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Making the Climate Count

Climate Policy Integration and Coherence in Finland

Paula Kivimaa and Per Mickwitz

Finnish Environment Institute

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PREFACE

On 7th May 2007, the Partnership for European Environmental Research (PEER), composed of seven environmental research organisations (Alterra, CEH, Cemagref, JRC-IES, NERI, SYKE and UFZ), published a joint statement *"Climate change and sustainable development – an unprecedented challenge for the research community"*. In this statement the PEER centres proposed a joint initiative to analyse and explore novel approaches to mitigation and adaptation, inviting regional, national, European and global research partners to participate in this initiative. The aim is to build an open European platform that brings together expertise and exchanges information on the best approaches to mitigate and adapt to climate change. (http://peer-initiative.org/html/obj454.html)

As a follow-up to this statement, PEER in November 2007 launched two joint projects: 1) Comparative Analysis of European National Adaptation Strategies and 2) Policy Integration, Coherence and Governance. This report is one of the deliverables of the latter project. It is intended to function both as a separate study on climate policy integration and coherence in the Finnish public administration and as a comparative case among several country studies produced during the project. A separate synthesis report illustrates the cross-country and cross-sectoral challenges of climate policy integration and coherence more widely.

This Finnish country study also relates to a separate study carried out by the Finnish Environment Institute (SYKE) for the Prime Minister's Office in Finland during the period January – March 2008 on mainstreaming climate policy in Finland, which was translated into English in 2009 (http://www.vnk.fi/julkaisukansio/2009/j2109-mainstreaming-climate/pdf/en.pdf). The previous study acted as important background and a question forming platform for the PEER study.

We want to thank all the people who have contributed to our studies on climate policy integration by participating in interviews and discussion groups and by commenting drafts of the report.

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1 Introduction

1.1

Background

Climate change is currently acknowledged to be one of the most significant environmental problems globally. It is expected to have wide-ranging impacts not only on the environment but on society as a whole. Finland has ratified the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC) like many other Western countries, and has agreed to stabilise its greenhouse gas emissions to the 1990 level during 2008 - 2012. In addition, Finland is bound by the European Union's commitment in the Kyoto Protocol and the internal targets of the EU for the reduction of greenhouse gas emissions. In January 2008, the European Commission launched its 'climate and energy package'. The package proposed to all Member States a reduction in greenhouse gas emissions of *emissions trading sectors [ETS]* by at least 20% by 2020 compared to the 1990 level. In addition, Finland is required to reduce its emissions in *non-ETS sectors* by 16% compared to the emissions in 2005.

In 2006, Finland's greenhouse gas emissions were 13% in excess of the 1990 level (Statistics Finland 2008). There have, however, been large variations between the emissions of subsequent years (Figure 1.1). These have largely been caused by yearly fluctuations in the electricity production modes of the Nordic power market, depending on the amount of hydropower available. For example, in 2005, Finland's emissions were below the 1990 level, while in 2003, the emissions exceeded the 1990 level by some 20% (Statistics Finland 2008). Nevertheless, the increasing electricity consumption makes it more expensive to meet the Kyoto target. Moreover, the more ambitious long-term targets require action beyond the energy sector.

In previous decades little has been achieved to promote climate issues in other areas. Following an increasing emphasis on climate issues in the 21st century, especially during 2007-2008, the Finnish Government and municipalities began to pay more attention to climate change as well as to measures that could be taken to mitigate climate change and to address its implications in different sectors. In 2008, the Government began preparing a new long-term climate and energy strategy and the Prime Minister's Office coordinated a number of background studies for a forthcoming foresight report on climate and energy policy. Through the recent activities, the climate issue is increasingly becoming a horizontal challenge for public governance in Finland.

