



PRIME MINISTER'S OFFICE  
FINLAND



## Mainstreaming climate policy and policy coherence

A background report for the compiling of  
the foresight report of Vanhanen's second government



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<b>Abstract</b> The report assesses questions related to mainstreaming climate policy from the point of view of both horizontal and vertical policy integration in Finland. It also reviews measures to promote mainstreaming carried out in other countries. Based on the above, the report provides recommendations on institutions and means through which climate policy integration and policy coherence could be increased. Policy integration and policy coherence can be advanced by developing the existing administrative processes and structures or by creating new measures focused particularly on mainstreaming climate policy.			
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## PREFACE

The objective of the foresight report on climate and energy policy is to be of service to those various instances engaged in decision-making. The report outlines climate and energy policy in the long term and makes proposals for measures. The period addressed by the report reaches to the middle of the century and, if necessary beyond, and covers both combating climate change and adapting to its effects. The perspective of the report is not only national, but also global. To support the preparations for the report the Prime Minister's Office commissions background reports, of which the work at hand is one.

Keeping climate change within tolerable limits requires a gradual transition to a low-carbon society. In such a society well-being is created with a fraction of the present greenhouse gas emissions. We do not yet know what a low-carbon Finland will look like in 2050. However, we can be sure that the necessary reductions in emissions will mean radical changes, among other things in our ways of consuming and producing energy, moving about and organising our society.

The mainstreaming of climate policy, i.e. the process by which climate policy is rooted and implemented more systematically than before in the various fields of administration and policy may be of assistance in a major challenge for change. It is moreover important that the climate policy of the various sectors be mutually compatible.

Most of the institutions currently in use, the decision-making processes and modes of operation came into being before the concern about the climate reached its present level of severity. One may consider how these could be further developed to better support the transition to a low-carbon society.

The present document for its part seeks answers to these questions. It acknowledges the main challenges and presents views on how to respond to them. We express our thanks to the researchers of the Finnish Environment Institute who, led by Per Mickwitz, compiled the report. On the completion of the report a discussion was held in the Prime Minister's Office on 16 May 2008 on its conclusions and their appropriateness for practical work. We would also like to express our thanks to the representatives of the various ministries who participated.

The outcomes of this report and the discussion at the Prime Minister's Office will be taken into consideration where appropriate in the compiling of the foresight report on climate and energy and in the work ensuing thereafter. We hope that this report will be of assistance in the effort to strengthen and mainstream climate policy consistently in all fields of administration and all levels of decision-making.

June 2008

Oras Tynkkynen  
Climate Policy Specialist  
Prime Minister's Office

## AUTHORS' PREFACE

The initiative for this report originated in the request for tenders issued by the Prime Minister's Office in November 2007 for a report on the mainstreaming of climate policy and policy coherence. The report was planned and compiled at the Finnish Environment Institute on the responsibility of Senior Researcher Per Mickwitz. The planning work was accomplished in November and December 2007 by Per Mickwitz, Professor Mikael Hildén, Professor Matti Melanen and Division Manager Alec Estlander. The investigation began in January 2008. All the thematic interviews were conducted by Paula Kivimaa, who was also responsible for their detailed planning. She likewise analysed most of the written material acquired for the work of the report. On 26 February Mikael Hildén led a focus group on the mainstreaming of climate policy and coherence in technology and innovation policy. Most of the report was written by Paula Kivimaa and Per Mickwitz. At various stages the text was commented and supplemented by Alec Estlander, Mikael Hildén and Matti Melanen.

Many people helped us in the compiling of this report by sharing their expertise and commenting drafts of the text or parts thereof. Here we express our thanks to the following: Antti Hautamäki, Pirkko Heikinheimo, Jarmo Heinonen, Jari Lyytimäki, Petri Malinen, Esko Mustonen, Ari Nissinen, Pekka Nurmi, Pentti Puhakka, Mika Ristimäki, Risto Saari, Esko-Olavi Seppälä, Ulla-Riitta Soveri, Hannes Toivanen, Oras Tynkkynen and Sirkka Vilkamo. The responsibility for how the comments received were utilised rests with us alone.

Helsinki 28 March 2008

The authors

## SUMMARY

In the long term Finland will need to significantly reduce her greenhouse gas emissions and also to adapt to global warming. The necessary emission reductions and adaptive measures will not materialise without political guidance. The requirements of the EU moreover require Finland to make considerable reductions in her greenhouse gas emissions. Achieving these objectives will necessitate targeted measures in climate policy and the mainstreaming of climate policy throughout the entire administration. Mainstreaming climate policy means that those administrative actors whose main tasks are not connected to climate change mitigation or adaptation will also by their own actions promote these goals. In addition to mainstreaming climate policy, there is a need to increase policy coherence so that the various policy areas provide actors (for example, industrial plants, farmers, students and commuters) consistent messages on the desirable development in society. The new EU climate and energy package, among others, sets emission reduction targets for several sectors. Achieving the targets for some sectors, however, frequently also necessitates measures in others. For example, the emission limits set for transport necessitate measures in industry, regional and economic policy in order to reduce the emissions caused by mobility.

This report describes issues related to the mainstreaming of climate policy from the perspectives of both horizontal and vertical integration and brings together examples of the measures of other countries. In light of these, the report makes recommendations as to how mainstreaming and policy coherence can be enhanced. Initially mainstreaming and policy coherence can be enhanced by further developing the existing administrative processes and structures and creating new measures focusing specifically on the mainstreaming of climate change. Here we present the main recommendations of our report.

### ***Recommendations based on existing administrative processes and structures:***

- *The main prerequisite for the mainstreaming of climate policy is that climate policy should be deemed politically significant. Thus the role of climate policy in future **government programmes** and above all how committed the **Prime Minister and other key ministers** are to climate policy will have a decisive influence on the preconditions for mainstreaming.*
- *The Ministry of Finance should ensure that Parliament has at its disposal as part of the **state budget proposal** estimates of its direct and indirect effects on the mitigation of climate change and adapting to it.*

- *Ministries and offices annually prepare four-year **action and financial plans** these should include assessments of the effect of actions for mitigating and adapting to climate change.*
- *In the **assessment of the effects of proposals for legislation** more attention than hitherto should be paid to potential effects pertaining to mitigating climate change and adapting to it. This entails strengthening climate expertise in legislative drafting and among those offering expert services. **The Ministry of Justice**, for example after four years, should commission a thematic evaluation of how the assessment of the climate effects of the legislative proposals has been implemented in practice and what effects this has had on the preparation of legislation.*
- ***In the assessment of the environmental effects of plans and programmes the climate dimension is to be strengthened.** This presupposes the development of methods and approaches, and, above all, the raising of awareness.*
- *In the current plans in the division for sustainable development of the **Advisory Board for Sectoral Research** one of the four themes is "Evaluation and comparison of measures to mitigate and adapt to climate change", but there are also many other themes with indirect bearing on climate change. It is important that through the work of the Advisory Board for Sectoral Research such research should be initiated which contributes to the mainstreaming of climate policy. This requires that influence be brought to bear on both content and on the resources and processes of the sectoral research committee to that research will focus on matters crucial to the mainstreaming of climate change and be qualitatively and quantitatively sufficient.*

**Recommendations requiring new measures focusing especially on mainstreaming of climate change:**

- *It is important to ascertain if the mainstreaming of climate policy would be enhanced if a climate policy expert group were to be attached to one of the following: **the Prime Minister's Office, the State financial controller's function of the Ministry of Finance or the National Audit Office of Finland.***
- *In addition to strengthening present functions it is appropriate to consider the establishment of a new function to be responsible for the mainstreaming of climate policy. Previously such functions have been established for several new challenges. Examples include the consumer ombudsman, the ombudsman for equality and the data protection ombudsman. The job description of a possible **climate ombudsman** should be considered, likewise the benefits and costs of establishing such a position.*
- *The respective ministries should ascertain what **legislative changes** would best ensure reductions in greenhouse gas emissions. This requires a reconnaissance of the potential for reduction of the various functions.*

- *Mainstreaming climate policy also entails a new kind of dialogue between research and other actors in society. Research needs should be identified together with the various interest groups and climate issues should be taken into account in the preparation, administration and evaluation of all research programmes. Moreover, interaction between researchers and the various sector ministries should be enhanced through **intermediary organisations** focusing on climate issues such as the German Advisory Council on Global Change or through the ministries' **"interpreters of science"**.*

Regardless of the administrative level, sector or concrete measures, successful mainstreaming requires expertise; resources; commitment on all levels, but especially from the management of the various organisations; monitoring and evaluation; likewise the ability to resolve conflicts between climate policy and other political objectives.

# 1 INTRODUCTION

## 1.1 Background and objectives

In the long term Finland is going to need to make a significant reduction in her greenhouse gas emissions and also to adapt to global warming. In spite of the great deal of uncertainty regarding the future, two things appear certain. Firstly, the necessary emission limitations and adaptation measures will not be achieved without policy measures. Secondly, in addition to climate policy proper, there are many other political instances having bearing on the development. The targets for emission reduction in the new EU climate and energy package concern several sectors. Achieving these sectoral targets, however, also frequently entails measures in other sectors. For example, the emission limit set for traffic also requires measures in employment, regional and economic policy in order to reduce the emissions due to travel.

In this report climate policy refers to strategies, decisions and measures for mitigating or adapting to climate change. Mainstreaming climate policy means that those administrative actors whose main tasks are not connected to mitigating or adapting to climate change should by their own actions promote these objectives. Mainstreaming may be horizontal or vertical (Figure 1). Horizontal mainstreaming in this context refers to taking account of climate change throughout all government (all administrative agencies/ministries) or in numerous joint projects involving several administrative branches. Vertical mainstreaming here refers to the integration of climate issues in a single administrative sector in such a way that mitigation and adaptation are truly apparent in the concrete decisions and measures of the field of administration on the various administrative levels. In climate policy both mainstreaming processes are important. Which is the more important is a matter of the respective sectors.

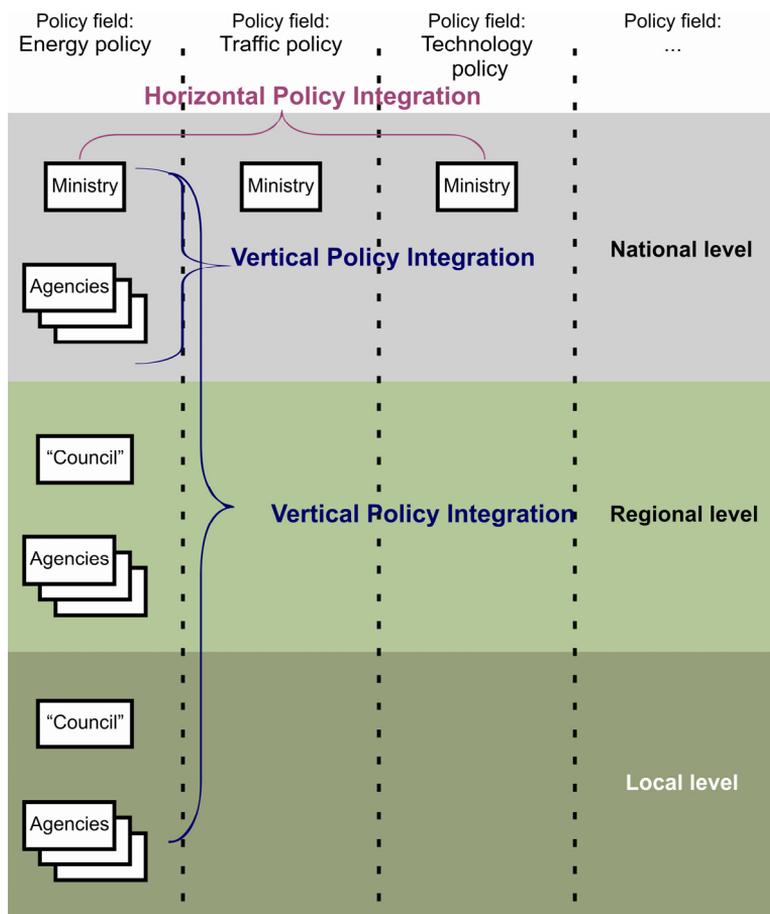
Policy coherence is understood to be that the various policy fields provide actors in society with consistent messages regarding what is a desirable societal development. A coherent climate policy thus supports mainstreaming, and on the other hand mainstreaming promotes the increase of policy coherence. Mainstreaming climate policy and ensuring policy coherence are extremely challenging tasks even though there is consensus regarding their indispensability. Their importance increases as emission reductions become tighter and the necessity for adaptation measure increases. The difficulty of these tasks relates among other things to the fact that the specialisation of administration and a structure emphasising sectors render coherence more difficult to achieve (Peters 2006). In their assessment of the challenges to the Finnish administration Geert Boukaert, Derry Ormond and Guy Peters (2000)

stress that “Addressing issues that respect no organisational boundaries in an effective cross governmental way is probably the most shared concern of governments today.”

Detailed enumeration of the challenges and problems of political coherence and mainstreaming requires the recognition of factors with bearing on them. The most important of these are:

- enlargement of the public sector, which makes administrative systems hierarchical and complex
- the extended scope of public policy, which means that functions differ widely in their nature
- network-type operation, in which an individual public actor is compelled to take the views and practices of other actors (including private ones) into account, and
- the formation of many administrative levels as a result of which their actions and actors are influenced by policy developed and decided on at different levels (UN, EU, Finland, region, municipality). (E.g. Pollitt 2003).

**Figure 1** Horizontal and vertical policy integration.



Mainstreaming has been emphasised in many different areas, such as in efforts to promote gender equality objectives. In environmental policy, too, mainstreaming has been taken on board as an approach in general under the integration concept of environmental policy (Environmental Policy Integration, EPI), aiming simultaneously at coherence. The principal is defined in the Rio convention of 1992 and included in Article 6 of the EU Amsterdam agreement. The integration of environmental policy, however, has proved difficult in practice. According to some estimates taking account of environmental perspectives in other policy sectors has largely failed in the EU despite political commitments (Wilkinson et al. 2004). One possible reason is that integration may require more knowledge, expertise and resources than are available (Mickwitz and Kivimaa 2007). Mainstreaming may also be difficult in practice as power is involved in the existing structure and modes of operation and territorial thinking is widespread.

So far there are no generally accepted approaches and methods for climate policy integration (CPI) (Unwin and Jordan 2008), but by analysing experiences in other policy fields it is possible to identify factors meriting special attention in the effort to mainstream climate policy and achieve coherent policy measures. Advance recognition of these factors is of paramount importance since the extent and demanding nature of climate questions renders them susceptible to contradictory policy actions and failure in mainstreaming. It is likewise obvious that mainstreaming climate policy and policy coherence cannot be resolved at one go. Thus it is essential to create learning processes in order to take on board and further develop best practices.

The aim of the present report is to review the main challenges to mainstreaming climate policy and policy coherence and to evince new ways of strengthening Finland's climate policy. The report analyses policy so far and the related coherence and mainstreaming issues; we analyse how solutions and approaches utilised in various policy areas in Finland and in other countries can be applied to issues identified; we also draw conclusions as to how to meet in practice the mainstreaming and coherence challenges required for a successful climate policy. Approaching the subject through political processes, strategies and measures enables us to scrutinise a wide area and also to explore those measures of which actors have as yet no experience. The report addresses climate policy primarily from the perspective of mitigating climate change. Adaptation is considered especially in those cases in which policy can be used to exert influence both on mitigating climate change and adapting to it.

