased to 80,000 ha.

REFERENCE ALTERNATIVE

There is a risk of declines in small-scale habitats, species richness and endangered and common species. It is made more difficult for species to adapt for example to climate change. There is a risk of cultural traces declining and of reduced possibility of reading the historical dimension in the landscape.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Setaside for biodiversity, development of the forest edge, crop rotation, organic production on the agricultural plans, other measures to increase biodiversity on arable land.
- Management of cultural traces.
- Information and follow-up.

ECONOMIC IMPACTS

Setaside for biodiversity is estimated to cost SEK 20 million annually from the Rural Development Programme and a further SEK 40 million which has not yet been funded. An investigation of crop rotation has been estimated to cost SEK 1.5 million, and an analysis of the causes of the low take-up of organic production on the agricultural plans an equal sum. In addition there are the costs of measures that follow from the investigations. The management of cultural traces is estimated to cost SEK 200 million annually under the Rural Development Programme up to 2015 and then SEK 260 million annually. The costs of developing the forest edge and other measures to increase biodiversity on arable land are difficult to estimate, but funding is possible under the Rural Development Programme.

INTERIM TARGET

Buildings and Built Environments

PROPOSAL FOR NEW INTERIM TARGET

By 2020, the buildings and built environments of the farmed landscape from various periods will be managed in such a way as to maintain their diversity.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *At least half of the redundant buildings on farmland will be conserved and managed in such a way as to retain their qualities.*
- *The negative trend for working and redundant buildings that lend character to an area will be reversed.*
- *The number of shielings in use will not be below 230.*
- *The number of particularly valuable coherent agrarian environments that are conserved will not be below 60.*

REFERENCE ALTERNATIVE

There is a risk of many working buildings in the farmed landscape, including coherent agrarian environments and shielings decaying or disappearing

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Restoration, reuse or new functions for older buildings.
- Protection and maintenance of coherent agrarian environments.
- Information and follow-up.

ECONOMIC IMPACTS

- Restoration is estimated to cost SEK 23 million annually (partly Rural Development Programme, partly unfunded).
- The establishment of cultural reserves is estimated to cost SEK 18 million annually (partly National Heritage Board, partly unfunded).
- The running of the cultural reserves is estimated to cost SEK 17 million annually up to 2015, and then SEK 31 million annually.
- The maintenance of shielings is estimated to cost SEK 18 million annually (Rural Development Programme). The cost of reusing or new functions for older buildings is difficult to calculate, but funding under the Rural Development Programme may be possible.

INTERIM TARGET

Cultivated Diversity

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, valuable cultivated diversity will be conserved in a manner that is sustainable in the long term.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Conservation systems for all plant groups will exist, and the material will be easily accessible to users.*
- *Criteria for determining what is worth conserving in the long term will have been adopted.*
- *Conservation will take place with a view to long-term sustainability of use.*
- *Documentation and information about the material will exist and be easily accessible.*
- *The biological cultural heritage that the material represents will be brought to life.*

REFERENCE ALTERNATIVE

There is a risk of cultivated diversity, which has been judged to be important, being lost.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Programme for Cultivated Diversity.
- Gene banks and clone archives.
- Demonstration crops, research and documentation.
- Local food production and plant breeding.
- Information and follow-up.

ECONOMIC IMPACTS

- Gene banks, clone archives and documentation are estimated to cost SEK 7.5 million annually.
- Research and pre-breeding are estimated to cost FORMAS/SLF (Swedish Farmers' Foundation for Agricultural Research) SEK 16.5 million annually.
- Research and development activity is estimated to cost SEK 2 million annually. In addition there are costs of demonstration crops and local food production and plant breeding.

INTERIM TARGET

Livestock Genetic Resources

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, the livestock breeds that Sweden is responsible for conserving will be conserved for the long term and be sustainably used.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *No later than 2020, the majority of the livestock breeds that Sweden is responsible for conserving will be in the FAO's "Not at risk" category.*
- *Other breeds are those whose status in 2007 was categorised as "Critical" or "Critical-maintained" and breeds for whose conservation Sweden has recently become responsible. These will, at worst, have attained the status of "Endangered-maintained"*
- *The rate of inbreeding in commercial breeds should not rise by more than 1% per generation.*

REFERENCE ALTERNATIVE

There is a risk of many of the livestock breeds which Sweden has responsibility for conserving not qualifying for the status of "breeds not at risk" on the FAO list. Increased risk of inbreeding if the measures are not implemented.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Gene banks, take account of effects on conservation species in decisions on livestock, environmental payment for livestock husbandry, breeding plans, preference for natural pasture, updates, information and follow-up.

ECONOMIC IMPACTS

- Gene banks, information and breeding are estimated to cost SEK 7.5 million
- Payments to livestock keepers and to equestrian businesses are estimated to cost SEK 10 million annually.

INTERIM TARGET

Organic Production

PROPOSAL FOR NEW INTERIM TARGET

By 2020, at least 20% of farmland will be certified for organic production.

For the interim target to be judged to be met, the following specification must be fulfilled:

- *Certified organic production in accordance with the interim target will be practised virtually throughout Sweden.*

REFERENCE ALTERNATIVE

Without this interim target the Government's decisions on organic production will be complicated and the prospects of conserving the fauna and flora of the agricultural landscape will be adversely affected.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Project to analyse the causes of the low take-up of organic production in the agricultural plains, information and follow-up.

ECONOMIC IMPACTS

Cost of project of SEK 1.5 million. In addition there are the costs of measures that follow from the analysis.

Costs relating to all interim targets

- Information activity for all interim targets is estimated to cost around SEK 50 million annually.
- County-by-county follow-up and evaluation of management measures are estimated to cost SEK 45 annually, but funding for this is lacking.
- Advice on and monitoring of subsoil compaction are estimated to cost SEK 1.5 million annually.
- A project to evaluate the effects of the environmental payments on biodiversity and a deficiency analysis relating to the need for different habitat types are estimated to cost SEK 2 million each.

Measures whose costs have not been calculated

It is not possible to calculate the costs of all measures. The size of the funding of a targeted investment in alternative management measures and other research, for example, is determined by the Government through the government research councils. The costs of measures that follow from proposed investigations and analyses likewise are not calculated in advance. In the case of some of the proposed measures it is difficult at present to

see what costs they will entail, but an evaluation should be done in the future to ensure that they are implemented. In addition there are administrative costs of county administrative boards and other authorities.

Summary of costs

The aggregate costs of all proposals to meet the environmental objective are SEK 1.3 billion annually up to 2015 and just over SEK 1.4 billion thereafter. The major share is made up of management of meadow and pasture land (SEK 800 million), cultural traces (SEK 200 million), setaside for biodiversity (SEK 60 million), buildings (SEK 80 million) and information and evaluation (SEK 100 million). In addition there are the costs of the measures it has not been possible to cost. In socio-economic terms this is unlikely to lead to any major loss of production.