The problems caused by incoherent public governance and the need to manage coherence in public governments have been emphasised in academic literature (e.g. Peters 1998, 2006; May et al. 2006). Horizontality and policy integration have been proposed as means to achieve coherence (e.g. Jacob and Volkery 2004, Bauer and Rametsteiner 2007). There may, however, be several overlapping demands for horizontality in the public administration leading to potential goal conflicts. For example, needs have been expressed for horizontal climate policies (e.g. Nilsson and Nilsson 2005, Urwin and Jordan 2008) and horizontal innovation policies (e.g. Pelkonen 2006) alike.

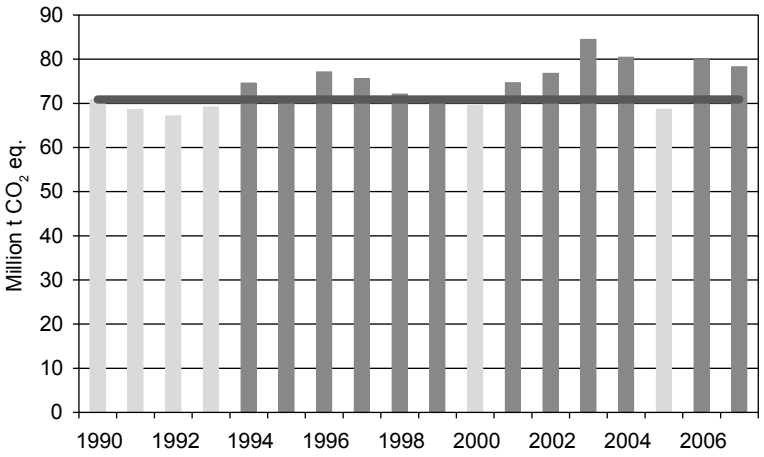


Figure 1.1. Greenhouse gas emission in Finland in 1990 - 2007 in relation to the Kyoto target level **(Statistics Finland 2009)**

Horizontality in public administration is used, for example, to refer to taking into account a specific issue, such as climate change concerns, in the operation of the whole government and projects involving several administrative sectors. The concept of policy integration, by contrast, may refer to both horizontality and verticality. Vertical policy integration means taking into account a specific issue within one administrative sector in a way that shows in concrete decisions and policy measures at different levels of governance.

Environmental policy integration has increasingly become a more recognised and discussed concept in scientific literature (e.g. Jordan 2002, Lenchow 2002, Hertin and Berkhout 2003, Nilsson and Persson 2003, Lafferty and Hovden 2003, Sorensen 2003, Coffey et al. 2004, Nilsson 2005, Kivimaa and Mickwitz 2006, Mickwitz and Kivimaa 2007, Nilsson and Eckerberg 2007). By contrast, there are not yet commonly recognised approaches and methods for climate policy integration (CPI) (Urwin and Jordan, 2008). This report addresses both horizontal and vertical climate policy integration, where vertical integration is used to refer to integration into the concrete policy decisions and instruments of an administrative sector on a governmental level and integration into the strategies and decisions of regions and municipalities. The next section provides more details on the objectives, methods and materials of the study.

1.2

Objectives, methods and materials

In November 2007, the directors of the member organisations of the Partnership for European Environmental Research (PEER) decided to start a one-year project that "will look into conflicts and synergies of the new climate policies with other policies and provide the basis for a long term activity on climate change mitigation and adaptation governance on different scales." The project, of which this report is one part, has three goals:

A To assess the degree of climate policy integration in different policy sectors (energy, traffic, spatial planning, education, etc), countries and for a selected policy sector at the local level and to determine key coherence problems between climate policies and other policies at different levels.

B To suggest means – such as institutions, processes (e.g. EIA) or measures – to enhance climate policy integration and improve policy coherence, within the context of multilevel governance.

C To further develop concepts and methods by which policy integration, coherence and governance can be studied.

This report on climate policy integration in Finland is one of six country studies (Netherlands, Germany, Finland, Denmark, Spain, UK) carried out for the project. It is focused on policy integration across the government and in transport policy and technology and innovation policy. The synthesis of the country studies has been published separately (Mickwitz et al. 2009a).