The following questions served to guide the report:

- What can be learned from efforts to mainstream other policy objectives such as environmental policy integration?
- What good practices have been found in other countries for mainstreaming climate policy and increasing policy coherence?
- From the perspective of climate policy, what are the main preparatory and evaluation processes and structures to which the climate dimension should be mainstreamed?
- Is there a need for new structures and processes to promote mainstreaming and policy coherence?
- How is it possible to improve in particular the interaction between research and policy in order to enhance mainstreaming and policy coherence?
- How can policy development and guidance in conflict with climate policy be identified and how are conflicts to be resolved?

## 1.2 Data, work processes and methods

This work made use of the following material:

1. Scientific analyses, policy evaluations and reports pertaining to mainstreaming and policy coherence
2. Seven thematic interviews
3. Background material provided by the Prime Minister's Office on solutions from other countries (22 countries)
4. Information produced through focus group discussions

Numerous books, studies, reports and assessments of policy coherence and environmental policy integration have recently been written (e.g. Hertin and Berkhout 2003, Jacob and Volkery 2004, Kivimaa and Mickwitz 2006, Lenschow 2002, Liberatore 1997, Mickwitz and Kivimaa 2007, Nilsson 2005a, Nilsson and Eckerberg 2007, Nilsson and Persson 2003, Sorensen 2003). This material was utilised by interpreting the findings in relation to the questions listed above.

Around the midpoint of the work process the following interviews were conducted:

- With Ari Nissinen, senior researcher at the Finnish Environment Institute on mainstreaming of climate matters in public procurements (1 February 2008)
- With Heikki Joustie Deputy Director General, on the administration for mainstreaming of climate matters (6 February 2008)
- With Pekka Nurmi, Director General Law Drafting Department, on the preparation of legislation for mainstreaming of climate matters (7 February 2008)
- With Ulla-Riitta Soveri, Counsellor, on experiences of government environment measures in the UK (7 February 2008)

- With Esko Mustonen, financial expert, on mainstreaming of controller functions in state finance (13 February 2008)
- With Esko-Olavi Seppälä, Secretary General of the Science and Technology Council, on mainstreaming climate matters in technology policy (14 February 2008)
- With Petri Malinen, Finance Secretary to the taxation division of the Ministry of Finance, on mainstreaming climate matters in the national budget proposal (20 February 2008)

Thematic interviews were used to help form a many-sided picture of the advantages, drawbacks, challenges and opportunities of various processes and structures. However, no conclusion or interpretation is based solely on an individual interview, and the recommendations of the report are based entirely on the views of the authors.

Through the diplomatic representation of Finland in numerous countries the Prime Minister's Office requested background materials on the solutions opted for in other countries to strengthen climate policy. This material constitutes an important source. The background material was supplemented with the experiences of other countries documented in the literature.

The report also endeavoured to identify new initiatives and for this purpose a group discussion was arranged on the options for strengthening the mainstreaming of climate policy and coherence in technology and innovation policy (Chapter 4). Key representatives of technology policy from the Ministry of Employment and the Economy (Pentti Puhakka, Hannes Toivanen and Sirkka Vilkkamo) from the Finnish Funding Agency for Technology and Innovation (Jarmo Heinonen and Pirko Kyläkoski), the Finnish Innovation Fund (Antti Hautamäki), the Secretariat of the Science and Technology Council (Esko-Olavi Seppälä) and the Employment and Economic Development Centre of Uusimaa (Pirjo Karlsson) participated. Participants had the opportunity to comment a draft of Chapter 4, but they did not comment the report more generally, nor did they participate in the formulation of the recommendations presented in Chapter 6.

The Prime Minister's Office on 14 March 2008 arranged a small occasion at which a draft of the report was commented, those invited including participants from the Ministry of Finance, the Ministry of the Environment, and the Ministry of Transport and the Ministry of Education in addition to those of the Prime Minister's Office. In addition to the authors of the report, those present from the Prime Minister's Office were Pirkko Heikinheimo, Pipa Heinonen and Riitta Kirjavainen, likewise Risto Saari of the Ministry of Transport and Communications.

The report is further to be supported by a request by the Prime Minister's Office for comments from the sector ministries. Moreover, information obtained from the PEER co-operation network (Partnership in European Environmental Research) on the mainstreaming experiences of various countries will also be provided for the work group engaged on the foresight report.

### 1.3 Structure of the report

Chapters 2 and 3 consider challenges and opportunities for the mainstreaming of climate policy throughout the entire administration (Chapter 2) and within the policy sectors (Chapter 3). The internal scrutiny of the policy sectors raises both more general questions concerning all sectors and presents a brief examination of mainstreaming in energy policy and traffic policy. Mainstreaming and coherence are also extremely important in other policy sectors, but due to constraints of time and resources they are not investigated here in greater detail. Chapter 4 presents an example of mainstreaming in one policy sector, focusing in greater detail on technology and innovation policy. The experiences of other countries are not presented as a point of comparison in earlier chapters but are the focus of Chapter 5. Chapter 6 presents recommendations as to how the mainstreaming of climate policy and policy coherence could be promoted in Finland.

## 2 QUESTIONS OF HORIZONTAL INTEGRATION – MAINSTREAMING OF CLIMATE POLICY AND POLICY COHERENCE AT THE LEVEL OF THE ENTIRE ADMINISTRATION

Mainstreaming of climate policy and policy coherence at the level of the entire administration (horizontal integration) is addressed in light of the following questions:

- What in practice does the institutionalisation and strengthening of climate policy on the highest level mean?
- How is it possible to ensure that climate change and its effects are better recognised in the preparation of legislation?
- How in practice is it possible to ensure that climate change and its effects are taken into account in the preparation of the state budget?
- What are the preconditions for strengthening the connection between climate policy and science?

The focus of the examination is on the preparation of government programmes, governmental strategy and programme work, the preparation of the state budget, general work on legislation and certain interministerial organs. The examination endeavours to identify alternative ways of ensuring that there is sufficient knowledge and expertise pertaining to climate change in the processes and organisations.

### 2.1 Institutionalisation of climate policy and raising decision-making to the topmost level – government programmes, strategies and interministerial organs

The structure of the Finnish national administration is based on sector policy and policy is formulated and implemented largely by the respective ministries. A coalition government composed of several political parties strengthens such a sectoral policy, as the borders between policy sectors are frequently also borders between political parties. Some means of supporting horizontal co-operation however, have been developed. They include:

- Government programmes in which such public policy objectives are agreed on whose implementation demands measures from several sectors.
- Government policy programmes. Mitigating and adapting to climate change, however, have not been raised as a policy programme in this or in previous governments.

- Management by results, which especially supports vertical mainstreaming, but also horizontal co-operation if agreement is reached over sector boundaries on shared pervasive objectives (cf. regionalisation, productivity objectives).

Many easier, so-called win-win solutions to climate change mitigation have already been adopted, but a significant reduction in emissions at a time of economic growth also demands structural changes in society and in the national administration. Ensuring the commitment of the highest political level to the prioritization of climate change (e.g. to promote competitiveness, or above regional policy or in keeping with these) is essential in order to achieve real changes. In addition to the government and the Prime Minister, the President of Finland is also highly significant as an opinion leader.

Research and other experiential knowledge show that commonly shared and adopted objectives and priorities are extremely important in order to achieve true integration of climate objectives in different sectors (shared ownership). Previous experience of the integration of both climate and environmental matters indicates that the inculcation of climate objectives in all sectors requires political will. Mere administrative structures and expertise do not guarantee integration. In addition to decisions at the topmost level there is a need for implementation and reporting and binding means to ensure that they do indeed take place. In Finland there are administrative structures in place to support mainstreaming, but their application to achieve objectives in climate policy demands the genuine commitment of the entire government. The objectives inscribed in the government programme and the measures in climate matters have served to create a basis of such mainstreaming (Box 1).

**Box 1** Climate change in Prime Minister Matti Vanhanen's second government programme (2007).

In the programme of Prime Minister Vanhanen's second government climate change occupies a more prominent position than ever before. Indeed, the second sentence of the preface states: "Climate change and globalisation reinforce the interdependence between nations and citizens". In the government programme climate change is linked primarily to Chapter 8 concerning climate and energy policy. Climate change is moreover given prominence in the treatment of traffic policy. In addition to these important policy sectors, climate change mitigation is taken into account in economic strategy, on the one hand as a border condition for economy and on the other as an export opportunity for technology markets. The role of climate issues is also stressed in development policy and EU policy. The programme notes that the government will draw up a long-term climate and energy strategy and a climate and energy policy foresight report. There is no policy programme for climate change nor is there any mention of climate change in Vanhanen's second government programme in connection with the third policy programmes.

In order to advance climate issues the Prime Minister in May 2007 appointed Oras Tynkkynen specialist on climate policy for the duration of the government's

term in office. The main tasks of the expert are the preparation of the foresight report on climate and energy policy, participation in the meetings of the ministerial group of the government on climate and energy policy and coordination of climate policy. At least Germany, the UK and Italy have had climate policy experts supporting their respective prime ministers. However, the solution adopted in Finland differs from these in that the individual appointed was not a person of scientific or entrepreneurial merits, but a Member of Parliament of a party represented in the Government who has extensive experience of climate issues.

This places the government climate specialist in an intermediate position between being the Prime Minister's special assistant and a political secretary of state who simultaneously has a Member of Parliament's direct access to Parliament. The position provides an extensive network which can be of major assistance in the promotion of mainstreaming. In situations in which objectives relating to climate change are distinctly contradictory in relation to other political objectives, the work of the expert in the mainstreaming of climate policy will, however, only be successful if the Prime Minister assumes an active role. The chances for the expert himself to exert influence on the administration are limited as he is not engaged full-time there, as, for example are the secretaries of state. His chances of exerting influence outside the administration are also more limited than those of individuals who, regardless of party politics, are in extremely influential positions in society (for example Lars G. Josefsson, President and CEO of Vattenfall and John Schelnhuber, Director of the Potsdam Institute as advisors to Merkel, Robert May and Nicholas Stern in the UK or in Italy Professor Valeria Termini).

The ministerial group on climate and energy issues of Vanhanen's first and second governments has been highly significant in the formation of government guidelines and in the promotion of policy coherence. They have also supported vertical mainstreaming within various fields of the administration. The present ministerial group includes the Minister of Employment and the Economy, the Minister of the Environment, the Minister of Agriculture and Forestry, the Minister of Finance, the Minister for Foreign Affairs, the Minister of Housing, the Minister of Culture and Sport and the Minister of Labour. Due to the political composition of the government not all the main ministries, are represented in the ministerial working group, for example the Ministry of Transport and Communications. These ministries, however, are represented in the connected network of high level civil servants. The maintenance and composition of the ministerial working group are important in achieving coherence in climate policy decisions.

Since 1993 there has been in Finland a committee for sustainable development (Finnish National Commission on Sustainable Development) with the mission of

promoting co-operation in questions of sustainable development. Until 2007 this was chaired by the Prime Minister, and after the parliamentary elections of 2007 by the Minister of Labour. To some actors the fact that the Prime Minister ceased to chair the committee might indicate a diminution of the importance of sustainable development. The composition of the committee is decidedly extensive, thus sustainable development can be addressed from many angles, be they ecological, and economic or social and cultural. In addition to the chair there are five other ministers and also members from Parliament, from the various ministries, from the municipal administration, producers', consumers' and economic organisations, from trade unions and from environmental and citizens' organisations and the scientific community. The work of the committee is prepared by a secretariat composed of representatives from various administrative fields whose purpose it is to promote the dissemination of information between different administrative branches and ensure coherence in sustainable development issues throughout the state administration. Climate change has been prominent in the work of the committee. For example, in October 2007 the committee arranged a seminar for Parliament on the economic effects of climate change. The committee has moreover promoted the mainstreaming of climate policy and in the future can serve as one organ in increasing the coherence of climate policy.

## 2.2 Implementation and coordination of climate policy in the ministries

The immediate obligations for climate change are divided between the Ministry of Employment and the Economy, the Ministry of the Environment, the Ministry for Foreign Affairs, the Ministry of Agriculture and Forestry and the Ministry of Transport and Communications (Table 1). However, almost every policy sector has direct or indirect effects on mitigating climate change and adapting to it. Different actors have conflicting interests, which gives rise to inconsistencies and conflicts detrimental to policy integration. Moreover there are many important objectives in policy which are generally accepted, but nevertheless conflicting. The fragmentary nature of administration may serve to exacerbate these.

In the long term the climate change objectives are frequently consonant with other welfare objectives. The problems arise from those situations in which choices must be made between different policy goals and short term win-win situations are not possible. Such situations call for political prioritization and balancing between different goals. For example, taking account of other environmental effects in decision-making in climate policy and in creating new structures is important, since environmental policy would otherwise be seen to be increasingly merely and solely climate policy. In the energy sector climate

issues have gained ground from issues pertaining to air protection and natural diversity.

**Table 1** The ministries and their role in mainstreaming climate policy.

<b>Ministry</b>	<b>Responsibility in climate policy</b>	<b>Policy areas that have links to climate issues</b>
Prime Minister's Office	Coordination of government programmes	
Ministry of Foreign Affairs	CDM projects	Development aid Trade policy Foreign relations Extended security policy
Ministry of Justice		General guidance of legislative preparation
Ministry of Internal Affairs		Rescue services Guidance of provincial planning: particularly the provincial plans and the regional development programmes of provinces
Ministry of Defence		Public procurement (26%)*: procurement and use policies of equipment, energy consumption Security policy
Ministry of Finance		State finances (budget proposals and guidelines for the ministries) Guidance of public procurement at state level Energy taxes and support Other taxation and general support policies Municipal structure
Ministry of Education		Educational policy Research and science policy Public procurement (17%)*
Ministry of Agriculture and Forestry	Main responsibility in the adaptation to climate change	Agriculture and forestry Water supply and the use of water resources
Ministry of Transport and Communications	Transport	Transport infrastructure Transport and communication services Public procurement (22%)*
Ministry of Employment and Economy	Main responsibility for climate change mitigation, energy, industry, services, households, markets, technology development	Energy policy Emissions trading Industrial policy Technology and innovation policy Monitoring and guidance of public procurement
Ministry of Social Affairs and Health		Environmental health
Ministry of the Environment	Main responsibility for international climate change negotiations, JI projects, community structure, construction, wastes	Guidance of land use and construction General guidance of sustainable development Environmental legislation, permits, wastes

\* Share of the total value of all public procurement (Motiva 2007).

The consistent implementation of climate policy in itself may be extremely challenging. Mitigating climate change and adapting to it require very different means and actions at different levels. So far mitigating climate change has focused on policy at national and international level. Recently the role of solutions in climate change mitigation and adaptation has been stressed at local level, too, and the municipalities have increased their climate policy measures. However, if climate policy means are created in isolation from the overall examination their effect may even serve to increase emissions. Thus horizontal integration and management on the strategic level are important both in the various sectors of national policy (Box 2) and between the municipalities.

**Box 2** Levels of policy coordination.

**Level 1 Independence:** each ministry retains autonomy regardless of its policy field, its side effects on other ministries and related policy areas.

**Level 2 Communications:** the ministries inform one another of their activities through approved communication channels.

**Level 3 Consultation:** the ministries consult one another in the policy creation processes in order to avoid overlap, inconsistencies and contradictions.

**Level 4 Avoidance of policy differences:** the ministries actively endeavour to ensure that their policies are consonant and consistent.

**Level 5 Seeking a common understanding:** the ministries extend to act co-operatively on joint committees and in groups in addition to avoid concealment of difference and overlap.

**Level 6 External reconciliation:** the Prime Minister or the government invites or requires critical parties to reconcile unresolved differences between ministries.

**Level 7 Curtailing autonomy:** the government/parliament sets advance limitations determining what the ministries may and may not do in their policy areas.

**Level 8 Deciding on common priorities and achieving them:** a leading party, such as the government, set and ensures through coordinated action the main lines for policy.