A Magnificent Mountain Landscape



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

The wording of this environmental quality objective is unchanged.

Problem analysis

Extensive traces of driving on snow-free ground, wear that leads to erosion and large-scale changes of vegetation. Measures need to be taken to channel off-road driving and other activities that damage the land away from sensitive areas. New limits on noise for new off-road vehicles need to be introduced and existing vehicles need to be phased out more quickly than at present. Knowledge and maintenance of the Sami cultural heritage and the cultural environments of the mountains need to be improved.

INTERIM TARGET

Damage to Assets in Mountain Areas

PROPOSAL FOR REVISED INTERIM TARGET

Damage to natural and cultural assets caused by human activities will be reduced so that, by 2015, it is negligible in the mountain region as a whole and has ceased in valuable natural and cultural environments.

REFERENCE ALTERNATIVE

Wear and erosion damage occur in the vicinity of the larger mountain resorts. Development pressure is particularly strong alongside the parts of the mountain area already developed. Snowmobile traffic is expected to increase in the future.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Measures

- Limit wear on the ground due to driving on bare ground.
- Increase the number of noise-free areas in the mountain area.

Policy instruments

- Introduce requirements for off-road driving plans into the Off-road Driving Ordinance which relate to all who drive in the mountain area due to general exemptions dispensations.
- Develop environmental monitoring in the mountain area relating to changes of vegetation, damage to the ground, damage to ancient monuments and other cultural environments.
- The Swedish Environmental Protection Agency in collaboration with the county administrative boards in the mountain counties will survey and revise the sanctions for driving on bare ground.

Impact assessment

Wear on the ground from driving on bare ground is limited. Exposure to noise from driving is concentrated on certain districts, which means that areas free from noise increase in the mountain area. Enhanced environmental monitoring can prevent damage to valuable natural and cultural assets which are important to local and regional development.

INTERIM TARGET

Noise in Mountain Areas

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, noise in mountain areas from motor vehicles driven off-road and from aircraft will be reduced.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *By 2015, at least 60% of light off-road vehicles will meet stringent noise standards (below 73 dBA).*

- *By 2015, the noise from aircraft will be negligible both in Class A regulated areas under the Off-Road Driving Ordinance (1978:594) and in at least 90% of the area of each national park.*

The current interim target is identically worded except that the target for noise from aircraft is set to 2010.

MEASURES AND POLICY INSTRUMENTS

Measures

Reduce the noise from light off-road vehicles.

Policy instruments

- Introduce limits for the noise from light off-road vehicles.
- Improve register statistics for light off-road vehicles.
- Expand light off-road vehicle regulation areas.
- Conduct a broad information campaign on off-road vehicle traffic in collaboration between affected authorities, off-road vehicle organisations and the off-road vehicle industry.
- Review the issue of supervision and enforcement to see whether it is possible to distribute responsibility for supervision and enforcement better between the authorities concerned through changes to current ordinances.

INTERIM TARGET

Protection of Assets in Mountain Areas

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, long-term protection will be provided for 90% of environments with valuable natural, cultural and recreational assets.

REFERENCE ALTERNATIVE

Unless measures are implemented, it is assumed that access for people to a diversity of historical assets will decrease. The possibility of using these areas for local and regional development is lost at the same time. The tangible and intangible historical asset is adversely affected and historical knowledge is depleted.

MEASURES AND POLICY INSTRUMENTS

Measures

- Continued long-term protection of environments in the mountains with high natural, cultural and recreational assets.
- Build-up of knowledge on the cultural environment and historical assets in the mountains increases – both in and outside protected environments.
- Increase the commitment to restoration and maintenance of historical assets in the mountains.
- The county administrative boards in the mountain counties are tasked with carrying out an investigation on the impact of various development companies on recreational assets in the mountains and presenting proposals on how high a level of development different areas can tolerate.

Policy instruments

- Earmark resources for the establishment and management of areas with long-term protection.
- Earmark resources for the restoration and maintenance of historical assets in the mountains.
- Task the county administrative boards in the mountain counties with carrying out an investigation on the impact of various development companies on recreational assets in the mountains and presenting proposals on how high a level of development different areas can tolerate.
- Draw up a supplementary knowledge basis to propose build-up of knowledge on cultural assets in nature reserves and national parks and measures for care and maintenance of cultural environments and biological cultural heritage. The work will be carried out in cooperation between the National Heritage Board, the Swedish Environmental Protection Agency and the county administrative boards in the mountain counties.

Benefit

Environments with high natural, cultural and recreational assets are known and have long-term protection, which leads to preserved assets for the natural and cultural environment, increased knowledge of the natural and cultural environment, local and regional development, increased employment and increased access to outdoor pursuits and recreation.

INTERIM TARGET

Mountain Landscape

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the area of extensive open mountain landscape characterised by reindeer grazing will not be decreasing.

REFERENCE ALTERNATIVE

The present-day landscape has been formed over the centuries by reindeer husbandry and extensive utilisation of the forests. Both bare mountain slopes and the forests to some extent comprise a biological cultural heritage that necessitates traditional management. Reindeer husbandry is of great significance in maintaining the landscape characterised by grazing. Without reindeer grazing a completely new type of landscape will gradually arise. The very slow growth in the mountain areas, which has taken place

to date due to the climate may in future speed up with a warmer climate – so that the significance of grazing animals will steadily increase.

MEASURES AND POLICY INSTRUMENTS

Policy instruments

- The Environmental Protection Agency reviews the environmental monitoring of the mountain environment with the aim of providing a basis for follow-up of the state of biodiversity.
- The Sami Parliament and the Mountain Delegation investigate and propose how an inventory of reindeer grazing can be carried and whether it is possible through changes in the structure of reindeer grazing to counteract the negative effects of climate change on the mountain environment.

IMPACTS

Table 16. Costs of protection of areas with high natural, cultural and recreational assets in the period 2010–2020.