To evaluate the degree of climate policy integration, the evaluation has to be focused and the question "where should policy integration be found" needs to be addressed. Assuming that there is a political commitment that a policy objective should be integrated into other policies, this should be reflected at the level of policy strategies (general ones such as Government programmes but also sector specific e.g. transport strategies) and at the level of the instruments (e.g. laws, taxes, support schemes, information material) through which the strategies are implemented. Because the idea of policy integration is not just to change bureaucracies but to actually achieve actions mitigating and adapting to climate change, it is essential to extend the examination to include policy outputs and outcomes (Figure 1.2). (Mickwitz et al. 2009a)

In this study, on the national level, the analysis of climate policy integration and coherence is focused on the most important horizontal strategies (e.g. the Government programme and the Government strategy document), climate strategies and some horizontal means, such as impact assessment guidelines and cooperative arrangements between the ministries. The analysis of vertical policy integration is, on the national level, focused on transport policy and technology and innovation policy.

To examine horizontal and vertical climate policy integration at regional and municipal levels, the Metropolitan Region composed of four cities – Helsinki, Espoo, Vantaa and Kauniainen – and the Region of Kymenlaakso were chosen as the empirical cases (Figure 1.3). The Metropolitan Region was chosen because, with about one million inhabitants and 19% of Finland's population, it is the most densely populated area in Finland. Ten percent of Finland's total greenhouse gas emissions arise from

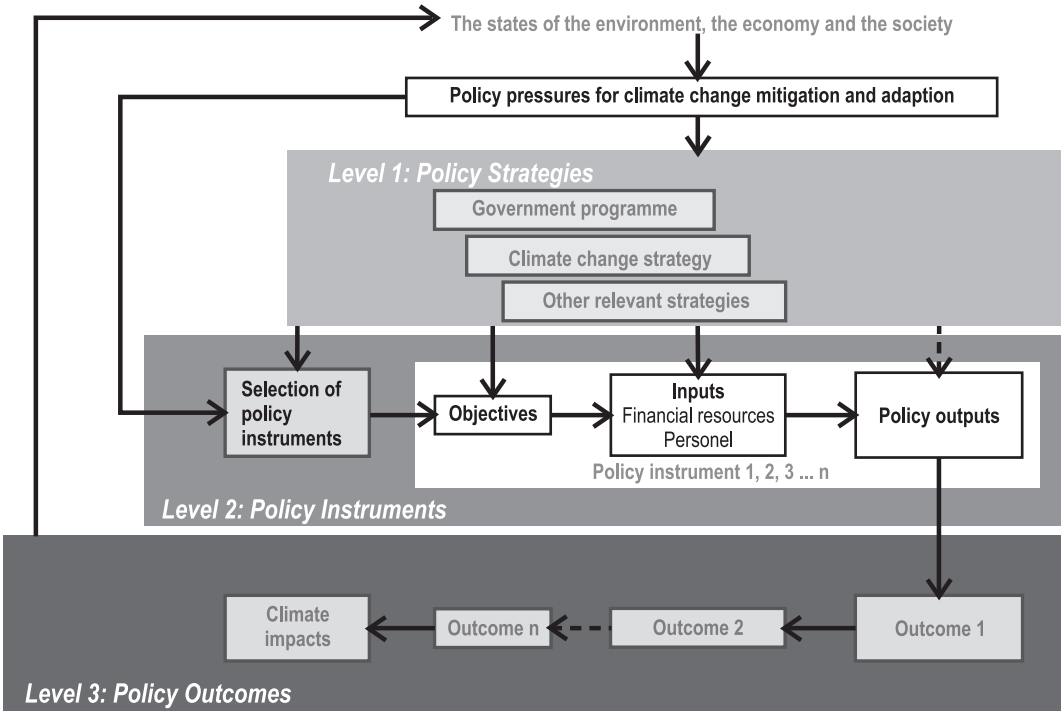


Figure 1.2 Levels of policymaking where climate policy integration may take place (Source: Mickwitz et al. 2009a). Arrows in Figure 1 indicate influence but not unconditional causality, since many other factors usually affect the development.