Sources: OECD 1996, Jordan 2002

## 2.3 Better recognition for the climate dimension in the preparation of legislation

It is likely that almost all legislation has indirect effects – positive or negative – on emissions of greenhouse gases or adapting to climate change. For this reason it is essential to take this into account in the preparatory stage of legislation. The vague legal nature of the integration obligation, however, delays the genuine integration of environmental matters into the various legislative

sectors in general (Nollkaemper 2002). However, the preparation of legal provisions should endeavour to ensure that impact assessment is integrated into the preparatory process. A special assessment stage may not be necessary; the assessment of impacts may become clear when the proposed legislation is reviewed in light of feedback obtained from interest groups. In certain cases, however, assessments may require separate and more detailed investigations of the impacts of alternatives.

On 1 November 2007 the Finnish Government issued instructions for a Regulatory Impact Assessment of the proposed legislation (Ministry of Justice 2008). The instructions replace previously issued instructions on the assessment of economic effects (1998), of environmental effects (1998), of effects on enterprise (1999) and on effects on regional development (2003). They moreover complement the instructions (2004) of the government proposal. The instructions themselves are so new that no assessment of their practical implementation is possible. In Finland the checklist of the instructions for the assessment of the effects of proposed legislation (Ministry of Justice 2008) includes seven questions pertaining to environmental effects. Among other things they cater for effects on energy consumption, level of emissions and traffic. Thus climate issues are included at least in principle in the assessments of the legislative proposals. In practice the extent of the assessment of impacts, the degree of detail and the methods are proportionate to the content of the legislative proposal and the anticipated significance of the effects. It is intended to assess the climate effects in those cases in which the party preparing the legislation or some party in a key interest group perceives significant climate effects to be possible. The knowledge of the party doing the preparatory work and expert assistance are thus in a crucial position, especially regarding the identification of indirect climate effects. The ministry responsible for the legislative proposal and the knowledge of the individuals engaged in it of the subject area has a decisive effect on the identification of a need for assessment.

Assessment of climate change impacts in the preparation of legislation concerns two types of effects – desired effects and side effects. The aim of a legislative proposal may be climate change mitigation or adaptation. In this case it is easy to recognise a need for impact assessment. It is more difficult to identify a need for assessment in cases in which the legislative proposal may occasion significant indirect climate effects which through an assessment could be prevented or reduced. Many side effects may occur indirectly through changes in society. The likelihood of indirect effects can be estimated by ascertaining what measures and target groups the regulation will impact on and how it will change the operating environment. The examination links the assessment of environmental impacts and wider societal effects.

Ascertaining the extent and quality of assessments is a challenging task. Little expert support in impact assessment is available and the opportunities for improving expert services have only just been examined (Ministry of Finance 2007). Expert assistance is available from sectoral offices and research institutes, but even this expertise has not always been utilised in all legislative preparatory work, among other things because borders between sectors have been strong and the preparatory resources in legislation frequently small. For example, those responsible for legislation on enterprises are not in the habit of contacting environmental experts, nor do those working on environmental legislation utilise all the expertise of the field of health. These problems are exacerbated in climate issues, which are so extensive that comprehensive information on the effects contingent upon them is difficult to obtain from a single institution. Exploring the questions arising in impact assessments demands coordinated research knowledge of the chains of effects of the environment, society and entrepreneurial and innovation activities.

The expert working group for the evaluation of legislative measures proposes *“that the provision of practical expert services for the impact assessment be organised in such a way that each ministry is responsible for organising these services and allocating the related resources. In addition to each ministry’s own measures and in order to coordinate activities it will be necessary to create an expert network for impact assessment”* (Ministry of Finance 2007). In such an approach the challenge is to develop coordinated expertise and compile a data bank on climate effects. The role of the network of experts is especially important. The working group also noted the challenging nature of leading and directing network type operations and estimated that to be successful network-like action would need sufficient political support, clearcut tasks and responsibilities and some sort of permanent secretariat. Individuals representing different parties in the network should also have sufficient resources for their work. Thus for the long-term promotion of climate policy it is important to estimate the sufficiency of network-like action in the assessment of the climate impacts of legislative proposals and the connections of evaluation with research and its organisation.

In future the use of the assessment instructions for the impacts of legislative proposals will be monitored via an inspectorate in the Ministry of Justice. So far no experiences of this are available, but the prospects for estimating the implementation of the assessment of climate impacts in the legislative preparatory work of the various policy sectors should be ascertained. In addition to this, for purposes of monitoring preparatory projects have been selected for the duration of the government’s term in office which is to be followed up especially from the perspective of principles for legislative preparation. Such projects are a complete overhaul of the Waste Act and of the legal provisions for energy efficiency and energy services. It would be appropriate to make a

thematic evaluation of the implementation of the assessment of climate impacts in connection with this work.

## 2.4 The climate dimension in the assessments of the impacts of extensive programmes

In addition to the assessment of the effects of legislative proposals, the assessment of extensive programmes by sector or transcending sector boundaries could have a major impact on mainstreaming climate change and policy coherence. For some ten years ex ante assessments of national programmes have been done in Finland, primarily motivated by a legal obligation. The requirement for ex ante assessment was initially included in the Act on Environmental Impact Assessment Procedure (468/1994) in 1994. However, the law did not stipulate how the assessment should be conducted. In 2001 the EU approved a directive on the assessment of the environmental effects of certain plans and programmes on the environment (2001/42/EC). In order to fulfil the requirements of the directive a law was enacted in Finland on the Act on the Assessment of the Impacts of the Authorities' Plans and Programmes on the Environment (200/2005). Effort began to be invested in the assessments of national programmes especially after the Parliamentary Ombudsman in 1999 required a more detailed environmental assessment of the national forestry programme (Hildén 2007).

Experiences of the assessments of plans and programmes evince wide variation between cases. For example, there is considerable variation in the relative weight attached to environmental, economic and other societal issues in the programmes, which is reflected in the selection of the methods and approaches and in the formulation of questions in the evaluations. Likewise the role of climate change varies considerably from one assessment to another. For example, in the assessment of the environmental impacts of the national forestry programme in 1999 no direct assessment of the climate impacts was made while the increase in the use of wood for energy was indeed evaluated. In the ex ante assessment of the National Forestry Programme 2015, which was completed in 2007, extensive attention was paid to climate change. This serves as an example of the increased significance of climate change and the advance of mainstreaming.

For purposes of taking better account of the climate dimension in the preparation of programmes and plans there is thus an adequate legislative basis. However, practices should be further developed. This requires that:

- one should be better able to identify which programmes and plans have direct or indirect effects on climate change mitigation or adaptation;
- the climate dimension should be taken into account at a sufficiently early stage of the preparation when the assessment could affect the preparation in such a way that the programme or plan is improved from the perspective of climate policy;
- in order to evaluate the climate dimension there is expertise and applicable methods, likewise resources to implement this part of the assessment (also regarding the assessment of the effects of the legislation).

## 2.5 Taking climate change and its effect into account in the state budget, in taxation and in controller functions

The presentation of the budget proposal to Parliament is among the most important decisions of the government (Box 3). The allocations for road, rail and waterway projects, for example, (Chapter 3.3) have direct effects on greenhouse gas emissions, likewise subsidies for renewable energy (Chapter 3.2), but very many allocations and subsidies have indirect effects on emissions. Thus it is important to mainstream the climate change perspective in the preparation of the budget. The political support of the present government and especially the key ministers for the mitigation of climate change has also been apparent, for example, in the Ministry of Finance. Among other things climate change mitigation was a prime objective in the reform of the taxation on motor vehicles approved in 2007. Similar questions arise in other tax reforms. The relative weight attached to climate policy in the budget presentation itself via à vis other political objectives will be apparent only in August 2008 after the discussions on the budget for 2009.

### **Box 3** Climate change in the state budget proposal (for 2008).

It is noted in the economic-political points of departure that “the Cabinet’s policy on energy, climate and environment will be supported through taxation measures. In order to save energy and improve energy efficiency, energy taxes will be raised by EUR 300 million, with the emphasis of the increases on the sector outside emissions trading.” In the general justifications of the budgetary allocations climate issues are mentioned explicitly only in connection with the administrative field of the Ministry of Employment and the Economy and in the administrative field of the Ministry of the Environment in connection with environmental protection and construction. Climate issues are apparent in the action and research expenses of certain sectors, justified among other things in the support of certain forms of energy. However, actual climate expenses have not been mentioned in so many words.

Ways of identifying and reducing incentives in the budget contradictory from the perspective of climate policy should be assessed more carefully than before. What is problematic from the perspective of mitigating climate change are, for example, supporting energy consumption through various rebates and subsidies and promoting commuting by private car through the way journeys to work are treated in taxation. It has been possible to identify numerous contradictory incentives, but due to other political objectives no interventions have been undertaken. It should also be noted that subsidies supporting climate objectives may serve to retard innovation and technological development. By supporting present, but possibly less efficient technologies it is possible to indirectly prevent or delay the appearance of new technologies on the market (e.g. Kivimaa, Kautto et al. 2008).

From the perspective of climate change mitigation and adaptation financial proposals and guidelines driving the development in the wrong direction should be identified in order to enhance transparency. The evaluation of actual environmental effects is not done on the budgetary proposal, rather the assumption is that the administrative fields responsible for the proposals are aware of the effects of their proposals. The extent of the climate effects and the complex indirect effects make for a difficult task. It would be desirable to explore the possibilities for implementing a separate climate evaluation on a level transcending sectors at the point at which the budgetary proposals of the administrative fields are compiled. This would also serve to support the allocation of state finance to climate policy actions in a more cost-effective way.

In the budget income is directly dependent on tax laws, on the statutes issued based thereon and in part on the guidelines of the tax administration. Some tax laws have a direct effect on greenhouse emissions. These, include, for example, the Act on Excise Duty on Liquid Fuels (last amended 1305/2007) or the Act on the taxation of electricity and certain fuels (last amended 1306/2007). Many other tax laws and their provisions have an indirect effect on activities causing greenhouse emissions. Examples include those taxes and deductions which increase mobility of labour and in certain circumstances favour travel by private car. Mention could be made of concrete examples such as the Income Tax Act (1535/92) 93 § , which stipulates how travel expenses between home and work can be deducted in income tax or then the decisions of the tax administration on the principles for calculating fringe benefits in taxation (for 2008, 1214/2007), of which § 17 concerns the benefit of a car. Tax deductions for travel expenses submitted by physical persons amounted to over EUR 1.1billion in 2006 (Tax administration 2008, 40). Those allowed to deduct travel expenses in 2006 amounted to over 800,000 persons, of whom 44,000 were able to deduct the maximum of EUR 4,700 per person (since 2007 the maximum is EUR 7,000 per year). In its present form the travel expense deduction is not aimed at public transport but largely promotes travel by private car.

The prospects for amending the tax laws to provide more incentive for mitigating climate change have been explored in several connections with particular reference to the examples mentioned above. For example, in a report by the Ministry of Finance presented in the Committee for Sustainable Development in 2004, a detailed exploration was made of the possibilities for changing taxes on energy and traffic (Ministry of Finance 2004). The effects of abolishing the right to deduct the costs of commuting between home and work on climate change have long been explored. The Ministry of Transport and Communications published a report on the issue in spring 2000 as part of the LYYLI research Programme (Räsänen et al. 2000). A report from autumn 2007 with a view to reforming the tax on private cars and the annual car registration tax to be based on carbon dioxide emissions shows that the importance of climate policy has increased, thus changes previously excluded can be reviewed.

The Government financial controller's function was created in 2004 to be an advisor, administrative controller and independent supervisory authority in ensuring and developing the quality of the control and reporting system on central government finances and operations and in ensuring financial accountability. The Government financial controller's function does not intervene in the allocation of funds in the budget but *“ensures as a part of the closing of the State accounts for presentation to the Council of State that the document provides [...] accurate and sufficient information and moreover ensures that the information in the closing of the State books and other important information concerning the State finances and effectiveness are available and can be utilised in preparatory work and decision-making regarding the State finances.”* (1216/2003, § 24f 1) In addition to this the objectives for the controllers activities are quality assurance in operations and financial guidance and their further development; management, harmonisation and development of evaluation pertaining to state finance and results; management harmonisation and development of results reporting on state finance and closing of the books; various tasks pertaining to the EU and international cooperation.

The controller monitors among other things the realisation of societal effectiveness objectives through the closing of the books, provided that such objectives are connected to the budget. The monitoring by the controller of climate objectives is thus determined according to what effectiveness objectives have been set and what resources have been allocated in the budget for their achievement. Thus mainstreaming of climate issues in the controller function depends on how they are presented in the budget. At present the Ministry of Employment and the Economy, the Ministry of the Environment and the Ministry of Agriculture and Forestry have set societal effectiveness objectives connected to climate change and the controller has monitored their reporting. It has not been possible to implement mainstreaming in the Controller function as this would require effectiveness objectives for climate change mitigation or

adaptation in the fields of other ministries whose implementation the Controller could monitor.

Gender equality is an example of how challenging it is to utilise the closing of the books as a tool for mainstreaming. In principle gender equality has been mainstreamed, but monitoring the development of gender equality issues with the help of the closing of the books in all fields of administration has, however, proved difficult and technically demanding. It has been difficult to estimate how resources have actually been allocated to promote gender equality. A mainstreaming objective independent of effectiveness objectives may then be merely symbolic. Successful mainstreaming requires on the one hand financial allocations in the budget for the objective and on the other a good knowledge base to estimate the implementation of the effectiveness objectives.

## 2.6 Taking climate change and energy efficiency into account in public sector procurements

*“The World Trade Organization (WTO) and the EU legislation require that in all public procurements certain general principles be adhered to. These are economy, openness, competition, non-discrimination and the free movement of goods.”* (Ministry of the Environment 2008). Thus the point of departure and the challenge in taking climate issues into account is the necessity to adhere to these general principles. Much attention has been paid to the environmental effects of public procurements on both national and EU level. So far it is not compulsory for public organisations to take account of environmental effects and the account taken of them in the selection principles for public procurements is variable. Taking account of environmental considerations is impeded among other things by a lack of knowledge about the environmental characteristics of products, rigidly applied and obsolete acquisition instructions and a desire to avoid decisions entailing risks (Ministry of the Environment 2008).

Climate objectives are currently taken account of as part of the environmental effects of public procurements, but they have been given no special priority in relation to other environmental effects. In practice climate objectives can be seen in criteria for energy conservation, the energy efficiency of buildings and the carbon dioxide emissions of cars and elsewhere. However, climate and environmental objectives are not currently weighted in public procurements, for example by some coefficients; they are rather reflected as the running costs in energy savings and through so-called life cycle models. Thus climate issues carry weight in those procurements in which energy consumption plays a significant role. No systematic account has been taken of the emission effects resulting, for example, from manufacture or final use.

The working group for sustainable public procurements has made a proposal for a new action programme (Ministry of the Environment 2008), advocating new means of improving the way environmental considerations are taken into account in public procurements. In these climate issues occupy a prominent place in building construction and energy consumption of premises, in equipment procurements, foodstuffs procurements and mobility. There are currently no binding requirements for public procurements to take note of climate objectives with the exception of energy efficiency. The challenges to mainstreaming include ensuring the commitment of organisations to public procurements which take account of climate objectives, information dissemination to the various organisations and the promotion of practical knowhow. For environmental considerations in general there are already experts for the municipalities who help public procurements and training for those making public procurements. In addition centralised procurements make it possible for climate expertise to be better utilised in public procurements. The risk in centralised procurements, however, is that of drifting too far away from the users. The procurements and their use jointly determine the actual energy consumption.