Measures	Policy instruments	Socio-economic impacts	Impacts for public finances
Continued long-term protection of environments in the mountains with high natural, cultural and recreational assets.		Loss of production for those who today carry out activities in the areas to be protected. (Principally applies to nature reserves.)	
Restore historical assets		Costs of restoration. Included in review of nature reserves.	
	Build-up of knowledge through inventory	SEK 2 million per year	SEK 2 million per year
	Establishment and operation of three cultural reserves	SEK 2.6 million per year	SEK 2.6 million per year
	Review of management plans in existing nature reserves	SEK 3.6 million per year	SEK 3.6 million per year
	Administration in authorities	SEK 3.6 million per year	SEK 3.6 million per year
	Tasking of county administrative boards in the mountain counties to investigate how development companies influence recreational assets in the mountains. National Heritage Board wants natural and cultural environment to be included		
Total			approx. SEK 12 million per year

- An investigation is carried out to examine in which mountain areas conflicts can arise between natural, cultural and recreational assets on the one hand and mineral extraction on the other. The investigation should also propose possible measures. The Swedish Environmental Protection Agency are responsible authorities in collaboration with SGU, the county administrative boards and other parties concerned.
- Guidelines are drawn up on where in the mountains an expansion of wind power can take place without negative effects for natural, cultural or recreational assets. This work is carried out in collaboration between the Swedish Energy Agency, the Swedish Environmental Protection Agency and the National Heritage Board.

IMPACTS

The benefit to society consists of a conserved mountain landscape characterised by reindeer grazing with very high natural and recreational assets, increased knowledge of the impact of climate change on biodiversity and increased understanding of how different types of development projects can affect the mountain landscape.

A Good Built Environment



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

The wording of this environmental quality objective is unchanged.

Objective and general assessment of fulfilment of objective

The National Board of Housing, Building and Planning judges that the environmental quality objective A Good Built Environment will be very difficult to fulfil in time. This is a changed assessment as the National Board of Housing, Building and Planning previously considered that the objective can be met in time if further measures are taken. The change of assessment is due in particular to more of the generational perspectives of the objective being difficult to attain by 2020, particularly those that relate to human health, as noise and a poor indoor environment are great problems, and the cultural environment, as the cultural assets of the built environment are not being identified and protected to a sufficient extent. With regard to the interim targets, two are judged to be difficult to meet in time: Built environments of cultural heritage value and A Good Indoor Environment. It is judged that others can be attained with further measures.

INTERIM TARGET

Programmes and Strategies for Planning

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, land use and community planning will be based on programmes and strategies for an environmentally sound and healthy structure of the built environment.

For the interim target to be judged to be met, the programmes and strategies must, in the light of local and regional needs and conditions, cover the following questions:

- *how to achieve a wide range of housing, workplaces, services and cultural activities, with a view reducing transport needs and improving the scope for environmentally sound and resource-efficient transport;*
- *how to protect and enhance cultural heritage assets,*
- *how to protect and enhance aesthetic assets,*
- *how to conserve, care for and enhance green spaces and water bodies in urban and suburban areas, for nature conservation, cultural heritage and recreational purposes, and how to continue restricting the proportion of hardened surfaces in these environments,*
- *how to ensure that energy use becomes more efficient and is reduced, how to make use of renewable energy resources, and how to promote expansion of production facilities for district heating, solar energy, biofuels and wind power,*
- *how to safeguard water supply and wastewater disposal in a healthy, resource-saving and environmentally sound manner,*
- *how to address risks of flooding, subsidence, landslides etc in the light of climate change.*

This interim target receives a new target year, two indents are amended and two completely new indents are added.

PROBLEM ANALYSIS

Environmental problems in the built environment present new challenges to economic prosperity. By contributing to quality of life, efficient communications and good long-term management of land, water and other resources, our towns and cities can assist towards higher competitiveness in industry, better health and quality of life and sustainable development. For his purpose community building must be based on planning, programmes and strategies, which can contribute to reduction of the need for transport, conservation of natural and cultural areas close to built-up areas and improved efficiency of energy use. The municipalities and county administrative boards are important players in the process, and the expertise to develop the necessary basis for decision-making that takes

account of the environmental problems and the national quality objectives is lacking.

REFERENCE ALTERNATIVE

The zero alternative, i.e. not carrying out the measures, entails a risk of the potential of the physical planning as a tool for contributing to target fulfilment not being utilised and decisions being taken on an inadequate foundation.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

The measures indicated as most important to attain the interim target of Programmes and Strategies for Planning are to

- introduce a new environmental objective-related knowledge development programme with a view to strengthening the physical planning and a tool to contribute to target fulfilment,
- carry out a review of the funding of the knowledge basis for public-sector users when it is used for public purposes, and
- setting up a national centre for environmentally sound transport systems.

INTERIM TARGET

Built Environments of Cultural Heritage Value

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, there will be good prospects of protecting and enhancing the cultural and historical value and diversity of our built heritage.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Skills and knowledge relating to cultural heritage will be used by the authorities concerned and by property owners in their management and modification of the built environment,*
- *Municipal and regional knowledge in this area will have full geographical coverage and be continuously enhanced and used, and*
- *At least 30% of the all buildings considered particularly valuable under the Planning and Building Act will enjoy formal protection.*

PROBLEM ANALYSIS

Cultural heritage assets in the built environment are, for instance, the traces of processes that have shaped our surroundings and that can be followed and experienced and are of significance to

the living environment. This means that certain environments and activities should be protected, conserved or managed in their entirety so that it is possible to talk about past times, while it should be possible for others to be amended and adapted appropriately to new circumstances. It is desirable that an all-embracing view should be applied to buildings of cultural heritage value, which includes both landscape characteristics and patterns of built environment and individual buildings and amenities.

REFERENCE ALTERNATIVE

The zero alternative, i.e. absence of proposed measures, may mean for instance that there is a risk of reduced consideration being given to built environment of cultural heritage value, knowledge of the assets diminishing and effective protection lacking in planning. The lack of good and available information leads to reduced awareness and ignorance of built environments in one's own district.

PROPOSED MEASURES

- Develop methods so that better account is taken of environmental objectives in impact assessments.
- Improve the prospects of good application of the Planning and Building Act through better consultation between the county administrative boards and local authorities and clarify the responsibilities of the county administrative boards for the Planning and Building Act with respect to building.
- Ask the county administrative boards to develop a knowledge base on built environment of cultural heritage value for the local authorities.
- Introduce a new environmental objective-related knowledge development programme with a view to strengthening the physical planning and a tool to contribute to target fulfilment.
- Vitalise the national interest instrument for the cultural environment.
- Establish and develop cultural reserves or listed buildings for a selection of cultural environments which includes both landscape characteristics and patterns of building and individual buildings and amenities.
- Research initiatives.
- Information and training initiatives.

IMPACTS

Table 17. Impacts of the interim target Programmes and Strategies for Planning under A Good Built Environment.

Measures	Impacts	
	Costs	Benefit
Environmental objective-related knowledge development programme	SEK 800m spread over four years	Raised expertise relating to environmental issues and planning in public sector parties (principally local authorities, county administrative boards, regional planning bodies and county museums) and non-profit organisations and better basis for decisions and programmes and strategies for planning.
A review of the funding of the knowledge base for public-sector users when it is used for public purposes	–	Relevant knowledge base will be used in different decision-making situations, for example in planning.
Set up a national centre for environmentally sound transport systems	–	–
Total	SEK 800m	

POSSIBLE POLICY INSTRUMENTS

Economic

Appropriation 28:5.