this area (YTV 2007). In 2004, the largest emission sources in the metropolitan region were space heating (43%), electricity consumption (excluding heating, 28%), and transport (23%) (YTV 2007). The Kymenlaakso Region was chosen in order to have an example of integration at a less densely populated area of the country. The Region has some 180,000 inhabitants, i.e. 3.5% of Finland's population, and contributes some 4% of Finland's green house gas emissions. In 2000, 63% of the emissions arose from industry, energy production and road transport (Melanen et al. 2004). Kymenlaakso has earlier taken an initiative to improve its eco-efficiency and, in addition, the region can be characterised by the importance of the forest industry and trade with Russia. The regional analyses have been complemented by also analysing one municipality in each region, the city of Helsinki (the capital of Finland, some 570,000 inhabitants) and the town of Kotka (the largest town in Kymenlaakso, with some 55,000 inhabitants).

The document and interview data collected and analysed for this study are presented in Appendix 1. It includes 18 interviews and 34 public documents. The interviewees included experts working for public organisations at national, local and regional levels. In total nine people were interviewed from six different ministries (finance, transport and communications, environment, education, employment and economy, and justice). In addition, two interviewees represented government agencies, three interviewees represented regional organisations and four represented town administration. Due to time constraints the number of interviewees was limited to less than 20. The interview questions were tailored specifically to each interviewee. However, the interviews also included common themes, such as means to promote climate issues, importance of climate issues, conflict resolution between different policy goals, climate expertise, organisational processes for supporting climate issues, assessment of climate impacts, and cooperation within and between organisations.

The empirical material was analysed according to five different criteria commonly set for all PEER country studies (Table 1.1). The criteria were based on definitions of policy integration by Underdal (1980) and Lafferty and Hovden (2003) and elaborated from those used earlier by Kivimaa and Mickwitz (2006). The findings of the report were derived by combining the document analysis with the interview analysis. A central approach of the study was triangulation; that is, the combination of several perspectives, methods and types of data to gain an enhanced understanding.

Table 1.1 Summary of the criteria that will be used to assess policy integration

Criterion	Key question
Inclusion	To what extent have climate policy objectives and/or direct as well as indirect impacts on climate change mitigation and adaptation been covered?
Consistency	Have contradictions between objectives related to climate change mitigation and adaptation and other policy objectives been discussed / assessed and have there been efforts to minimise the contradictions revealed?
Weighting	Has the weighting of climate change mitigation and adaptation objectives/ impacts in relation to other policy objectives/impacts been expressed and are there procedures for determining the relative priorities?
Reporting	Are there clearly stated evaluation and reporting requirements for the achievement of climate objectives/climate change mitigation and adaptation impacts ex ante and have such evaluations and reporting taken place ex post? Have indicators been defined, followed-up and used?
Resources	Has financial and human resource use for the implementation of climate objectives and impact assessment been specified? Is the internal and external knowledge on climate change mitigation and adaptation impacts sufficient and used or is know-how a limiting factor? Are the financial resources available sufficient or is a lack of financial resources a limiting factor?

The report is structured as follows. Chapter 2 provides a background to the analyses of the report by describing the political system and administrative structure of Finland. It also briefly addresses some of the key barriers and promoters for climate change mitigation and adaptation in Finland. Chapters 3 and 4 focus on the national level of public administration. Chapter 3 examines climate policy integration in government programmes and strategies and in impact assessment. It also looks at Finnish climate strategies and the availability of other means to promote horizontal climate policy integration and coherence on the national level. By contrast, Chapter 4 is focused on two administrative sectors – transport and innovation – and analyses climate policy integration in more detail in those sectors.

A regional and local perspective on climate policy integration is taken in Chapters 5 and 6. Chapter 5 examines horizontal climate policy integration in regional and local strategies in two case regions, whereas Chapter 6 focuses exclusively on transport related issues and vertical climate policy integration in the case regions. The findings of the study are discussed in Chapter 7. Chapter 8 presents theoretical and practical conclusions.