A holistic perspective on public procurements is important. For example, in addition to a need for energy consumption criteria in buildings owned by the public sector, there is a need for them in rented premises, otherwise price factors might support a negative development from the energy efficiency point of view. In addition to considering quality in procurements the need for the procurement and its sustainability in the long term should be considered. If higher binding obligations are imposed on the public sector than on the private sector, the benefits are the exemplary value and the support for innovations, but the drawback is the weakening of competitiveness in relation to the services of the private sector. It has been estimated that public procurements have even more positive innovation effects than public R&D assistance (Edler and Georghiou 2007) Mainstreaming climate issues in procurements could offer a means of creating primary markets for climate innovations. However, the rigidity of public systems to change in the way required by innovations activity constitutes a challenge, likewise the lack of expertise on the climate effects of the products during their lifespan (Kivimaa, Kautto et al. 2008). Thus support for climate innovations via public procurement would require a partial reappraisal of the role of procurements and the development and increased use of a new kind of procurement methods supportive of innovations.

With the introduction in 2006 of the Directive on Energy End-use Efficiency and Energy Services the EU Member States were given a target nine per cent recommended energy conservation objective for the period 2008–2016. For the public sector the directive proposal set a separate one and a half fold objective because the level of energy efficiency has been estimated to be poorer on the

level of the EU as a whole. In Finland no specific statistics have been kept on the energy consumption of the public sector, although some reports have been compiled. However, the final directive stresses only that the public sector stands as an example for actions pertaining to the directive, but it imposes no separate objective.

In addition to public procurements the public sector's own energy production is a significant function effecting climate change. The ownership and structure of energy production varies between municipalities.

## 2.7 Strengthening the connection between climate policy and science

There are three main subareas in the connection between policymaking and science: 1) the dissemination of research findings to decision-makers and their utilisation in decision-making; 2) taking note of the long-term and short-term needs in policy making in the planning and implementation of research and 3) joint generation of knowledge in process involving researchers, representatives of politics and administration and other actors in society. The challenges for strengthening the connection include the disparate operating cultures of science and policymaking, the objectives and the modes of communication. For example, the research findings published in scientific publications are seldom in a form which permits their immediate utilisation in political decision-making. Therefore the different groups require more appropriate communications.

"Interpreters", who may be individuals, organisations or co-operation networks, have an important role in promoting the utilisation of research findings in decision-making. For example, through special research funding programmes the knowledge generated on different research projects can be "interpreted" in a coordinated manner to politicians and civil servants. (Mela and Kivimaa 2008). On the other hand, the needs of politics and those engaging therein can be specially catered for in the administration and estimation of the funding of research projects officials through various participatory, evaluative and administrative mechanisms (Furman et al. 2006, Kivimaa, Mela et al. 2008). The role of the individuals and organisations has been observed to be important in serving as intermediaries encouraging contact between science and policymaking (e.g. SMP 2006).

Finland has several sector research institutes which generate knowledge relating to climate change, emissions or policies. However, with the exception of the work of the IPCC (Intergovernmental Panel on Climate Change) there is no official coordination of knowledge supporting decision-making in climate policy. In energy issues Motiva serves as a so-called intermediary organisation between

research findings and practical actors. The sector research institutes have direct contacts to the ministries of their own administrative fields, but contacts to other ministries are frequently confined to projects. The lack of sustained dialogue may impede the utilisation of the most recent research findings in decision-making. The other side of the problem is that researchers do not receive information as to what special need there might be for research knowledge and there may be gaps in the generation of research knowledge.

Mainstreaming can be supported by improving the coordination of research pertaining to climate change mitigation and adaptation and the dialogue of administration, other policy actors and researchers. This is one challenge for the reform of sector research which will strengthen the policy-relevant research of climate issues and the dissemination of knowledge to users.

Efforts are being made to shape the work of the national sector research institutes to better serve the decision-making of the entire government. For this purpose an Advisory Board for Sectoral Research was established in 2007 in an attempt to promote the better focusing of sector research and for the identification of the needs of the user group of sector research using the means of horizontal cooperation. The Advisory Board for Sectoral Research has set up four subcommittees (regional and community structures and infrastructures; know-how, work and welfare; sustainable development; and security). In the current plans in the subcommittee for sustainable development one of the four themes is "Evaluation and comparison of measures for mitigating climate change and adapting to it", but the other themes and especially matters to be processed in other divisions are also related to climate change. From the perspective of mainstreaming it is essential that mitigating and adapting to climate change are also contemplated as questions of regional and community structures and infrastructure, know-how, work and welfare, and security.

### 3 MAINSTREAMING CLIMATE POLICY AND COHERENCE WITHIN CERTAIN POLICY SECTORS

Different policy measures are generally implemented through the work of many administrative levels, organisations and of officials on different levels. For this reason there is a need for measures to ensure that mainstreaming does indeed take place on all levels (vertical integration). The mainstreaming of climate policy and policy coherence within the sectors is ensured by paying attention to the following:

- mainstreaming and coherence on and between the various administrative levels
- identifying and remedying policies that are detrimental from the climate policy perspective
- strengthening the assessment of the climate impacts of policy measures

The mainstreaming of climate objectives is important in several different sectors:

- energy policy,
- traffic policy,
- regional policy,
- agriculture and forestry policy,
- construction policy,
- education policy,
- development policy,
- consumption policy, and
- waste policy.

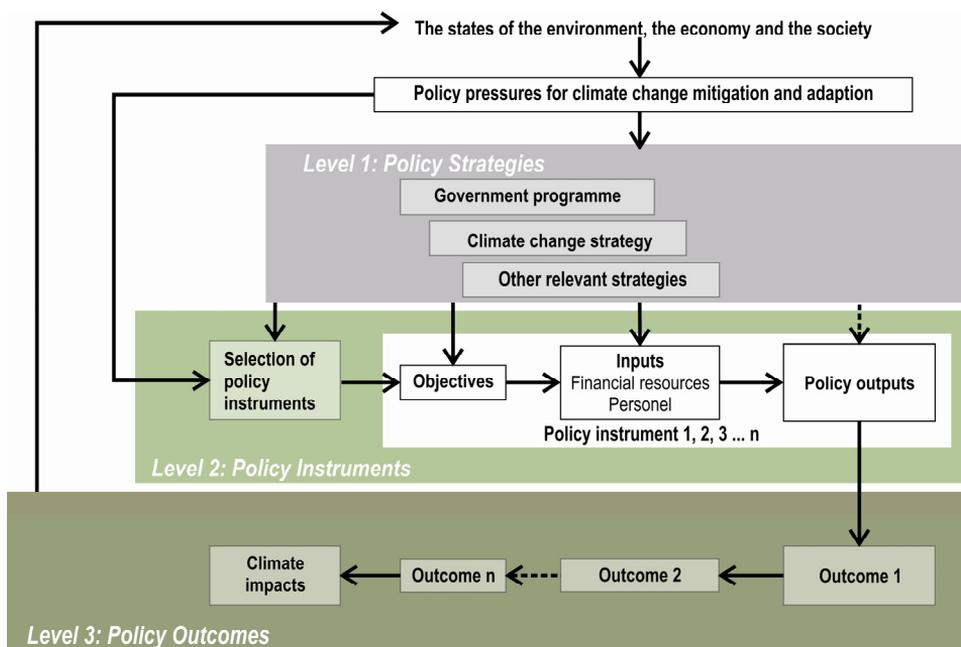
This chapter presents a brief consideration of mainstreaming issues within certain sectors with slightly more attention paid to energy and traffic policy. Due to constraints of time and resources it has not been possible in this report to scrutinize every sector, even though mainstreaming in these is important.

#### 3.1 Mainstreaming and coherence on and between various administrative levels

Each policy sector includes various administrative levels and organisations through which strategic objectives are pursued. Vertical integration refers to the implementation of climate issues on the one hand on the levels of the EU, the state, the regions and municipalities, and, on the other, in addition to the policy strategies in the administrative area of a single ministry, in policy instruments, policy outcomes and effects (Figure 2). If, for example, climate issues are included in education policy, this should be reflected in teaching materials, teaching and eventually in the pupils' level of knowledge and understanding.

In addition to process changes and information systems, the changes occurring within different organisations, among other things to increase climate expertise, are crucial for taking better account of climate issues on a practical level. The literature on integration has noted, for example, the establishment of posts for experts in organisations and units, personnel training, changes in the job descriptions of personnel and units, rotation of personnel and other networking initiatives between organisations and units (e.g. Persson and Klein 2008). Some such initiatives have also been taken locally. For example the City of Helsinki has introduced units-specific eco-support persons (Box 4) and for purposes of taking account of environmental matters in public procurements some municipalities have experts who offer assistance in procurement processes (Chapter 2.6). From the experiences of individual initiatives it is possible to learn matters important to mainstreaming.

**Figure 2** Levels of vertical climate policy integration.



The integration literature on environment policy identifies the following general challenges to vertical integration:

- allocation of resources to achieve various objectives and to different organisations,
- lack of knowhow for integrating new ideas and inadequate knowledge among officials regarding wider policy issues,
- introduction and implementation of means to promote policy integration,

- differences in scale and time span on local, regional and national levels, and
- monitoring implementation of integration in practice.

**Box 4** Eco-support persons of the City of Helsinki.

The eco-support functions of the City of Helsinki represent an attempt to increase responsibility *vis à vis* the environment, the integration of environmental issues into all the city's activities and to conserve natural resources. In the eco-support action model an eco-support person is appointed for each work unit. At the beginning of 2008 the agencies appointed over 350 eco-support people, for example 105 in health centres. The eco-support people receive training so that they can become the experts and developers of environmental issues in their respective units and can guide and inspire their colleagues to act in a more environmentally friendly way. What is crucial from the perspective of mainstreaming climate change is the opportunities of the eco-support persons to promote energy saving, procurements which are more sustainable from the climate perspective and more climate friendly mobility both commuting and during work. Prevention of the generation of waste and its sorting affect climate change. The integration of climate change to concrete public service production could enable the development of new solutions and also the application of such options in which the practical disadvantages from the perspective of other activities are much less than if measures are planned in detail in central administration.

EU policy provides the framework, limitations and requirements for national regulation effecting locally operating companies, municipalities and citizens' activities. From the climate perspective the main EU policy measures include among others the EU climate and energy package (national emissions targets, emissions trading, directives for the promotion of renewable energy and carbon capture and storage, combined evaluation of effects), Integrated Product Policy (e.g. the Directive Establishing a Framework for the Setting of Ecodesign Requirements for Energy-using Products) and the green book on adapting to climate change. In addition to this, the EU Member States have put into practice numerous directives in various policy sectors which have an effect on climate change and mainstreaming efforts. National regulation based on EU policy sets the border conditions for the activities of municipalities, enterprises and citizens. Local actors, municipalities and enterprises may, however, react to EU policy and other international requirements directly, bypassing national policy. For example, *Helsingin Energia* (an energy company owned by the City of Helsinki) on a decision by the members of the City Council implemented air-protection measures prior to the implementation of national policy.

In addition to the general challenges there are challenges to specific policy sectors due to their characteristics. The EU and partly also WTO policy limits integration in some sectors. However, the EU permits its Member States exemptions from stricter measures in those sectors (for example environmental policy) which are extensively regulated by the EU. Trade policy is largely regulated internationally (WTO), thus it is challenging to intervene in this.

Agricultural policy for its part is dominated by the EU common agricultural policy (CAP) thus more radical reforms in this must proceed from the EU level. On the other hand, with the exception of climate change objectives, energy policy and traffic policy are still largely formulated at the national level compared, for example, to environmental policy, in which the legislation originates almost solely in the EU. The extension of defense policy to threats of climate change and adapting to these is a significant new subarea, likewise taking account of climate change mitigation in the realm of the Ministry of Education and development aid.

The links between the different policy sectors are of many kinds, but this does not mean that the policies of these sectors are implemented in a coordinated manner. For example, there are unequivocal connections between forestry policy and regional development, land-use planning, agriculture, tourism, public infrastructure, environmental conservation and energy policy. However, integration between these is frequently impeded by fragmented administration and sectoral structure (e.g. Bauer and Remetsteiner 2007). In Finland a solution to this has been sought through a national forestry programme in which the various actors are brought together during the preparation. Committing to the programme may be problematic, especially in a situation in which the operating environment is undergoing major changes as a result of external factors.

Implementing climate policy is challenging because the instances of public power are divided among central, regional and local government. This is especially the case in traffic and regional policy, in which there are several actors at the level of central and local government together with private actors (Chapter 3.3). Organisations serving as intermediaries and coordinators can promote taking account of climate issues in large infrastructure projects.

What can be achieved through central government measures is much affected by the high degree of autonomy enjoyed by the municipalities. The Municipalities Act (1995/365) 1 § states *"Finland is divided into municipalities whose residents' autonomy is provided for in the Constitution"*. In recent years the relationship between the state and the municipalities has changed in such a way that there has been a shift from detailed guidance by norms to more generally oriented management by objectives. In practice the municipalities' autonomy is heavily dependent on their finances. Decisions on community structure, construction, energy supply and public transport and others are largely taken in the municipalities. The role of central government is emphasised in the finance it provides for the municipalities and the border conditions with bearing on the activities of the municipalities. Central government is also responsible for the climate change issues governed by the municipalities, including energy and traffic policy, construction and the prediction of the effects

of climate change and their minimisation, likewise the preparation of adaptation measures.

It may be difficult to secure the commitment of the municipalities to a powerful climate policy as this is such a wide-ranging problem. The municipalities may have significant interests in adaptation, especially if they have identified risks such as flood areas. Nevertheless the municipalities have recently become active in climate issues and begun to plan their own and joint strategies with other municipalities. For example, the municipalities of the metropolitan area have created a common climate strategy extending to the year 2030, the aim of which is to reduce energy consumption and greenhouse gas emissions by 39 per cent from the 1990 level and in which there are targets and objectives relating to traffic, land use, electricity consumption, construction, procurements and consumption and energy consumption (Helsinki Metropolitan Area Council 2008). Moreover the cities of Kuopio, Jyväskylä and the town formerly known as Toijala have made their own climate strategies.

## 3.2 Energy

Energy is one of the most significant sectors from the perspective of climate change, and climate change has indeed been taken into account as a core element in energy policy, for example in the national climate and energy strategy (Box 5). In spite of measures to promote renewable energy, energy policy still includes significant obstacles to greater reductions than at present in carbon dioxide emissions, for example, the inclusion in the energy taxation system of exceptions reducing the cost effects of the energy consumption of energy-intensive industry. Likewise the new tax subsidies for agriculture currently being increased have a deleterious effect. The promotion of climate policy measures is also impeded by keeping the target cost level low and by the existing electricity production and transfer structures. Halting the growth in energy consumption has been little discussed. However, the last government programme mentions the preparation of an energy conservation programme by the end of 2008.

Integrating climate issues into energy policy suggests that climate issues are taken account of in policy strategies, policy actions and policy implementation. On the level of energy strategy this means that emission reduction targets are one of the main objectives, as is also the case in present climate and energy strategies. On the level of policy instruments integration is the introduction of means specifically geared to emission reductions but also the assessment of other means for emission reduction – for example paying attention to minimum emission limits in investment subsidies.

**Box 5** Mainstreaming and coherence in national climate policy.

The national climate strategy of 2001 outlines for the first time the national measures to mitigate climate change and to achieve the Kyoto targets (National Climate Strategy 2001). Although increasing renewable energy and reducing energy consumption were significant actions in the mitigation of climate change, the strategy of 2001 only outlined two future scenarios. In these the main source of energy was either natural gas or nuclear power. In this strategy no account was taken of emissions trading or other Kyoto mechanisms.