Administrative

Planning and Building Act, Environmental Code, Cultural Monuments Act.

Informative

Knowledge base.

INTERIM TARGET

Noise

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, levels of transport noise outdoors in housing environments will be at least 5 dBA lower than in 1998, mainly as a result of noise reduction at source. The emphasis will be on the most effective ways of reducing noise disturbance, on the people and housing environments exposed to the most noise, and on achieving the guide values for indoor residential spaces.

PROBLEM ANALYSIS

With regard to this interim target it can be noted that noise in the community is unchanged or increasing, but during the period 1998–2005 around 150,000 of the people worst affected by noise had measures implemented at a cost of around SEK 1.7 billion. Because of the increase in traffic, the fact that noise is at source is not decreasing and great uncer-

ainties in follow-up of the interim target, it is difficult to say whether it can meet in time. The Swedish Road Administration judges that it will be difficult to meet the interim target time with regard to noise from road traffic. The long-term objective of a good acoustic environment for all is still a long way off. Noise abatement must be come systematic and be focused more on measures taken at the source, and commitments to protective measures will also continue to be needed for those who are worst affected.

REFERENCE ALTERNATIVE

The zero alternative means omitting to implement relevant measures. This entails a risk of an increased number of individuals being exposed to noise and the number who today are exposed to noise levels about the guide values does not diminish.

POSSIBLE MEASURES

The following measures are proposed:

- Press for international agreements and directives to steer the automotive industry towards less noisy tyres and vehicles.
- Take measures at the source of the noise (vehicle, tyre, track, road surface). Physical planning to limit the development of noise is needed, as are continued protective measures for those most exposed.
- Establish a knowledge centre for noise issues.

Table 18. Impacts of interim target of Built Environments of Cultural Heritage Value under A Good Built Environment.

Measures	Impacts	
	Costs	Benefit
Develop methods for greater account to be taken of environmental objectives in impact assessments, both at national and at regional and local level.	–	Work on impact assessments is made more efficient.
Improve the prospects of good application of the Planning and Building Act through better consultation between the county administrative boards and local authorities and clarify the responsibilities of the county administrative boards for the Planning and Building Act.	SEK 55m annually	Strengthens physical planning as a tool and builds on the proposal presented by the National Board of Housing, Building and Planning and in the report Clearer Responsibility in the Planning and Building Act (June 2007).
Instruct the county administrative boards to develop knowledge base on built environment of cultural heritage value, for example in the form of digitised, rectified historical maps.	SEK 2m	Supports drafting of programmes and strategies for planning through increased access to relevant knowledge base.
Environmental objective-related knowledge development programme.	SEK 800m spread over four years	Comes within the cost of knowledge development programme according measure 1 in the interim target Programmes and Strategies for Planning.
Vitalise the national interest instrument for cultural environment (regional review) – administrative cost.	SEK 9m/year	Relevant and usable knowledge bases make it possible to safeguard significant qualities in planning and change situations.
Establish and develop cultural reserves or listed buildings for a selection of cultural environments which includes both landscape characteristics and patterns of building and individual buildings and amenities.	Cultural reserves SEK 27m/year Listed buildings SEK 4m/year Management plans SEK 2m/year	In-depth knowledge of the built cultural heritage. Increased awareness among private organisations and the local authority. Local and regional development. (Establishment of nature reserves contributes to fulfilment on average of 2 environmental objectives.)
Research initiatives.	SEK 1m/year	Increased citizen influence. Increased awareness among private organisations. Enhanced methods for descriptions of assets and knowledge base.
Information and training initiatives.	–	Increased knowledge of the built cultural heritage.

IMPACTS

Table 19. Impacts of the interim target Noise under A Good Built Environment.

Measures	Impacts	
	Costs	Benefit
Press for better control.	–	Saved costs of protective measures on buildings and reduced medical costs.
Take measures at the source of the noise, improve physical planning and take protective measures for those who are exposed.	SEK 675m	Reduced noise.
Establish knowledge centre for noise issues.	SEK 10m	Better coordination of knowledge.
Total for the period up to 2020	SEK 685m	

INTERIM TARGET

Extraction of Natural Gravel

PROPOSAL FOR REVISED INTERIM TARGET

By 2020, extraction of natural gravel will take place only to meet essential needs and in areas where conflicting interests, in the form of drinking-water requirements and natural and cultural assets, are limited.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- Natural gravel will be used only where it is not possible to use substitutes in specific applications.
- No extraction of natural gravel will take place in deposits that are of great value for the drinking-water supply and the natural and cultural landscape.

PROBLEM ANALYSIS

It is important to manage natural gravel wisely as it is a finite resource which is of significance particularly for groundwater quality.

REFERENCE ALTERNATIVE

Extraction of natural gravel has been decreasing for a long time, principally as part of the total extraction of ballast material. Increased building means increased use of ballast. Construction in recent years has meant that the decline in extraction of natural gravel has been too slow for the interim target to be met. Further measures are needed.

POSSIBLE MEASURES

- Instruct the Geological Survey of Sweden (SGU) to complete the inventory of sources of natural

gravel in Sweden so that a nationwide basis for planning is available.

POSSIBLE POLICY INSTRUMENTS

- Introduce a new provision on natural gravel sources in the Ordinance (1998:899) on Environmentally Hazardous Activity and Health Protection.
- Develop programmes and strategies for planning for the supply of materials in support of local authority comprehensive planning.
- The transport agencies should adopt policy/procurement documents on not using natural gravel in construction and maintenance.

INTERIM TARGET

Waste

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, maximum use will be made of the resource potential of waste, while its impacts on and risks to health and the environment will be minimised. Waste management will be efficient for society and simple for consumers.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- The total quantity of waste and its hazardousness will be reduced in comparison with 2004 (excluding mining waste).
- Collection will take place in an aesthetically satisfactory way, with good accessibility and safety for households, and separate collection of hazardous waste will be ensured. At least 90% of households will be satisfied

IMPACTS

Table 20. Impacts of measures to meet the interim target Extraction of Natural Gravel under A Good Built Environment.

Policy instruments	Impacts	
	Costs	Benefit
Inventory of sources of natural gravel	SEK 3.2m	–
Total	SEK 3.2m	

IMPACTS

Table 21. Impacts of policy instruments to meet the interim target Extraction of Natural Gravel under A Good Built Environment.