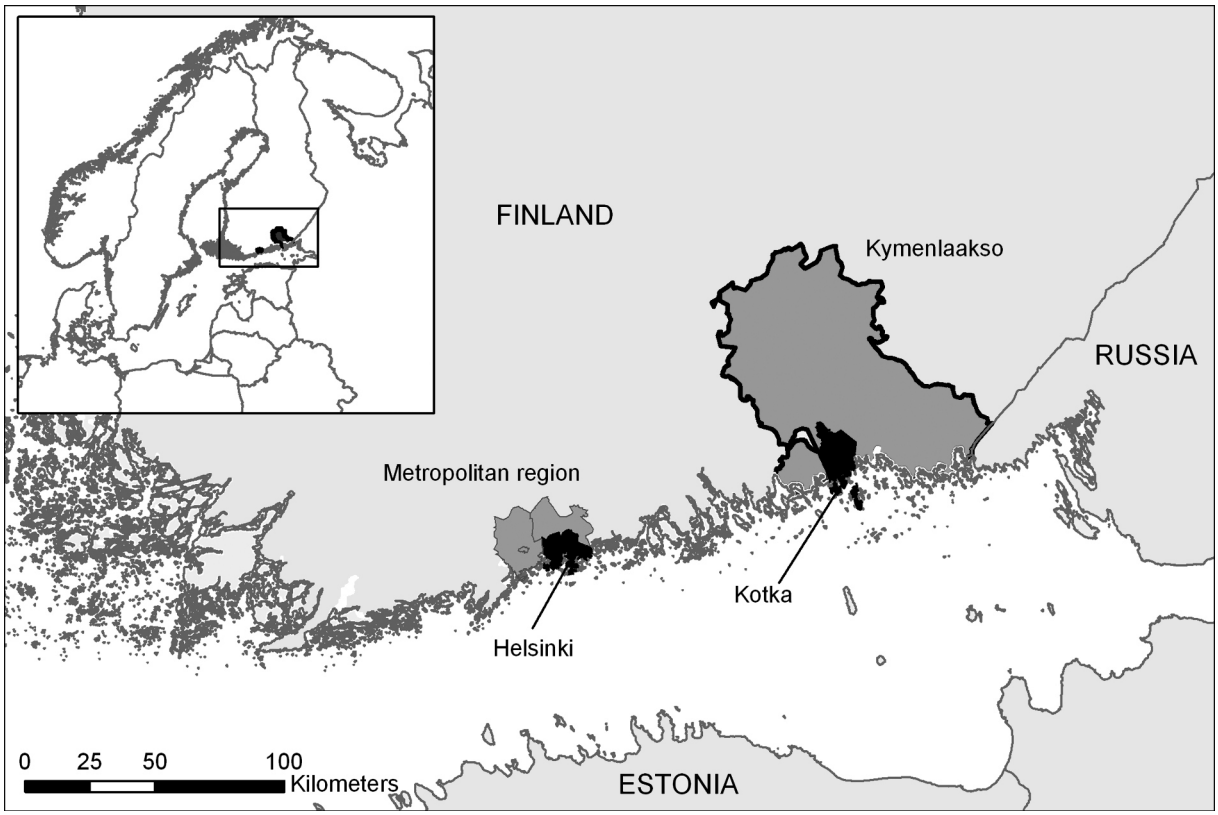


Figure 1.3 Regions where vertical climate policy integration was studied

2 The national context and institutional responsibilities

2.1

Political system in Finland

Finland is a parliamentary republic and has been independent since 1917. The President is elected for six years and under the new Constitution is mainly responsible for foreign policy, which is conducted jointly with the Government. Since EU policies are the responsibility of the Government and Parliament, the President in practice focuses on promoting foreign trade and on those of Finland's relations with countries outside the EU that are not handled through the EU (Raunio and Wiberg 2008). Parliament has 200 members, who are elected for a four-year term to represent the total population of 5.3 million. The most important tasks of the Parliament of Finland are to enact legislation, approve the state budget, ratify international treaties, and oversee the Government. The new Constitution, which entered into force in March 2000, has strengthened the role of Parliament and limited the presidential powers (Raunio 2004). Previously the role of the President was crucial for the formation of a government, since the President appointed a formateur and even in practice influenced the appointment of individual ministers (Raunio 2004). The new Constitution parliamentarised the formation of the government and a new government has to present its program to Parliament to be voted on. The Government, headed by the Prime Minister, must enjoy the confidence of the Parliament. Since no single party has had a majority in the Parliament, governments have been either minority governments or coalitions. Since 1975 all cabinets have been majority governments and since the Sorsa IV Cabinet (6.5.1983 - 30.4.1987) all cabinets, with the exception of Jäätteenmäki's (69 days in 2003), have governed for a full four-year term of Parliament.

The present Parliament has the following composition: the Centre Party 51 MPs, the National Coalition Party 51 MPs, the Social Democratic Party 45 MPs, the Left Alliance 17 MPs, the Green League 14 MPs, the Swedish People's Party 10 MPs, the Christian Democratic Party 7 MPs and the True Finns Party 5 MPs. In recent decades three political parties – the Centre Party, the Social Democratic Party and the National Coalition Party – have been roughly the same size, each with about 20 % of the votes. Two of these three parties have formed each government. In addition, from one to four smaller parties have been a part of the governments. The present Government, Vanhanen II, began its term 19 April 2007. It is led by the Centre Party (8 seats) and includes three other parties: the National Coalition Party (8 seats), the Green League (2 seats) and the Swedish People's Party (2 seats).

Finnish governments have tended to be what political scientists call a "surplus majority government", that is, a government from which a party can be removed without endangering its majority status (Clark et al. 2008). Since 1983, there has been no minority government in power and all recent governments have been surplus majority governments. For example, the present government includes both the Green League and the Swedish People's Party, although the Centre Party and the National Coalition