A new climate and energy strategy was presented to Parliament at the end of 2005. Its main means for achieving the Kyoto objectives were mostly continuing domestic investments in bioenergy and utilising the Kyoto mechanisms. In light of the evaluation of the environmental effects of the strategy, however, the measures are fairly slight and do not lead to significant changes in production or consumption. Members of Parliament criticised the strategy for its lack of concrete measures, which may be deemed to have delayed its vertical integration. Coordination between policies was, however, achieved in that climate and energy were included in the same strategy.

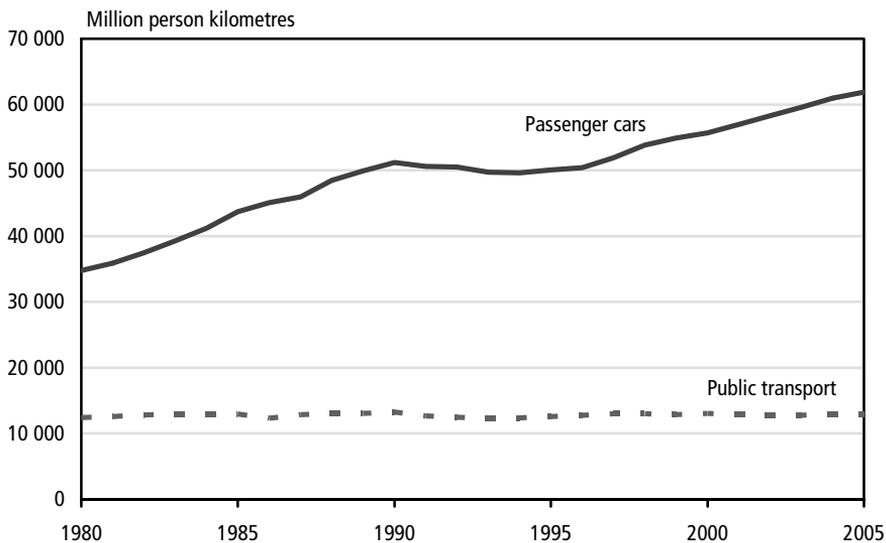
The preparation of a new, long-term climate and energy strategy was begun in 2007, and this is to report to Parliament in 2008 (the strategy was given to the Parliament on 6 November 2008). The Parliament had earlier requested a long-term climate and energy strategy, which underlies both the strategy preparation and the foresight report process. As background for the strategy the sector ministries are preparing scenario overviews until 2050. They review the development in accordance with the present policy measures and will use these as a basis for the evaluation of measures needed to achieve internationally and nationally set targets. Depending on the practical implementation, it will be possible through the new strategy to holistically review the climate effects of the different sectors and the necessary measures. Pressures for a more holistic review have come into being especially with the EU climate and energy package, which for Finland contains a target 16% reduction in those areas which do not belong to the emissions trading system (e.g. construction, traffic, agriculture and waste management).

Vertical integration has been implemented particularly by means aiming at emission reductions, such as renewable energy R&D and investment subsidies. In addition, in order to support vertical integration the (then) Ministry of Trade and Industry as early as in 1993 set up Motiva, whose mission included the development of energy survey methods for different target groups, the training of those implementing these and the monitoring of the quality of the surveys. Motiva also promotes the use of renewable energy and energy efficiency. However, the more extensive integration of climate issues is inadequate, as the evaluation of other means of energy policy, for example the regulations on grid business and electricity markets, has not been accomplished. In parallel with the preparation of the new climate- and energy strategy a broadly-based commission for energy efficiency was established.

### 3.3 Traffic and community structure

The greenhouse emissions of traffic have increased by over ten per cent since 1990. Underlying this development is the marked and sustained increase in journeys made by private car (Figure 3). Within the space of twenty-five years the number of private cars has also increased from 1.2 million to 2.5 million. There are many factors behind this, such as increased prosperity and lifestyle changes. The increase in private cars on the road has been affected not only by commuter traffic and service use but also increased leisure mobility. Urban sprawl and regional specialisation of functions have for their part increased travel by private car and undermined the prerequisites of mass transportation. In addition to private cars, considerable greenhouse gas emissions are caused by transports. The emissions have not diminished as it has not been possible to increase the share of transportation by water and rail. Of goods transports in 2004 those transported by road were 69%, by rail 24% and by water 7% (Ministry of Transport and Communications 2007.)

**Figure 3** Development of public and private transport.



Sources: Statistics Finland, the Finnish Road Administration, VR Group, the Finnish Maritime Administration, the Finnish Civil Aviation Authority, Helsinki City Transport.

Climate issues have been raised in transport policy strategies and programmes. For example, the most recent action and financial plan of the Ministry of Transport and Communications begins *“Climate change mitigation assumes a crucial role in transport policy, too. The share of traffic in Finland’s greenhouse gas emissions is about one fifth, with some 90 per cent of this due to transportation by road. Limiting the greenhouse gas emissions from road*

*transport requires measures in traffic, vehicle technology, community and land-use planning, taxation and levy policy”* (Ministry of Transport and Communications 2008). Although climate change occupies a prominent position in transport policy strategy, it is not yet so prominent in concrete decisions. For example, the frame decision of spring 2008 was a considerable investment in road transportation. The main justification was the needs of business life, especially promoting the availability of timber in the name of the competitiveness and jobs in the forest industry. In its bulletin the government notes that *“For the period 2009 – 2012 the Government will present to Parliament unprecedentedly costly new transport investments.”* Although according to the framework decision finance is to be channelled more than before to the further development of the railways, most money is still allocated to basic road maintenance. Major road projects in particular (e.g. Route E18, Route 51 between Kirkkonummi and Kivenlahti, and a road called Hakamäentie) are justified by the fact that they will remove bottlenecks and reduce congestion even though this creates the preconditions for an expansion of road traffic and traffic jams may move temporally and spatially elsewhere.

Many different authorities function as part of the transport sector. In the administrative field of the Ministry of Transport and Communications there are the following agencies to whose operations climate issues could be mainstreamed: The Finnish Road Administration, the Finnish Maritime Administration, the Finnish Institute of Marine Research, the Finnish Meteorological Institute, the Finnish Vehicle Administration, the Finnish Rail Administration, the Finnish Civil Aviation Authority, the Finnish Rail Agency. In addition climate issues could be taken into account in state traffic institutes (Finavia civil aviation and Finstas shipping) and major state companies significant through contractual relations (VR Group and Finnair Group). The administrative field of the Ministry of Transport and Communications has had an environmental programme since 1994 and since 1999 an environmental system based on the requirements of ISO 14001. The environmental system creates good preconditions for mainstreaming.

In addition to influencing mobility, traffic policy also affects other areas of importance to society, such as people's health and well-being, land use and both built and natural environment. Increase in traffic is frequently at odds with these other interests. Moreover, the decisions of other areas affect traffic development. In addition to traffic planners the actions of experts in the environment and in public health, land use planners and entrepreneurship planners affect the needs for traffic and its effects.

The traffic policy sector is indeed a service and intermediary sector by which efforts are made to promote other societal objectives such as competitiveness, regionally balanced development and employment. The allocation of resources

to the infrastructure of different modes of transport affects the way people behave, but the effects of regional policy and community planning are also significant. Hence it is difficult to influence traffic policy by traffic policy means alone. Reducing greenhouse gases from traffic requires extensive, integrated and cross-sectoral approaches. In addition to the field of operations of the Ministry of Transport and Communications, land use, community and regional planning and housing, occupations and taxation policy are in a crucial position with regard to demand for transport, utilisation of transport and distribution of means of transport. However, the decentralisation of community structure has led to more decentralised workplaces and housing around growth centres and to longer journeys for purposes of commuting and dealing with practical matters. Such changes together with the decentralisation of services have served to increase the necessity of journeys by private car in certain areas. In contrast to many countries in central Europe the spaced out construction of towns in Finland makes it possible to build more compactly without impinging on opportunities for recreation and values of nature.

Traffic policy is also an example of a multi-level policy area in which the main decisions are taken on all levels: globally (especially the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO), which come under the UN, in the EU, on national level and in the municipalities (Box 6). At best the policy measures are mutually supportive regardless of the level on which they were taken, but they are not always coherent from the perspective of climate change. According to the traditional divisions of labour central government has been responsible for the major thoroughfares and the municipalities for local traffic. Hence the municipalities have obtained state subsidies for those road construction projects which simultaneously promote travel by private car in relation to public transport. There is considerable variation between municipalities regarding subsidies for public transport and state subsidies for public transport may in many ways be considered meagre. On the other hand it may be appropriate from the perspective of the municipality to ensure, for example, that an extensive shopping centre is built in the municipality although from the traffic perspective a different solution would be more desirable considering the wider area. Once the shopping centre is there, it is often taken for granted that central government will participate in the financing of the traffic arrangements necessitated by the shopping centre, for example, connections and other routing solutions). From the perspective of community planning the ongoing reform of municipal and services structure may serve to promote the development of more sustainable traffic systems. In addition to planning the active acquisition of land by local and central government has a major impact on community planning.

## Box 6 Traffic as a multi-level control issue.

Factors with bearing on the carbon dioxide emissions from traffic can be divided into four groups according to the following equation:

$$[g\ CO_2] = [passenger-km] \times [vehicle-km/passenger-km] \times [MJ/vehicle-km] \times [g\ CO_2/MJ]$$

### *Passenger-km*

depends on very many factors such as community structure, household and lifestyle.

### *Vehicle-km/passenger-km*

depends on the consumer's choice of transportation mode. Since the share of public transport has declined (Figure 3), the same passenger-km demands more and more vehicle-kms. For private cars the ration also depends on how many passengers travel in the same car.

### *MJ/vehicle-km*

depends above all on car size and engine, but also on driving habits.

### *g CO<sub>2</sub>/MJ*

depends on the fuel used. By using diesel or biofuel CO<sub>2</sub> emissions can be reduced.

Efforts are being made to exert influence through policy in all the above-named factors and decisions are taken on these measures on all levels from the EU to the municipalities. Land use planning is used to exert influence on mobility through national objectives for land use, regional planning and through the planning done by the municipalities. Influence is being exerted on the choice of mode of transportation through commuter vouchers, maintenance of state roads and investments, likewise through local and central government subsidies to public transport and car parking facilities. Influence is being exerted on car size and engines by means of an agreement between the EU and car manufacturers according to which the emissions from private cars in the EU area should not exceed 140g CO<sub>2</sub>/km in 2009. In December 2007 the Commission put forward an initiative on binding legislation to reduce the emissions from new cars to 120g CO<sub>2</sub>/km by 2012. In addition the EU is endeavouring to influence the choices of car buyers by means of a Directive (1999/94/EC) which defines what information on cars' CO<sub>2</sub> emissions should be available where they are sold. National efforts are also being made to influence the characteristics of cars, for example by approving in 2007 car tax on private cars and an annual vehicle tax based on CO<sub>2</sub>-emissions. EU Directive (2003/30/EC) on biofuel as well as the Act on the Promotion of the Use of Biofuels in Transport (446/2007) through which the directive is implemented in Finland, exerts influence over choice of fuel, but so also do local level decisions, such as the decision of Helsinki on the use of biodiesel buses.

Source: Monni and Raes 2008.

## 3.4 Identifying and correcting policies that are harmful from a climate perspective and strengthening evaluation of the climate effects of policy measures

It is a challenging task to identify and correct policies which cause the development to move in the wrong direction from a climate perspective. This can most easily be achieved when planning new legal provisions and when amending provisions by assessing their effects (Chapter 2). A holistic

reconnaissance of the existing policies is a major undertaking. Conducting a holistic evaluation of the direct and indirect emission effects of the various policies, however, is important. Partially erroneous conceptions of factors with bearing on the various origins of emissions of greenhouse gases may lead to poorly planned measures as a consequence of which net emissions increase even though individual reductions in emissions may be achieved.

The practice of management by results enables effectiveness objectives which transcend the borders of administrative sectors and the implementation of objectives through results agreements between ministries and their agencies. Thus in evaluations, too, one should examine how the various organisations cater for climate issues as part of the normal decision-making process.

Identifying trends in the wrong direction from the perspective of climate change and intervening therein in the various sectors demands different types of evaluations. In some sectors, such as energy or traffic, the effects on climate change are more direct and more easily recognised whereas in other sectors, such as teaching and social work the effects are more indirect and apparent only in the very long term. Identifying guidance and actions taking things in the wrong direction may also entail different types of evaluations. Evaluation may address the emission effects of certain policy influences or how climate targets have been taken into account as part of selected policy processes. Moreover, evaluation may concern only central or local government or the administration of the policy of one sector on the levels of different organisations and policy means.

Redressing guidance leading in the wrong direction may occur at various levels of administration. On the lower administrative levels it may sometimes be possible to avoid conflicts which occur in higher level programmes. On the other hand, policy conflicts which have not been seen or which are not apparent at the strategic level may occur in the implementation phase. Hence evaluation that reaches different levels vertically is important.

In evaluations of different levels it is possible to utilise certain criteria which check whether climate issues have been taken into account at all in policies, how possible conflicts between policy objectives and actions have been estimated and how efforts have been made to intervene in these, likewise what weight has been given to climate issues in relation to other objectives (Table 2). It is moreover possible to scrutinise whether there are already climate effect monitoring and reporting mechanisms and resources in place for these measures.

**Table 2** Criteria available for identifying climate issues in guidance on the strategic, instrumental and effects level.

<b>Criterion</b>	<b>Key question</b>
Inclusion	To what extent are direct as well as indirect climate change mitigation and adaptation impacts covered?
Consistency	Have the contradictions between the aims related to climate change mitigation and adaptation and other policy goals been assessed and have there been efforts to minimise revealed contradictions?
Weighting	Have the relative priorities of climate change mitigation and adaptation impacts compared to other policy aims been decided and are there procedures for determining the relative priorities?
Reporting	Are there clearly stated evaluation and reporting requirements for climate change mitigation and adaptation impacts (including deadlines) ex ante and have such evaluations and reporting happened ex post? Have indicators been defined, followed up and used?
Resources	Is internal as well as external know-how about climate change mitigation and adaptation impacts available and used and are financial resources provided?
Deliberation	How are climate issues brought up in discussions and during meetings where public decisions are prepared?

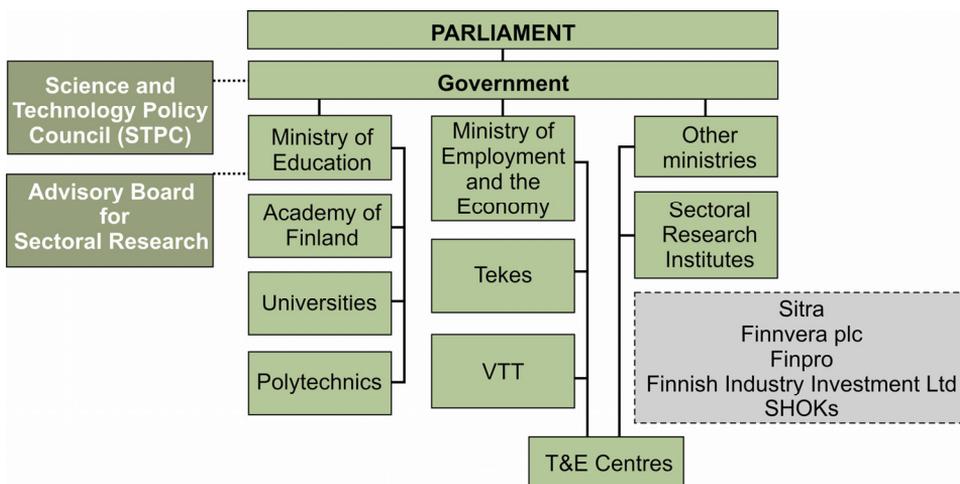
## 4 MAINSTREAMING IN GREATER DEPTH EXEMPLIFIED IN TECHNOLOGY AND INNOVATION POLICY

### 4.1 Technology policy and innovation policy

For purposes of mitigating and adapting to climate change, technology (and innovation) policy represents a very prominent policy sector – especially in the long term. Among others the Intergovernmental Panel on Climate Change (IPCC) (2007, 150) considers technology policy an important protection strategy in reducing future emissions and stresses that funding and drivers are needed in all subareas of the innovation system.