Instruments	Impacts	
	Costs	Benefit
Amended ordinance	–	–
Develop regional planning tool	SEK 9.5m	–
Policy document for procurement	–	–
Total	SEK 9.5m	

IMPACTS

Table 22. Impacts of measures to meet the interim target Waste under A Good Built Environment.

Measures	Impacts	
	Costs	Benefit
Press for international agreements		Potentially better management of natural resources and reduced cost of waste management.
Draw up guidance on litter	SEK 50m	The environment becomes tidier and safer. Waste is disposed of better.
Total per year	SEK 50m	

IMPACTS

Table 23. Impacts of policy instruments to meet the interim target Waste under A Good Built Environment.

Instruments	Impacts	
	Costs	Benefit
Regulation/ordinance on waste strategies and return of phosphorus	Not calculated as drafting of the plans also includes costing the various measures required in different municipalities.	Better planning creates necessary conditions to attain the target. Produces synergistic effects as small-scale sewers, for example, are also restructured and pipe networks are reviewed.

with the collection systems. At least 90% of households will be satisfied with the collection systems.

- Litter in outdoor areas to which the public have access will have decreased by 50% compared with 2008.
- At least 35% of food waste from households, restaurants, catering establishments and retail premises will be disposed of in such a way that the plant nutrients can be used,
- At least 60% of the phosphorus compounds in waste water will be used as plant nutrients. At least half will be restored to arable land.

PROBLEM ANALYSIS

This interim target is partly aimed at not increasing the volume of waste and at the resource represented by waste being used as far as possible, while minimising the adverse impact on health and the environment.

REFERENCE ALTERNATIVE

The interim target consists of several parts. The parts concerned with reducing landfilling and increasing material recycling of household waste have been attained or are judged capable of being attained. On the other hand, volumes of waste are continuing to increase and there are no signs that the volumes will decrease. The parts concerned with recycling of food waste and phosphorus in sewage are also regarded as difficult to attain. It is regarded as possible to attain the interim target to a sufficient degree but further measures are needed.

POSSIBLE MEASURES

- Press for international agreements and directives to reduce volumes of waste in conjunction with production and consumption of articles and for a national programme of specific measures for waste prevention.
- Draw up knowledge base/guidance aimed at consumers/households on litter.

POSSIBLE POLICY INSTRUMENTS

- Introduce regulation/ordinance containing requirements for local authorities to draw up waste strategies/plans including return of phosphate.

INTERIM TARGET

Energy Use in Buildings

CURRENT INTERIM TARGET

Total energy consumption per unit area heated in residential and commercial buildings will decrease, with target reductions of 20% by 2020 and 50% by 2050, compared with consumption in 1995. By 2020 dependence on fossil fuels for the energy used in the built environment sector will be broken, at the same time as there will a continuous increase in the share of renewable energy.

This interim target is unchanged.

PROBLEM ANALYSIS

With regard to the interim target Energy Use in Buildings, it can be noted that Swedish energy production today contributes to a negative environmental impact in the form of emissions to air, soil and waste to varying degrees depending on the type of energy production. An increased commitment to renewable energy sources and reduced use of fossil fuels in particular can limit emissions, but an important measure is also to limit/reduce energy use in various sectors and in various least, particularly in buildings. If the use of energy and fossil fuels can be reduced and the proportion of renewable energy can increase, the prospects of attaining the environmental quality objectives Reduced Climate Impact, Clean Air, Natural Acidification Only etc. will be improved.

REFERENCE ALTERNATIVE

There is a risk of energy use in Sweden continuing to increase, along with associated damage to the environment and health. This makes it more difficult to attain several of the environmental quality objectives (for example Reduced Climate Impact, Clean Air, Natural Acidification Only etc.), and measures must be taken somewhere else.

POSSIBLE MEASURES

- Financial support for households in houses converting from oil heating to renewable energy sources.
- Financial support for households in houses converting from freestanding electric radiators and water-borne electric heating to renewable energy sources.
- Provide information on different forms of heating and other energy-efficiency measures.

(The National Board of Housing, Building and Planning also identifies a number of other measures and policy instruments they consider to be worth investigating but which have not been the subject of impact assessment, for example extending the Klimp climate investment programme. See also the National Board of Housing, Building and Planning's background report.)

IMPACTS

Socio-economic impacts

Measure 1: If the environmental effects are calculated on the basis of Sverigemix (Swedish mix), it is socio-economically effective if house owners do not heat their homes with oil. (Sverigemix is the mean value of emissions when the consumption of electricity is assumed to be produced in the proportions that apply to Sweden. Marginal electricity is emissions in the marginal production of electricity in the Nordic electricity market. This marginal production takes in installations that use coal.) Conversions to other heating systems can provide savings of SEK 7–8 billion. If the environmental effects are calculated instead on the basis of marginal electricity, it would be most effective for society for house owners with oil heating converted from oil to pellets to district heating. A one-sided conversion from oil to pellets or district heating would reduce the socio-economic costs by around SEK 7 billion. Imported electricity generated from coal makes heating by heat pump environmentally and socio-economically expensive.

Measure 2: If the environmental effects are calculated on the basis of Sverigemix, the costs to society can be reduced by SEK 2.6-6.6 billion. Conversion to district heating is most cost-effective. When the environmental effects instead are calculated on the basis of marginal electricity, it is most effective for society if house owners with freestanding electric radiators convert from oil to pellets or district heating, which would reduce the socio-economic costs by up to SEK 41.8 billion.

Measure 3: Described under policy instruments below.

Impacts for public finances

Measure 1: If houses which today have oil heating are no longer heated with oil, central government would lose out on SEK 5–8.6 billion.

Measure 2: If houses which today have heating with freestanding electric radiators convert to another form of heating, central government would lose out on SEK 6.9-19.5 billion. The difference in tax revenue is greatest in conversion to pellets.

Measure 3: Expanded information on different forms of heating and other energy-efficiency measures through a new national web-based portal can contribute to lower costs and reduced environmental impact from energy use. The costs of setting up the portal are estimated at around SEK 1 million, possibly supplemented by information campaigns and other information material.

POSSIBLE POLICY INSTRUMENTS

Measures 1 and 2 are socio-economically effective and above all cost-effective for private finances. Government financial support for conversion from oil and freestanding electric radiators is therefore not considered an effective instrument from the socio-economic point of view. The National Board of Housing, Building and Planning therefore does not propose that the support for conversion from oil heating in houses be extended. Information on different renewable forms of heating and other energy-efficiency measures referred to as Measure 3 above may therefore be more suitable policy instruments to encourage conversion from oil. The information in such cases should focus on technology, environmental effects and household finance.

INTERIM TARGET

A Good Indoor Environment

CURRENT INTERIM TARGET

By 2020, buildings and their characteristics will not have adverse impacts on health. It must therefore be ensured that:

- *all buildings in which people frequently spend time or spend extended periods of time have ventilation of documented efficiency by 2015,*
- *radon levels in all schools and preschools are below 200 Bq/m³ air by 201, and that*
- *radon levels in all dwellings are below 200 Bq/m³ air by 2020.*

This interim target is unchanged.

PROBLEM ANALYSIS

It may be relevant to note for the interim target A Good Indoor Environment that under the Swedish Parliament's environmental quality objectives

radon levels in all dwellings have to be below 200 Bq/m³ air in 2020. The number of houses with a radon level exceeding 200 Bq/m³, for example, has been estimated at around 280,000, and the number of dwellings in apartment blocks that have radon levels above 200 Bq/m³ at 115,000. Calculations from the Swedish Radiation Protection Authority (SSI) have shown that around 200 lung cancer cases a year would be prevented if all dwellings with radon levels above the guide value (200 Bq/m³) were remediated. A problem, however, it is that is rarely cost-effective in terms of private finance to clean up one's home. The probability of suffering lung cancer due to radon is low, while the rise in property value after radon decontamination is carried out is less than the cost of radon cleanup, at least in a historical perspective. Measures must be taken the "cleanup rate" must be increased to attain socio-economic cost-effectiveness and for it to be possible for the interim target to be met. A radon grant may therefore be justified so that cleanup measures become cost-effective from the point of view of private finance.

REFERENCE ALTERNATIVE

The rate of remediation of houses or apartment blocks with radon levels above the limit value of 200 Bq/m³ according to estimates is relatively low. The problems with ill-health, for example lung cancer, which are linked to high radon levels remain and continue to produce socio-economic costs. Attainment of the environmental quality objective A Safe Radiation Environment is also delayed.

POSSIBLE MEASURES

- Radon cleanup of all houses above 200 Bq/m³ (through financial support/grant to households in houses for cleanup)
- Information measures on radon (aimed at resulting in more radon cleanups etc.). (The National Board of Housing, Building and Planning also identifies a number of measures and policy instruments it considers to be worth investigating further but which have not been the subject of impact assessment, for example "Developing registration and onward reporting of the results of OVK (Mandatory Ventilation Inspection) and "Bringing about increased radon cleanup of apartment blocks by expanding radon grants to also apply to schools and preschools". See also

the National Board of Housing, Building and Planning's background report.)

IMPACTS

Socio-economic impacts

Measure 1: Calculated socio-economic impacts (calculated at current values) are shown in the table below. However, the benefit of radon cleanups is estimated by two approaches: saved costs due to fewer deaths caused by lung cancer and households' willingness to pay to avoid living in buildings with high radon levels.

Socio-economic cost-effectiveness depends on how the benefit is calculated. In addition, the National Board of Housing, Building and Planning emphasise that the earlier the cleanups are performed (earlier target year), the greater the probability of the measures being socio-economically cost-effective.

According to the National Board of Housing, Building and Planning's basic calculation, radon cleanup is not cost-effective in terms of private finances. On the other hand, if a radon grant is obtained of 50% of the cleanup costs (excluding measurement afterwards), but not exceeding SEK 15,000, the house owner's initial investment cost decreases from around SEK 37,000 to around SEK 22,000. Radon cleanup measures then become cost-effective in terms of private finance in 15 years.

Measure 2: According to the National Board of Housing, Building and Planning, a radon campaign and the associated cleanup costs combined would lead to socio-economic costs calculated in current values of SEK 55.3m + SEK 4.7m = SEK 60m.

Benefit: If we only base calculations on "Measures in houses with radon levels above 400 Bq/m³", it can be noted that according to the National Board of Housing, Building and Planning's calculations total socio-economic benefit of fewer fatal illnesses calculated in current values is SEK 53.3m. If the benefit is determined instead on the basis of willingness to pay to bring radon levels above 400 Bq/m³ in houses down to below 200 Bq/m³, the benefit of the total willingness to pay for these cleanups, calculated in current values, is SEK 66.9m, i.e. nearly SEK 7 million more than the calculated costs. If calculations are instead based on "Measures in houses with radon levels between 200 Bq/m³ and 400 Bq/m³, the socio-economic benefit calculated in current values in the form of

reduced costs of lung cancer cases can be estimated at SEK 7.7m.

Depending on what radon level houses had prior to the cleanup measures and what method is used to calculate the benefit, converting results are obtained from the socio-economic calculations.

Impacts for public finances

Measure 1: A permanent radon grant is estimated by the National Board of Housing, Building and Planning to cost central government just over SEK 30 million per year, or SEK 360 million for the period 2008–2020.

Measure 2: The National Board of Housing, Building and Planning’s calculations show that radon information can have positive socio-economic effects. The cost of a similar information campaign is around SEK 5 million. If Measure 2 is taken, it may have the effect that more people apply for cleanup grants (according to Measure 1). An estimated increase in payments of grants is SEK 14.3m and increased VAT revenue on measures taken of SEK 9.8m.

POSSIBLE POLICY INSTRUMENTS

Measure 1: The National Board of Housing, Building and Planning considers, for three reasons, that a radon grant of 50% of the radon cleanup cost (but not exceeding SEK 15,000) in houses should be made permanent, while the limit for the support is raised. Firstly support is required for the interim target A Good Indoor Environment under A Good Built Environment to be achieved. Secondly the

“rate of cleanup” must increase for socio-economic cost-effectiveness to be attained. Finally, cleanup measures are not cost-effective in terms of private finance for the average house owner unless there are grants. Informative instruments may, however, be an alternative if the purpose is to bring about a change in behaviour.

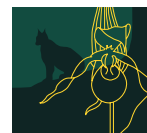
Measure 2: A new information campaign similar to a previous campaign (from 2005/2006) to bring about more measurements and radon cleanups where necessary.

The National Board of Housing, Building and Planning also points to the need to develop registration and onward reporting of the results of Mandatory Ventilation Inspection (OVK) to contribute to fulfilment of the interim target. The results of OVK should be linked to the energy declaration register, which makes supervision and enforcement by local authorities easier and provides better conditions for follow-up, overview and use of the results from OVK. According to the proposal the ordinance on OVK should also be amended so that the OVK inspector notifies the Swedish Work Environment Authority when this is felt to be warranted, for example when the inspector discovers that the size of the ventilation system is not appropriate for the activity actually undertaken. The proposals mean increased costs for the register-holding authority (the National Board of Housing, Building and Planning) and probably that the Swedish Work Environment Authority will have more cases to administer.

Table 24. Socio-economic revenue and costs in SEK million to attain the interim target A Good Indoor Environment for houses, according to National Board of Housing, Building and Planning calculations.