Technology policy is an example of a policy whose lines the government determines relatively tightly, which of itself is mainstreamed in the various sectors of society and whose needs and reform are scrutinised by the Science and Technology Policy Council. It is also an example of a sector in which there is an influential ministry (the Ministry of Employment and the Economy) and a strong official body (the Finnish Funding Agency for Technology and Innovation, TEKES) and numerous other actors (Figure 4). Compared to many other policy sectors, the role of the municipalities in technology policy is not a powerful one. However, if we are strengthening a demand driven innovation policy (Georghiou 2006) in which the significance of public procurements is emphasised, the role of the municipalities will increase in technology policy, too.

**Figure 4** The public actors of the Finnish innovation environment.



Extending the innovation concept has led the development away from mere science and technology centred innovation activity and policy. The multi-sectoral effects of innovations have served to create a need to so-called horizontal or extended innovation policy which is rooted in a wider socioeconomic context (Lundvall et al. 2002, Smits and Kuhlmann 2004). Indeed, horizontal innovation policy has often been conceived of as a policy area which transcends the borders of sector policy, and which includes objectives pertaining to both economy and quality of life (OECD 2005, Pelkonen 2006). More widely innovation policy stresses integration and consistency between the various policy sectors. For this reason sector research can also be seen to have a crucial part in a wider innovation policy.

Technology and innovation policy represents a subarea in which the vertical integration of climate issues has already for some time been implemented, among others through strategies and R&D programmes. It moreover in itself constitutes a policy area undergoing mainstreaming, and therefore presents a good example of what kind of challenges mainstreaming implies and what concrete actions can be taken and are needed in addition to strategic level integration.

## 4.2 Mainstreaming in technology and innovation policy

The significant actors in technology policy proper and in technology-centred innovation policy are the National Science and Technology Council, the Ministry of Employment and the Economy, the Finnish Funding Agency for Technology and Innovation, the Technical Research Centre of Finland and the regional employment and economic development centres, also the Finnish Innovation Fund SITRA and some other funding organisations. On regional level the employment and economic development centres are crucial to the implementation of technology policy. The public actors of the Finnish innovation environment, however, are composed more extensively of various actors at national level (Figure 4) and so it can be seen that efforts have been made to mainstream the innovation perspective to public decision-making and other sector ministries and institutions. Among others the National Science and Technology Council, whose mission it is to support the national formation of science, technology and innovation policy, is composed of representatives of different sectors. Moreover, the public technology system covers sector research in addition to basic research and technology research.

Recently the view of science and technology policy has expanded from science and technology-based innovation activity in the direction of market, client and demand centred innovation policy, with an emphasis on the importance of social innovations. The new innovation policy reforms, such as the creation of a

national innovation strategy, the Strategic Centres for Science, Technology and Innovation and the reform of sector research create the potential to take better account of the aims of societal policy in innovation and technology policy. The genuine integration of climate objectives into innovation policy, however, demands special attention because innovation policy has not yet fully absorbed the principles of sustainable development (e.g. Heaton 2000, Schienstock 2005). The climate perspective is an important part of innovation policy, among other reasons because the chances of public environment policy and environment management at the company level to exert influence over product development are dependent on complex chains of information dissemination (Kivimaa 2007), whereas public innovation policy may have very direct effects on the projects of companies.

Some of the funding for science and technology is targeted at research programmes and projects which support the mitigation of climate change or adaptation to it (Table 3). The full vertical integration of climate issues in connection with technology policy, however, means that climate change mitigation and adapting would be taken into account not only in strategy level decisions but also in the concrete actions of all organisations and in decisions in all subareas and not merely through special programmes and projects targeted at curbing climate change and enhancing adaptation. In practice this means, for example, that the direct and indirect effects of funding decisions would need to be evaluated on some level. At present, however, it has been observed that sustainable development and thereby climate issues are perceived only as a border condition of innovation and not so much as a main objective (Hautamäki 2008) and they have concentrated on certain research programmes.

At a discussion forum convening actors in technology policy (26.2.2008) various views were evinced on the need for mainstreaming climate policy in technology and innovation policy and in the actor organisations. The discussions stressed the importance of continuity of programme activities in the promotion of climate policy. The sector research and the Strategic Centres for Science, Technology and Innovation were seen to be crucial instruments for mainstreaming although in practice integration is extremely difficult. It was moreover noted that due to the decisive role of the Science and Technology Policy Council's recommendations the mainstreaming of climate issues could be brought to the fore in the next interim report. In the Ministry of Employment and the Economy many matters in addition to climate change seek to gain prominence in innovation policy and content related decisions (such as climate issues) generally occur closer to the operational level, for example, in the Finnish Funding Agency for Technology and Innovation (TEKES). This stresses the importance of vertical integration measures in TEKES and in the Employment and Economic Development Centres so that climate issues are explicitly taken into account in policy measures.

**Table 3** Main TEKES, Academy of Finland and SITRA research projects 1999–2008 with regard to climate issues.

<b>Research programme</b>	<b>Duration</b>	<b>Funder</b>
Sustainable community	2007–2012	Tekes
Energy programme	2008–2012	Sitra
Sustainable energy SusEn	2008–2011	Academy of Finland
Sustainable production and products KETJU	2006–2010	Academy of Finland
ClimBus - Business Opportunities in Mitigating Climate Change	2004–2008	Tekes
DENSY - Distributed energy systems technology programme	2003–2007	Tekes
Environmental programme	2005–2007	Sitra
SUNARE - Sustainable Use of Natural Resources research program	2001–2004	Academy of Finland
Finnish Global Change Research Programme (FIGARE)	1999–2002	Academy of Finland
CLIMTECH - Technology and Climate Change	1999–2002	Tekes

Integrating climate issues into energy policy suggests that climate issues are taken account of in policy strategies, policy actions and policy implementation. On the level of energy strategy this means that emission reduction targets are one of the main objectives, as is also the case in present climate and energy strategies. On the level of policy instruments integration is the introduction of means specifically geared to emission reductions but also the assessment of other means for emission reduction – for example paying attention to minimum emission limits in investment subsidies.

TEKES has endeavoured to take account of climate change in its operations as a matter pervading units and programmes, but in practice it has mostly implemented targeted programmes. When actual funding decisions are taken in programmes other than those specifically geared to climate, energy and environment, negative emission effects have not been systematically taken into account (e.g. Kivimaa and Mickwitz 2006). In the new Tekes strategy focus areas published in March 2008 (TEKES 2008) the emphasis is on human needs and sustainable development. In addition there has been a marked increase in funding for energy and climate and some programmes, such as the material programme, are of a nature which pervades various subject areas. The matrix structure of the organisation may also support the integration of climate issues and the dissemination of expertise within the various units. However, the challenges of mainstreaming climate policy are acknowledged to be significant and above all horizontal, thus it is claimed to be important to increase inter-ministry cooperation.

The Employment and Economic Development Centres have many individual tools, such as energy subsidy, with which to help SMEs. The awareness of these companies of the options afforded by climate policy and of the opportunity to predict this is slight. This serves to stress the need for advisory and consultation

services for SMEs to enhance the climate angle. Indeed, the opportunities for mounting an advisory service on climate issues through the Employment and Economic Development Centres' personnel, for example training or a certain official post, or through coordination by some individual actor should be ascertained.

So far sector research has focused on the sector research institutes administrated by the respective ministries and on the research projects funded by the ministries which support the policy of the ministry concerned. However, on external funding the sector research institutions have also conducted research supporting other administrative fields. The share of this research of the entirety, however, has been small, and for sector research it was only last year that horizontalisation measures were undertaken. In 2007 an Advisory Board for Sectoral Research was set up under the auspices of the Ministry of Education to promote societal decision-making and targeting of other governmental sector research promoting development elsewhere in society, likewise co-operation between the ministries and administrative fields concerned. This body is also charged with planning the structural reform of sector research. The Advisory Board for Sectoral Research includes the heads of department of the various ministries and also experts. In this connection it is thus possible to take account of climate change as part of holistic research if only there is sufficient will.

One significant reform in Finnish science and technology policy is the establishment of Strategic Centres for Science, Technology and Innovation. These centres may support innovation activity consonant with the climate objectives assuming that mainstreaming is successful. The centres do not as such support mainstreaming, but mainstreaming may influence them through criteria for funding (TEKES and the Academy of Finland), by supporting the markets of environment innovations and through various policy measures (regulations, economic guidance) and in general through the guidelines for education and science policy.

### **4.3 Main options for action in mainstreaming in technology and innovation policy**

The focus group discussion which brought together technology policy actors (26.2.2008) deliberated not only needs to mainstream climate policy but also how climate policy could be better taken into account in future innovation policy actions. The main point emerging from the experts' discussions was that of utilising present strategies and practical processes in the mainstreaming of climate issues. This means that in the course of various policy processes it is possible to seek common ground and common issues to promote innovation policy and climate issues more generally. Through such issues it is possible to

promote both the main objectives of sector policy and the mainstreaming of climate policy. Common issues in the promotion of innovation strategy and climate innovations are the following:

- How can research findings and technology (supporting climate policy) be applied in practice? How and with what instruments can potential users be activated? How can markets be stimulated to adopt new (climate friendly) technology?
- How can future changes in the operating environment be predicted? How, in light of such predictions, can resources best be planned and allocated?
- How can the continuity of (climate) innovation be promoted?
- How can innovations which are demand-centred and conducive to non-material well-being be increased?
- How can public acquisitions be encouraged to support (climate) innovations' demo-projects?

The following actual means of mainstreaming climate policy in innovation policy were acknowledged:

- dialogue between ministries to support the development and introduction of climate innovations;
- climate issues as part of all Strategic Centres for Science, Technology and Innovation and sector research;
- setting up various focused expertise and innovation centres;
- developing climate expertise in public organisations and promoting innovative leadership in central government;
- improving self-regulation of companies for the promotion of climate issues;
- flexible regulation which supports the introduction of innovations but ceases when market demand increases;
- demo-projects supporting innovations of public procurements;
- supporting companies' forecast activities through some new forum; and
- supporting the commercialisation of research and technology supporting common EU climate objectives

The example of technology and innovation policy of vertical integration demonstrates that, in addition to actions on strategic level and cooperation, there is a need for reform also in sector-specific policy organisations in order to achieve concrete changes which curb climate change. It is important to actively seek issues which can also support the achievement of different objectives in the same sector. Instruments specially concentrating on climate issues can be maintained at the same time as efforts are made to evaluate the climate effects of other actions.

## 5 PRACTICES IN OTHER COUNTRIES

### 5.1 Institutionalisation of climate policy and its elevation to the topmost decision-making level

Scrutiny of the national climate policy measures of other countries enables the identification of various mechanisms for the mainstreaming of climate policy both on the level of the entire administration and of sector policies (energy, traffic, R&D, building, products, education and development aid). Horizontal measures can be grouped as in Table 4.

**Table 4** Means planned for implementation in other countries for taking account of climate change at government level.

<b>Approach</b>	<b>Horizontal action</b>
Organisational reforms	<ul style="list-style-type: none"> <li>– Reorganisation of ministries, departments or agencies</li> <li>– Establishing larger climate change ministries</li> </ul>
Establishing new permanent institutions	<ul style="list-style-type: none"> <li>– Cross ministerial climate change committees or commissions</li> <li>– Cabinet secretaries for climate change</li> <li>– Climate change as part of mandate for sustainable development commissions</li> </ul>
Establishing temporary institutions	<ul style="list-style-type: none"> <li>– Climate change working groups</li> <li>– Cross-ministerial climate change coordination meetings</li> </ul>
New offices	<ul style="list-style-type: none"> <li>– Climate change minister or vice-prime minister</li> <li>– Climate change Secretary of State</li> <li>– Climate change consultant to the government</li> </ul>
Personnel policy	<ul style="list-style-type: none"> <li>– Wage development or career of civil servants linked to achievement of climate change targets</li> </ul>
Budgeting	<ul style="list-style-type: none"> <li>– CO<sub>2</sub> limits in the state budget</li> <li>– Climate change based taxation</li> <li>– Climate change based subsidies</li> <li>– Assessment of climate change impacts by ministry of finance as part of budget preparation</li> <li>– Comments on budget proposals asked from ministry or agency in charge of climate change</li> </ul>
Stakeholder cooperation	<ul style="list-style-type: none"> <li>– Permanent climate change boards</li> <li>– Temporary climate change boards</li> <li>– Policy consultations</li> <li>– Educational programmes</li> </ul>
Science-policy interaction	<ul style="list-style-type: none"> <li>– Scientific advisory councils</li> <li>– Multi-disciplinary climate change research</li> <li>– Climate change research by governmental research institutes</li> <li>– Science advisers</li> </ul>
Evaluation and monitoring functions	<ul style="list-style-type: none"> <li>– Evaluating integration, coherence and contradictions of policies</li> <li>– Evaluating climate change aspects of policy instruments (e.g. RIA)</li> </ul>

Of many of the measures in Table 4 there is very little practical experience as they are either in the planning stage or have only recently been implemented. For example, Denmark is planning a new climate and energy ministry which will assume responsibility for areas previously under the Ministry of the Environment in the climate sector and energy policy areas of responsibility from the Ministry of Traffic and Energy and the interdisciplinary climate research centre which is to be integrated into a university but operate in close collaboration with other research environments in the climate sector. In France an extended ministry of environment and sustainable development is being planned with which the Ministry of Traffic will be merged and also part of the Ministry for Industry. A change in budget strategy to take better account of climate issues is also planned in France.

In some countries, again, new measures are deemed pointless since the existing structures have functioned satisfactorily. Norway and Sweden have been content with the coordination responsibility of the Ministry of the Environment and perceive no need for an actual ministry of climate. However, they have set up different kinds of bodies for mainstreaming climate issues (Box 7). On the other hand many countries have identified territorial disputes between ministries' responsibilities and cost sharing when there is no coordinating organisation wielding the supreme power. For example experience in the UK suggest that the consistent implementation of climate objectives in all policy fields requires political will and governmental commitment since the existence of administrative structures and knowhow do not guarantee the practical implementation of integration.

**Box 7** Swedish experiences of mainstreaming climate and environmental issues.

In the 1990s Sweden's environmental policy was inundated with ecological modernisation and on this basis new policy principles, means and organisations promoting sustainable development came into being. That time also witnessed the establishment of a foundation called MISTRA to fund strategic environmental research and a national energy agency (*energimyndigheten*), to which the responsibility for implementing energy policy was transferred and which also served as a significant funding source for research and development. The inclusion of energy issues in the work of the Ministry of the Environment at the beginning of the 1990s, however, was subsequently perceived to be a bad solution in the long term, as the commitment of many other actors to environmental issues was lacking at that time (Nilsson 2005a).

Although it has been claimed that the integration of environmental policy was partly incomplete at the beginning of the 2000s, climate policy has nevertheless become a crucial subarea of energy policy via the implementation of emissions trading and green certification. The climate delegation operating 1993-1998 also played a significant role. Its mission was to create a non-political basis for discussions and for the consideration of various actors' views and to monitor the internationalisation development and to produce syntheses for the government at regular intervals. In practice the committee evinced new perspectives on climate policy and influenced the conceptions of industry and

organisations. In general committees bringing various actors together have been found to promote learning important to policy processes and, well managed, to promote the confidence of various interest groups in policy processes. However, committees "owned" by a certain ministry may stress excessively the issues of the ministry in question and be too heavily dependent on conventional perceptions.