Target year	Income calculated in current values (Benefit)		Costs calculated in current values	Socio-economic cost-effectiveness
	Costs saved	Willingness to pay		
2020	2,103.6		7,923.7	-5,820.1
		6,498.4	7,923.7	

A Rich Diversity of Plant and Animal Life



Biological diversity must be preserved and used sustainably for the benefit of present and future generations. Species habitats and ecosystems and their functions and processes must be safeguarded. Species must be able to survive in long-term viable populations with sufficient genetic variation. Finally, people must have access to a good natural and cultural environment rich in biological diversity, as a basis for health, quality of life and well-being.

The wording of this environmental quality objective is unchanged.

Problem analysis

The biological diversity of genes, species and ecosystems is decreasing at a rapid rate. The most significant factors posing a threat are changes in land use which mean that habitats are declining in quality and quantity, climate change, invasive alien species and overexploitation of biological resources. International work on biological diversity is focused on preserving diversity, sustainably utilising its constituents and bringing about a fair distribution of the benefit that arises in the utilisation of genetic resources.

Many measures taken under other environmental objectives contribute to the work on A Rich Diversity of Plant and Animal Life.

INTERIM TARGET

Loss of Biodiversity

CURRENT INTERIM TARGET

By 2010 loss of biological diversity in Sweden will have been halted.

No new interim target is proposed. The existing interim target is an international commitment incorporated into the structure of the environmental objectives. A future international interim target should similarly be lifted into the structure of environmental targets to replace this interim target.

INTERIM TARGET

Fewer Species Under Threat

CURRENT INTERIM TARGET

By 2015 the conservation status of threatened species in Sweden will have improved to the point where the proportion of evaluated species classified as threatened will have fallen by at least 30% on corresponding figures for 2000, with no increase in the percentage of species that have become regionally extinct.

No new interim target is proposed.

The greatest part of the terrestrial biodiversity is outside protected areas, in what is known as the everyday landscape. It is therefore that it is used in a sustainable way, firstly by the land-based industries that directly utilise components of the biological diversity and secondly by the other activities that have an impact on the landscape without directly using biological resources. Sustainable use is defined in the Environmental Objectives Bill (according to the definition in the Convention on Biological Diversity) as “use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.”

INTERIM TARGET

Sustainable Use in a Landscape Perspective

PROPOSAL FOR REVISED INTERIM TARGET

By 2015, biological diversity and biological resources will be used in a sustainable manner, so that species and ecosystems are conserved and restored at the landscape level.

For the interim target to be judged to be met, the following specifications must be fulfilled:

- *Ecosystems, processes, habitat types and structures will be present in the landscape on such a scale that all species occurring naturally in Sweden that are not under threat survive in viable populations within their natural ranges, and no previously viable species are threatened.*

- *A landscape approach will be applied in the implementation and application of measures and policy instruments in nature conservation.*
- *Effects on the wider landscape of measures undertaken will be taken into account in agriculture, forestry, fishing and other sectors.*
- *The resilience of nature (its capacity to withstand and recover from change) will be maintained or increase.*
- *Measures implemented in work on the other environmental objectives must not jeopardise biodiversity.*
- *The landscape will be used in a way that enhances the scope for biodiversity to adapt to climate change, and the danger of species and habitats being lost owing to climate change will therefore have decreased.*
- *The proportion of habitat types listed in the Habitats and Species Directive that enjoy a favourable conservation status will have increased.*

REFERENCE ALTERNATIVE

The use of biological diversity and biological resources in the present situation is not sustainable. Many relatively common species are declining in number, and most species and habitat types analysed in accordance with the Habitats and Species Directive do not have a favourable conservation status.

On the one hand intensification of agriculture and forestry, in particular with increased demand for biofuels, can lead to biological diversity being sidelined. On the other hand, the abandonment of extensive agricultural land (meadow and pasture land) leads to biological diversity related to this form of agriculture disappearing.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

Many measures described under other environmental objectives contribute to attaining sustainable use.

The county administrative boards should devise landscape strategies for biological diversity based on the general guidance the Swedish Environmental Protection Agency is due to prepare in 2008.

The Swedish Environmental Protection Agency should devise a national strategy for land use, protection and management in a climate perspective. This strategy should be drawn up in cooperation with other affected agencies such as the Swedish Forest Agency, the Swedish Board of Agriculture, the Sami Parliament, the Swedish Road Administration, the National Board of Housing, Building and Planning and the National Heritage Board. Knowledge in the scientific community should be

utilised by the Centre for Biological Diversity, the Species Database (ArtDatabanken) and the Scientific Council for Biological Diversity and other research scientists concerned taking part in the process.

The Species Database should, on the basis of the result of the reporting of habitat types under Article 17 of the Habitats and Species Directive, analyse the presence of those habitat types for which it has not been possible to establish a favourable conservation status in order to see where the habitat type is lacking or does not have adequate quality in the range.

PROBLEM ANALYSIS

Land with buildings is becoming more heavily built up, and the built environment is expanding outwards. This leads to reduction, fragmentation and isolation of green space near urban areas. The quality of areas of nature is declining and access to nature for the population is deteriorating.

INTERIM TARGET

Nature In and Near Urban Areas

PROPOSAL FOR NEW INTERIM TARGET

By 2015, the population will have access to green space with valuable recreational, cultural and natural assets in and near urban areas.

For the interim target to be judged to be met, the following specification must be fulfilled:

- *The recreational, cultural and natural assets of green space will be conserved, cared for, enhanced and made accessible. At least 150,000 ha of urban and urban-fringe forest will be managed with a view to recreation.*

REFERENCE ALTERNATIVE

The impact on nature in and near urban areas mentioned in the problem analysis persists or is increasing. Urban-fringe forests are managed to an inadequate extent with a view to recreation. Buildings are becoming densely packed in urban areas and the built environment is expanding outwards, and cooperation between local authorities on green space near urban areas is uncommon. This means that areas of green space near urban areas are continuing to decrease, fragment and become isolated and that their quality is in decline.

POSSIBLE MEASURES AND POLICY INSTRUMENTS

- Recreation-oriented management of 150,000 ha of urban-fringe forest, that is to say management combined with planning, reserves, nature conservation agreements or voluntary conservation.
- Measures for cultivated land may become relevant in the next in-depth evaluation.
- The establishment of reserves and administration of green space near urban areas in such a way that a regional green structure that works smoothly are promoted, which may lead to limited opportunity locally to build on land.
- There are measures for green space near urban areas with regard to physical planning in A Good Built Environment.
- Local nature conservation initiatives in the form of a knowledge base, care, administration and restoration, as well as public education.
- A system for national follow-up of green space in and near urban areas.
- A review of processes, tools and processes which may promote green space in and near urban areas and proposals for future areas for development.

ECONOMIC IMPACTS

Costs to public finances

The costs to public finances are estimated to total around SEK 240 million per year over the period 2008–2015, of which around SEK 150 million annually is made up of a continued commitment in the local nature conservation investment (LONA) in nature conservation projects.

Socio-economic costs and revenue

This interim target may lead to costs such as locally restricted possibility of building on land.

Loss of production for urban-fringe forest is estimated at around SEK 60–90 million per over the period 2008–2015.

Management costs and the costs of knowledge-building initiatives are estimated at around SEK 300 million per year for local nature conservation investments (responsibility for payment is split between central and local government and local bodies).

This interim target provides the necessary basis for biological diversity in and near urban areas, as 14% of endangered species are in urban environments.

Outdoor pursuits and public health are promoted. There is a clear correlation between proximity to nature and mental health and level of physical activity. With regard to physical activity, a 10% increase in physically active individuals would save society a cost of around SEK 1.7 billion per year in the form of medical costs and lost production.

This interim target contributes to work on climate adaptation. The risk of flooding of the built-up areas is reduced as green spaces act as balancing tanks for water.

The visitor and tourist industry is promoted as protected green space means that investments in the visitor industry can be made more securely and with a more long-term vision.

Summary Assessment

INTRODUCTION

Cost estimates are subject to uncertainty and may be generally regarded as approximate assessments of what different measures and policy instruments can be imagined to cost. It should also be noted that many proposals in the environmental objectives reports are not costed. Despite this, we have chosen to sum up existing cost estimates and roughly break the costs down according to who bears the cost of the proposals and to which sector the costs can be attributed, that is to say where the measures are to be implemented. Who pays often depends on which policy instruments are chosen to put the measures into effect. If introduction of a grant is chosen, this burdens central government finances, but if a revenue-neutral differentiated charge is chosen, for example, this does not increase central government expenditure.

It is common to have estimated the costs to public finances of implementing proposals, but not the socio-economic costs. In these cases we have assumed that the cost to public finances is the same as the socio-economic cost unless pure transfers are concerned, such as a tax. It is common, for example to include a cost to central government of introducing a new grant or raising its level. We have assumed here that the grant fully covers the cost of the measure and can thus be equated to the socio-economic cost. It may, however, be that the grant often only covers part of the cost, in which case the socio-economic cost is underestimated.

We have chosen to distribute the costs over the period 2010–2020. How the costs are described differs somewhat in the objectives reports. In many cases the costs of meeting an interim target by 2015 have been estimated. In cases where we can see costs continuing to arise even after the target has been met, we have assumed the same annual cost up to 2020. If a single investment up to 2015 is involved (or other defined period of time), we have added up the cost to the year indicated and have then distributed it over ten years (2010–2020). The reason for doing so is to make the costs comparable. There is rarely detailed information on how annual or total costs have been calculated,

FIGURE 1. Costs broken down according to who pays.

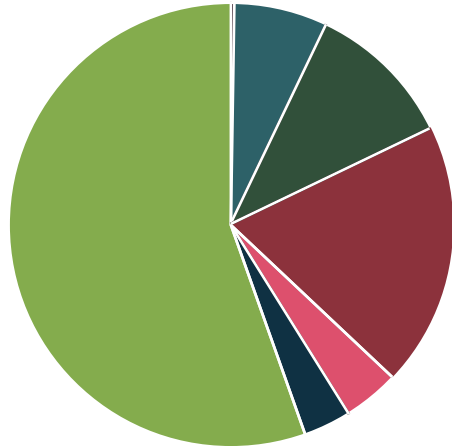


FIGURE 2. Costs broken down according to who implements the measures.



for example what interest rate has been used or whether the costs have been discounted.

Despite uncertainties and deficiencies we have thus added up the costs that are estimated, both socio-economic costs and costs to public finances. In view of the uncertainties described, the summation of costs must be regarded as providing very rough estimates.

SOCIO-ECONOMIC COSTS

The costed proposes, very roughly calculated, total around SEK 20 billion per year over the period 2010–2020. It can read off from the figure below how great a proportion of the costs different players in society have to pay for the measures to be implemented, subject to the policy instruments proposed in the environmental objectives reports. The breakdown can be influenced by choosing other policy instruments or other forms of compensation for sectors that have great payment responsibility. We have assumed that 50% of costs of the measures for shipping under Natural Acidification Only, 50% of measures in agriculture under Zero Eutrophication (interim targets Phosphorus Emissions and Nitrogen Emissions) and 50% of radon cleanup are paid by central government.

Figure 2 below shows that central government has to pay most for the objectives to be fulfilled, just over half the cost. Central government is followed by business, which bears around a fifth of the cost. Agriculture pays around a tenth of the cost, while households, forestry and shipping each pay around a twentieth. Other sectors pay a very small proportion.

It is also possible to look at the sectors in which the measures are to be taken and in which the costs are distributed. The breakdown then is slightly different. Agriculture accounts for the greatest share, with around a third of the costs. Business and central government each account for around a fifth of the cost. Forestry accounts for just over a tenth of the cost, while households and shipping account for just under a tenth. Other sectors account for a very small proportion of the cost.

BENEFIT

The benefit of meeting the various interim targets is very rarely quantified. With political decisions that have been taken that the environmental quality objectives have to be attained, it can be said that it has already been indirectly judged that the

benefit of meeting the targets exceeds the costs. It is therefore of lesser interest (and therefore exceptionally difficult) in this context to try to assess the benefit of the proposed measures and policy instruments.

COSTS TO PUBLIC FINANCES

The total costs to public finances are estimated to be SEK 10–15 billion per year in round figures. It is assumed, as mentioned above, that 50% of the costs of the measures for shipping under Natural Acidification Only, 50% of measures in agriculture under Zero Eutrophication (interim targets Phosphorus Emissions and Nitrogen Emissions) and 50% of radon cleanup are paid by central government. The assumptions on policy instruments have a very strong bearing on how high costs to public finances become.

REVENUE

Overall, however, central government expenditure is offset by increased revenue due to new taxes and increased VAT revenue.

ORDERS

This publication containing the appendices to *Sweden's Environmental Objectives – No Time to Lose* is available only in PDF format at www.naturvardsverket.se/bokhandeln and on the Environmental Objectives Portal, www.miljomal.nu.

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SWEDEN'S ENVIRONMENTAL OBJECTIVES - APPENDICES

This report contains two appendices to the Environmental Objectives Council's in-depth evaluation of the environmental objectives 2008. One appendix contains a collation of the approximately 1,000 proposals for measures and instruments to attain the environmental objectives which those responsible for the environment have made in their background reports for the in-depth evaluation. Impact assessments of these proposals are presented in the second appendix.



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