The main responsibility for climate policy rests with the Ministry of the Environment. A separate climate division of the Ministry shapes the government's climate policy. Coordination between the different ministries on various levels is an integral part of the Swedish decision-making system, thus no special efforts were made for this purpose. In addition to the Ministry climate issues are handled by the Swedish Environmental Protection Agency (*Naturvårdsverket*), in which there is a separate climate division. Among other things the Environmental Protection Agency administrates climate investment programmes which have led to reductions in emissions, especially at the municipal level.

Sweden has recently taken new initiatives in mainstreaming climate issues. The parliamentary Climate Committee (*Klimatberedningen*) began its work in winter 2007 based on the environmental committee of the 1960s. The committee and the Scientific Council on Climate Issues (*vetenskapliga rådet för klimatfrågor*) develop climate policy and produce background material for the government's climate policy proposal. In addition to these the Commission on Sustainable Development (*Kommissionen för hållbar utveckling*) has been charged with the task of focussing on climate issues. An example of sectoral integration is the decision to establish a climate and development commission concentrating on climate change and development issues in poor countries. The budget proposal for 2008 includes a climate package containing measures for reducing carbon dioxide emissions in the form of climate and environmental taxes. The government also proposed an investment of a billion Swedish crowns in climate issues for the period 2008-2010.

Sources: Lundqvist 2000, Nilsson 2005a, Nilsson 2005b.

The political prioritisation of climate issues has been emphasised in the UK, Denmark and elsewhere. However, research in the UK has shown that in spite of the existence of the necessary administrative organisations and processes the integration of environmental issues in reality may be fragmentary and irregular (Box 8). There have been difficulties in the UK in the integration of environmental issues in key policy areas although the country has one of the strongest and most efficient systems in Europe for the coordination and evaluation of sector policies (Jordan 2002, Russell and Jordan 2006). Experiences of political prioritizations show that mainstreaming climate policy in the long term requires political will which crosses terms of governments in office and that the Prime Minister and Cabinet are committed to the issue. One means of persevering with mainstreaming is climate law, which addresses legally binding emission targets, a reporting obligation and monitoring of adaptation. Such a Bill was proposed in the UK in autumn 2007. One of the background reports to the foresight report is a separate investigation of the applicability of that legislation to Finland.

**Box 8** UK experiences of mainstreaming climate and environmental issues.

The UK is internationally a pioneer both in the evaluation of policy effects and in the promotion of climate policy. Strongly coordinated policy is helped by control through the Exchequer which all departments (i.e. ministries) must adhere to. However, historically less strongly profiled policy objectives, such as environmental policy integration (EPI) have been less well coordinated, partly because sufficient resources for vertical integration were not secured in all sectors.

The ex ante evaluation of the environmental effects of policy were begun in the early 1990s (Department of the Environment 1991 Policy Appraisal and the Environment). In 2004 the evaluation system for environmental effects was replaced by more horizontal impacts assessment (Cabinet Office 2003. Regulatory Impact Assessment Guidance), which assesses the economic, social and environmental effects of policy proposals. Numerous reports suggest that such impact assessments had little effect on the national government regardless of which political party was in power, and the number of assessments conducted was small. A large part of the sectoral ministries did not have internal processes or training for the assessment of the environmental effects of policy measures and only three ministries had made this compulsory. This was due in part to the lack of unified methodological guidance. Moreover, many of the assessments only addressed one policy option although the purpose of the method was to compare different options. More general impact assessments have been conducted more frequently, partly due to the support of the Prime Minister, but many of these were only accomplished at a time when the policy direction had already been decided.

Climate change has recently attracted a great deal of attention (inter alia the Energy White Paper 2003, Stern review – The Economics of Climate Change 2006, Climate Change – the UK Programme 2006) and the UK has taken numerous initiatives in its promotion in decision-making, to achieve real emission reductions and to combat the effects of climate change. The political profile of climate change is high, which serves to expedite its mainstreaming. The Prime Minister has been supported by an influential advisor in the form of Sir David King. The Department for the Environment, Food and Rural Affairs (DEFRA) has drawn up an adaptation plan (DEFRA 2005: Adaptation Policy Framework), which has progressed considerably in practice. The 2007 White Paper on Climate and Energy directs future measures and in consequence of this, among other things a government proposal has been made for an amendment to the environmental legislation, a climate act binding on the various sectors. The Climate Act defines five-year carbon budgets as the permitted total emission quantities. Significant financial investments and how they are channelled, the rotation of officials and public service agreements (PSA) have served to help the practical progress of climate issues. Moreover, the climate agency and the parliamentary audit committee support mainstreaming.

The task of the Office of Climate Change established in 2006 is to support the ministry in the implementation of policy pertaining to climate change. The Office is involved in the planning and coordination of several projects pertaining to government and it is also responsible for the programme monitoring of Britain's climate change commitments. A further objective is to harmonise the analyses of various branches of government on climate change. Projects so far have had to do with the legislation on climate change, EU emissions trading, carbon budgets and administrative processes of climate change and with problem issues in earlier policy measures. The Office's 35 workers have been assembled from a variety of areas of climate policy, the economic sector, legislation and citizen's society areas and the projects consult various stakeholders extensively.

Earlier experiences show that in order to achieve integration the publication of guidelines by a core instance (i.e. the ministry of the environment) and the high-ranking leadership of the group of experts (the Prime Minister's deputy) are important. There is also a need for comprehensive policy assessments and indicators. The entity comprising various measures, processes and organisations/committees is an essential for the furtherance of concrete measures. Both the Office of Climate Change and researchers (e.g. Vass 2007) have recognised the need to shift from large quantity to a policy package integrating individual policy actions which would serve as a guiding framework for the achievement of climate objectives. The intended amendment to the legislation on climate change pursues the macro-level objective and the implementation of the policy package by means of judicial support.

Sources: Jordan 2002; Russell and Jordan 2006; Vass 2007; Halonen et al. 2007; Urwin and Jordan 2008; Interview with Ulla-Riitta Soveri.

## 5.2 Strengthening mainstreaming of climate policy and coherence between fields of operation between sectors

Several countries have increased the share of climate issues in their budgets. France among others has in this way increased the need for coordination among the climate projects implemented by the various ministries because climate issues have been added under the same budget unit for the entire administration. In addition in mid-December 2007 all the ministries submitted reports on the rationalisation of their operations (known as the *revue générale de la politique publique*) to the President's administration which comments the rationalisation proposals. The final reports are likely to be complete in 2008 with a view to stepping up operations and also to concentrating on priorities represented by climate policy and on the other hand to identifying gaps in the field of climate policy.

Canada is setting up a "Horizontal Management Accountability and Reporting Framework (HMARF)" to implement effective administration and the obligation to carry responsibility, to promote reporting and monitoring throughout the entire administration to evaluate progress on various programmes, to assist in setting priorities and in the redistribution of resources and to develop mechanisms to support coordinated decision-making. Each theme is promoted by working groups of different levels from the practical level to the ministerial level. Part of the project consists of the horizontal evaluation plan for the Clean Air Agenda. The horizontal development constitutes a continuation of earlier operations such as the Climate Change Secretariat CCS, which was established in 1998 to promote coordination between ministries and negotiations between the federation and the provinces. The need for further action emerged, among others, from the fact that the Secretariat lacked an independent mandate based on law and the power of the ministries to take action or engage in co-operation in climate issues (Bakvis and Juillet 2004).

Relatively little is known about the means of vertical integration used by different countries. In Belgium the conclusion of cooperation agreements between different administrative levels has been brought to the fore. Sectoral measure in general tend to concentrate on describing policy measures related to energy production and consumption and to traffic (Table 5). An exception to this mention was made of the establishment of a climate ambassador in the foreign office. No actual measures supporting integration have been described; measures concentrate on policy instruments for individual limitation.

**Table 5** Examples of main sector policy means in other countries for mitigating climate change.

<b>Production of electricity and heat</b>	<b>Energy use of industry</b>	<b>Energy use of households</b>	<b>Traffic</b>
<ul style="list-style-type: none"> <li>– Feed-in tariffs for renewable electricity</li> <li>– Green certificates</li> <li>– Quotas for renewable energy for energy producers</li> <li>– R&amp;D investments in renewable energy</li> <li>– Subsidies for development and commercialization of energy technology</li> <li>– CO<sub>2</sub> –tax for heating oil</li> </ul>	<ul style="list-style-type: none"> <li>– Energy auditing of industry</li> <li>– Energy saving agreements</li> <li>– Tax incentives for energy saving solutions</li> <li>– Minimum requirements for energy saving solutions</li> </ul>	<ul style="list-style-type: none"> <li>– Energy saving targets</li> <li>– Energy saving campaigns</li> <li>– Subsidies for energy efficiency improvements of buildings</li> <li>– White certificates</li> <li>– Minimum requirements for energy using products</li> <li>– Product information</li> <li>– Mandatory labels of the energy use of products</li> <li>– Energy saving light bulbs mandatory</li> </ul>	<ul style="list-style-type: none"> <li>– Improvements of public transport</li> <li>– Fuel standards</li> <li>– Tax incentives for low emission fuels</li> <li>– Emission based car taxation</li> <li>– Congestion charges</li> <li>– Requirements for fuel companies to sell biofuels</li> <li>– Car-sharing incentives</li> </ul>

The promotion of coherence between different fields of operations is made difficult by the actors' different interests. Examples of this include problems in the integration of sustainable development objectives in UK traffic policy in spite of the "superministry" which operated from 1997 to 2001 and brought traffic and environment under the same roof (Begg and Gray 2004; Hull 2008). When the ministry divided there was a joint agreement between the ministries of the environment and for traffic on improving air quality, but only the ministry of the environment has a target for curbing climate change (Begg and Gray 2004). There have also been problems in vertical integration between central and local government, due to which intermediary organisations were set up in UK traffic policy which coordinated investments and planning in large infrastructure projects (Hull 2008). Research shows that intermediary organisations can on the one hand promote policy integration but on the other render the relations between actors at national and local levels more complicated.

The green public procurements are a policy means concerning different sectors to reduce greenhouse gas emissions. This has been promoted in Finland, the Netherlands, the UK, Austria, Canada, Sweden, Switzerland, Denmark and the USA (Li and Geiser 2005). In the USA one of the main principles of public procurements favouring environmental factors is taking into account many environmental effects at various stages of the life cycle (Li and Geiser 2005). In the UK local officials have among other things taken note of the share and origin in paper of recyclable fibre when making procurements, likewise the energy consumption of new equipment and the energy consumption of buildings. The ability of SMEs to participate in the competitive bidding process for public acquisitions has been improved by creating Internet portals in which SMEs can express their interest in participating in the bidding and e-guides and training on how to succeed in the competitive bidding process and how the necessary documentation should be assembled (Preuss 2007).

### 5.3 Identifying policies that are harmful from a climate perspective and resolving conflicts

Climate proofing has been evinced as an important part of assessing policy effects (e.g. Russell and Jordan 2007). For example, the allocation of resources clearly affects what measures are promoted. In UK traffic policy local actors have been provided with national funding to maintain the road infrastructure, but not to promote public transport or cycling. Similar experiences have been gained from other countries. Identifying measures which send the wrong signals is important in promoting policy coherence.

Thus there is a need for mechanisms which inform and which integrate climate factors into new policymaking actions and processes in sectors other than those central to climate policy. In Sweden such mechanisms include a shared policy preparation process. According to this all policies with any possible effect on the areas of competence of other ministries must be prepared in collaboration with the ministry concerned (Nilsson and Eckerberg 2007). The regulation on making policy together is complemented by the Swedish policymaking style in consultation with other parties. The very existence of the preparation process, however, has not led to policy integration in Sweden but rather to a situation in which the ministries avoid standing on each other's toes and coordinated policy does not result. According to the researchers more coordinated policy would require joint objectives to be set for the ministries and central government environmental administration systems. (Nilsson and Eckerberg 2007)

In addition to identifying guidance which is taking matters in the wrong direction, policy can be aimed in a different way such that more radical structural changes are pursued in existing consumption and production systems

(energy, traffic, agriculture). Such an approach combines the actions of the ministries when the point of departure is a vision of a sustainable future system on which the various policy sectors have their own effects (Box 9). In practice breaking down the sector borders and an actor-centred approach to curbing climate change is very challenging.

**Box 9** Transition management – an idea disseminated from the Netherlands.

The end of the 1990s in Holland saw a significant change in policy thinking, as a consequence of which system innovation was introduced through transition management. The new approach spread from the Ministry of the Environment (VROM) and the Ministry of Agriculture to other ministries, and the ministry responsible for economic affairs in particular promoted its use. Transition management is a long-term process which entails the creation of policy visions and concrete policy objectives, supporting these at micro-level through strategic experiments and evaluating objectives and redefining them, likewise learning from experimenting with more extensive developments. The role of the state is to support strategic experiments, among other things by removing policy means and impediments. The experiments themselves should emanate from various instances promoted by markets and local actors. What is essential for success is that there be activity on different levels, that new parties from the perspective of the process system be included, that institutional experiments also be carried through and new scenarios created. Some Finnish officials and researchers saw nothing new in this approach, whereas others are waiting for examples of its practical implementation from the Netherlands.

Sources: Kemp and Loorbach 2005, Kemp et al. 2007, Lovio et al. 2007.

## 5.4 Strengthening the connection between climate policy and science

Holmes (2007) studied the dissemination and practical implementation of research findings in 12 European countries as part of the ERA-Net network work for SKEP (Scientific Knowledge for Environmental Protection). The following among others emerged as the main means by which the connection between environmental policy and science can be strengthened over the net, through the media and in seminars:

### *1) Dissemination and utilisation of research findings in decision-making*

- The personnel of the ministries include officials with scientific education whose task it is to read research reports, maintain contact with the scientific community and select the main observations for policymakers (e.g. Austria, UK)
- Intermediary organisations conveying information and focusing on a certain subject, e.g. climate change. (e.g. Norway, Ireland; see Box 10)
- Advisory scientific committees as assistance in policymaking (e.g. UK)

## 2) Catering for policy needs in research design and implementation

- Assessing research needs with various interest groups (e.g. Ireland, Austria, France)
- Inclusion of ministerial and other users of knowledge together with scientific experts in the evaluation of research proposals (e.g. Austria, Norway, France, Sweden)
- Plan for the realisation of benefits when the research projects are designed (e.g. U.K)

## 3) Means combining both objectives

- Platforms to strengthen the ties between policy and science on a certain subject, e.g. climate change (e.g. Belgium)
- Science policy office to coordinate research programmes (e.g. Belgium)
- Project and programme steering groups composed of users of research findings (e.g. the Netherlands, Belgium, Ireland, France, Sweden)
- Co-operation between researchers and users of research findings during the projects (e.g. Austria)
- Interim evaluations of research programmes in order to reset priorities if necessary (e.g. Austria)

### **Box 10** Examples of organisations disseminating climate change information.

The Centre for International Climate and Environmental Research (CICERO) founded in 1990 by the government of Norway is an independent organisation which engages in research and serves as an expert in matters pertaining to climate change and climate policy. It is responsible for the further dissemination of research knowledge on climate change. A forum which convenes regularly exchanges information between the research community, the government and enterprises. In addition, CICERO publishes a journal six times a year intended for a wider readership.

The German Advisory Council on Global Change (WBGU) is an independent scientific organisation operational since 1992 in Germany which evaluates research on global change, identifies research gaps, monitors and evaluates national and international policy relating to sustainable development and makes recommendations. Its main tasks also include giving early warning of new problem areas and increasing media and popular knowledge. The extensive area of operation from the evaluation of scientific research to cooperation through the media enables it to serve as an intermediary organisation between science and practices. Interaction with policy is promoted by the commentaries issued by the Federal Republic of Germany on the policy recommendations published by the WBGU. Although the role of the WBGU is to serve as an advisory organ to the federal government, its position is independent and it selects its research objects independently. Half of the organisation's funding comes from the Ministry of the Environment and half from the research ministries. The interdisciplinary WBGU's research members are appointed for four years at a time and represent a wide range of natural and social sciences.

In addition to these specific means it has been recognised that coordinated research programmes in themselves work fairly well as links between policy and science (Holmes 2007, Kivimaa, Mela et al. 2008). They frequently depart from

some subject deemed to be of importance to society and policy representatives participate in the management of the programme. Most of the means listed above also serve to link enterprises and citizens' organisations to the discussion occurring on the interface between science and policy. Such means include, for example, the organisations disseminating research findings, the evaluation of needs assessments for research and project proposals with various interest groups, likewise platforms and steering groups.

## 5.5 Practices of other countries from the Finnish perspective

It is still too soon to evaluate the functionality of new mainstreaming practices for climate policy on the basis of the experiences of other countries. However, the functionality of some of them in Finland can be contemplated in an exemplary manner taking account of the small amount of experience available.

A look at the experiences of other countries supports the view according to which it is more effective to set up various permanent organs and senior official positions supporting horizontal leadership linking ministries than to create a new ministry or to make reforms between ministries. This is also likely to hold good in Finland, where the sector ministries are fairly isolated administratively from one another. A ministry for climate issues might even serve to reduce the mainstreaming of climate issues in other ministries as this would then be deemed to be the responsibility of a single instance. Nevertheless there is a need for measures in numerous sectors in order to achieve objectives in mitigation and adaptation. The most likely way to exert pressure for changes in the various sectors is that this should come from a prestigious position or body requiring and monitoring climate issues in the administration of the various sectors. Experiences in the UK, and partly also in Sweden, show that, in addition to coordinating working groups, there is a need for binding policy objectives and for coordinating and evaluating mechanisms.

The experiences of other countries show that one measure is insufficient to promote mainstreaming. Thus, in addition to administrative reforms, there is a need for means which commit the various instances and interest groups (e.g. research, enterprises). On the one hand the suitability for Finland of a parliamentary climate committee and a scientific climate council operating in conjunction with it, as is the case in Sweden, could be investigated. On the other hand, it would be desirable to investigate in more detail and with an eye to their applicability to Finland the progressive actions in the UK, such as a climate agency, a parliamentary inspectorate and management by results. The suitability of the UK climate legislation for Finland is being considered in another report for the foresight report on climate and energy policy. The Canadian

framework of horizontal management and the French climate budget reforms are incipient measures whose development should be monitored.

Applications of the Dutch approach, transition management, have been considered in Finland when certain officials from the Ministry of the Environment working on the committee for sustainable development became enthusiastic about the idea. This has moreover been applied to a few grassroots R&D projects in connection with the perspective of "rooting" new technology in health care and energy. The experiences gained from the Dutch example suggest among other things that the Ministry of the Environment should not be a central actor in the promotion of transition management. (Lovio et al. 2007). Transition management, however, would be a good means by which to approach in the sense that its point of departure would be a scenario of climate change mitigation and adaptation. This would serve to stress and render concrete the need for significant measures in all sectors. Due to the uncertainties inherent in mitigating climate change and adapting to it, objectives and measures should be appraised either constantly or at regular intervals. As the approach advances it would be essential that some ministry involved, such as the Prime Minister's Office or the Ministry of Finance would set about leading the process.

## 6 RECOMMENDATIONS FOR THE FURTHER DEVELOPMENT OF STRUCTURES AND PROCESSES

### 6.1 Preconditions for the mainstreaming of climate policy and policy coherence

On the level of principle it is easier to commit to mainstreaming climate policy and improving policy coherence than it is to implement it in such a way that emissions of greenhouse gases do indeed diminish. In order to be successful mainstreaming requires regardless of the administrative level, sector or concrete measure:

- knowhow;
- resources;
- commitment, on all levels but especially in the leadership of the various organisations;
- monitoring and evaluation; and
- the ability to deal with conflicts between climate policy and other policy objectives.

Although in principle climate policy can be mainstreamed to all measures, it is important to concentrate on the most essential of these, otherwise the preconditions for mainstreaming will suffer. Although in the long term all policy sectors affect climate change, not all measures have significant climate dimensions and overemphasising climate issues may even prove counterproductive. In spite of the importance of mainstreaming climate policy to other policy sectors, there is a need alongside mainstreaming for specific policies whose primary objective is to mitigate climate change and adapt to it.

### 6.2 Institutionalisation of climate policy and its elevation to the topmost decision-making level

- *The main prerequisite for the mainstreaming of climate policy is that climate policy should be deemed politically significant. Thus the role of climate policy in future **government programmes** and above all how committed the **Prime Minister and other key ministers** are to climate policy will have a decisive influence on the preconditions for mainstreaming.*
- *The **ministerial working group for climate and energy policy** of Vanhanen's first and second government has had a great effect on the formation of the line of the entire cabinet and in the promotion of policy coherence. It is important that all the ministers significant to mainstreaming should be included in the group, although the*

*composition of ministers generally tends to reflect the power relations of the political parties in the cabinet.*

- *In recent governments attempts have been made to respond to interministerial challenges through the **government's strategy document processes** and the related **policy programmes**. An assessment should be made of whether it is possible to increase the importance of climate policy by making a specific policy programme on climate change in addition to being an interministerial subject area for special scrutiny.*

### 6.3 Measures concerning the entire state administration

There are already various organs and processes in place for monitoring the planning, prioritisation, quality assurance and results of the work of central government and their role should be strengthened. Mainstreaming needs both processes and the structures and expert resources to support these to be successful. The main administrative processes are the preparation of the state budget and the action and financial plans of the ministries and agencies. In addition to this the effects of legislation and of the plans and programmes are used as an aid in the realisation of objectives. Climate policy objectives should be integrated into these processes and the effects of the proposals on emissions should be evaluated. Public procurements are likewise significant with regard to climate policy. Processes pertaining to these and legislation should be developed to ensure climate policy coherence.

- *The Ministry of Finance should ensure that Parliament has at its disposal as part of **the state budget proposal** adequate estimates of its direct and indirect effects on mitigation of climate change and adapting to it.*
- *Ministries and agencies annually prepare four-year **action and financial plans**, instructions and directions for the preparation of action and financial plans should include the obligation to assess the effects of actions on climate change mitigation and adaptation.*
- ***The State Financial Controller** should ensure that sufficient attention is paid to climate issues in the action and financial plans of the sectors and in their monitoring.*
- ***In the assessment of the impacts of proposals for legislation** more attention than hitherto should be paid to the potential effects pertaining to mitigating climate change and adaptation to it. This entails strengthening climate expertise in legislative drafting and in the circles of those offering expert services. **The Ministry of Justice**, for example after four years have elapsed, should commission a thematic evaluation of how the assessment of the climate effects of the legislative proposals has been implemented in practice and what effect this has had on the preparation of legislation.*

- *In order to better identify the climate policy effects of proposed legislation, it is important to ensure the central position of the evaluation of the climate effects of the proposed legislation in the work of **the Advisory Board for Sectoral Research** (for more see below) and the special role of climate issues in the development of expert services of the **evaluation of the legislative effects**.*
- *In **the assessment of the environmental impacts of plans and programmes** the climate dimension should be strengthened. This presupposes the development of methods and approaches and above all the enhancement of awareness.*
- *The public sector influences greenhouse gas emissions through its own energy consumption and acquisitions. It also promotes the introduction of innovations to curb climate change. Greenhouse gas emissions and energy efficiency should be criteria in **public procurements**, including the construction and renting of premises and when decisions are taken regarding the locations of functions. Bases for the work can be found in the action programme proposal for sustainable procurements.*

In addition to these the various prospects should be ascertained for developing or creating new structures to ensure persevering efforts in government regarding climate issues. The following proposals require further investigation and are, at least in part, alternative measures.

- *It is important to ascertain if the mainstreaming of climate policy would be enhanced if a climate policy expert group were to be attached to one of the following: **the Prime Minister's Office, the State Financial Controller's function or the National Audit Office of Finland**.*
- *In addition to strengthening present functions it is appropriate to consider the establishment of a new function to be responsible for the mainstreaming of climate policy. Previously such functions have been established for several new challenges. Examples include the consumer ombudsman, the ombudsman for equality and the data protection ombudsman. The job description of a possible **climate issue ombudsman** should be considered, likewise the benefits and costs of establishing such a position.*
- *The effects of the task of the **climate specialist** set up by Prime Minister Vanhanen's second government on the mainstreaming of climate issues should be evaluated and on this basis the benefits and drawbacks of continuing this arrangement and making it permanent should be assessed.*

## 6.4 Mainstreaming climate policy within policy sectors

In both the ministries and the agencies mainstreaming of climate policy requires new expertise.

- *In the decision-making processes of the **ministries and agencies** climate issues should be taken into account among other things with the aid of ex ante assessment and consultation. Adequate resources must be assigned to handle climate issues. The organisations may either establish official posts for climate experts or training in climate issues could be provided for the personnel. In addition to this information, changes in job descriptions, rotation of personnel and networking can help in the mainstreaming processes.*
- *The respective ministries should ascertain what **legislative changes** would best ensure reductions in greenhouse gas emissions. This requires a reconnaissance of the potential for reduction of the various functions.*

The measure of more successful mainstreaming and better policy coherence than at present is a clear increase in energy efficiency and a clear reduction of greenhouse gas emissions in all sectors. For example, improving energy efficiency in buildings offers a cost-efficient opportunity to reduce energy consumption and the ensuing carbon dioxide emissions. National sector reviews and experiments also improve Finland's chances of exerting influence over the formation and implementation of EU policies.

- *Climate policy has already been extensively mainstreamed to **energy policy**, through the EU and national energy and climate strategies among others. Regarding energy policy what is crucial is thus not so much new processes covering the entire policy sector but rather that the content of energy policy and the emphases in the future really do promote mitigation of climate change and adaptation to it. In energy policy it is important to acknowledge and manage side effects, especially those relating to other environmental effects through out the life cycle and those which promote innovation.*
- *In energy policy the existing measures promoting mainstreaming, such as the preparation of extensive energy and climate policy programmes should be sustained, and taking account of climate issues in all **energy policy** actions (e.g. electricity grid actions, state subsidies, and municipal-level decisions) should be ensured.*

- *Mainstreaming climate objectives in the various levels of **traffic policy** is extremely important. Climate objectives are indeed given a prominent place in traffic policy strategies and programmes, but mitigating climate change should also be in evidence more than before in decisions on the targeting of financial allocations and in the management by results of agencies and institutions in the administrative field. Reducing the greenhouse gas emissions of traffic entails increasing the state subsidies to public transport and especially increasing the share of the rail network of funding for traffic projects.*
- *Other goals at the level of society or individuals, such as mobility of labour, increasing housing space, decentralising various functions regionally and active participation in the global economy increase the need for mobility. Due to these objectives it is difficult, for example, to change taxation affecting traffic and mobility such that it is entirely consonant with climate objectives. Since the effects of changes in community structure are extremely far-reaching, it would be important to ascertain quickly the opportunities for changing the taxation affecting traffic and mobility in a direction more favourable to climate.*
- *Taking climate objectives into account in **urban planning** requires better cooperation between central and local government. To support the improvement of cooperation it is important to assess how the present division of labour (between the municipalities, the regions and central government) in planning works from the perspective of community structure and especially from the perspective of the greenhouse gas emissions from traffic systems. The climate dimension should likewise be one key factor in the ongoing municipal and service structure reforms.*
- *Research and innovation activity supporting the mitigation of climate change and adaptation should be brought to the fore in both the **innovation strategy** and in **the Science and Technology Policy Council Reviews**. This would support mainstreaming in education and science administration and especially in innovation support targeted at enterprises. In addition to technological innovations there should also be stress on new societal action models and promotion of such business activity that have the potential to be successful internationally, too. This requires the integration of climate issues into other programmes than those focused primarily on environmental and energy technologies.*
- *Mainstreaming of climate objectives and coherence should be evaluated in detail in various **sector policies**, paying heed to special features of the different sectors and present practices. The following sectors at least should be evaluated; building, agriculture and forestry, consumption, waste, education and development aid.*

- *It is important that the mainstreaming of climate policy should be seen as a policy moving both top-down and bottom-up. Central government should support the various **grassroots activities** of the municipalities, regions and sectors, for example by developing tools for this kind of activity and by creating forums for the presentation and evaluation of various initiatives.*

## 6.5 Strengthening the connection between climate policy and science

There can be no climate policy without a sound basis in the natural sciences. The climate issue would never have arrived on the political agenda without natural sciences research. It could not have been defined as a problem for society unless the effects in nature had been researched. Regarding solutions technical research on alternative forms of energy production has been important. However, research can support mainstreaming better than it does at present. This in practice entails the following measures: 1) targeting research in such a way that research yields knowledge and methods on the issues which are crucial to mainstreaming and policy coherence, such as synergy benefits of various measures or opposite effects; 2) disseminating research knowledge to decision-makers and applying it in policy preparations, 3) taking account of climate issues in the reform process of research.

- *Mainstreaming climate policy entails **scientific research** above all on how various processes in society (social, economic and technical) directly or indirectly affect mitigating climate change and adaptation to it. Effects on society are likewise important. In addition to scrutinising these, mainstreaming needs knowledge in particular on how public interventions (subsidies, taxes, legislation,...) affect actors and processes so that mitigation measures can be implemented or we can adapt to climate change. The Finnish scientific community has so far produced very little such knowledge.*
- *The most urgent matter is to **develop and analyse** those policy measures and control systems by which cost-effective and ecologically and socially sustainable curbing and adaptation can be accelerated. It is important to research, among other things, how the participation of various parties in the implementation of climate measures can be supported and how it is possible to promote the creation of "climate innovations". It is moreover necessary to systematically identify the barriers to flexible mitigation of climate change and adaptation to it and the possibilities of avoiding such measures which promote and adaptation in the short term, but which in the long term are costly, accelerate the depletion of natural resources and even increase emissions of greenhouse gases.*

- *Mainstreaming climate change also presupposes a new kind of dialogue between research and other actors in society. Research needs should be identified together with the various interest groups and climate issues should be taken into account in the preparation of all research programmes, in administration and evaluation. Moreover, interaction between researchers and the respective sector ministries should be increased with the help of **intermediary organisations** focusing on climate issues (like the German Advisory Council on Global Change) or the “**science interpreters**” located in the ministries.*
- *In the present plans, one of the themes in the sustainable development division of **the Advisory Board for Sectoral Research** is “evaluation and comparison of measures to mitigate and adapt to climate change”. However, many other themes are indirectly related to climate change. It is important that the Advisory Board for Sectoral Research through its work should initiate research which serves the mainstreaming of climate policy. This entails exerting influence on both content and the resources and processes of the advisory board so that the research would address the issues crucial to the mainstreaming of climate change and be sufficiently comprehensive and of high quality.*
- ***Strategic Centres for Science, Technology and Innovation** should support innovations consonant with climate change objectives. Central government can support such development by imposing funding criteria (the Finnish Funding Agency for Technology and Innovation (TEKES) and the Academy of Finland), by invoking various political measures to support the markets for environmental innovations (legislation, economic guidance and in general through training and science policy guidelines.*

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