Party would have a majority (102 out of 200 seats) in the parliament on their own. According to Jugner (2002) the main reasons for the surplus majority governments are that participation in government provides better opportunities to realise party goals, such as policy, votes and future office. Broad governments are also a consequence of the formateur party obtaining more benefits in the form of increased policy influence within the cabinet and a long-term office by including surplus parties in the cabinet than by not doing so. Raunio and Wiberg (2008) argue that, although constitutional reforms have strengthened Finnish parliamentarism, the opposition has been numerically weak, due to surplus majority governments, and ideologically fragmented. The government has therefore not needed to be very responsive to Parliament as long as it has had the support from its own party groups.

When the government is being formed the two main issues are the government programme (see Section 3.1) and the allocation of the ministerial posts between the parties. The importance of the government programmes has increased in recent decades and the programmes have become longer and more detailed (Raunio and Wiberg 2008). This is partly related to the expectation that governments will govern for four years and, thus, a fairly detailed programme is needed to keep the coalition in place.

Municipal elections are held every fourth year. The local elections take place on the same day throughout the whole country, but the number of elected representatives depends on the size of the municipality, ranging from 85 in large cities to 13 in small municipalities. In the 2008 municipal elections, the National Coalition Party got the most votes: 23.4%. The voting behaviour varied a lot depending on type of municipality. The National Coalition Party and the Social Democratic Party were the largest parties in most cities, except in Helsinki and Espoo, where the Green League took second place. The Centre Party was clearly the largest party in rural Finland. Since the number of small rural municipalities is much greater than the number of cities (Figure 2.1), the Centre Party has the greatest number of elected representatives.

The power of the municipalities has increased in recent decades, since many duties have been transferred to them from the central administration (Temmes 2008). From the perspective of climate policy one of the most important areas is land use planning, where governmental powers have been increasingly transferred to municipalities through an amendment to the Land Use and Construction Act in 1999.

2.2

Administrative structure in Finland

The Finnish administration grew substantially after the Second World War, when the public sector assumed new tasks and expanded. Until the 1970s more civil servants worked for the governmental administration than for the municipalities but, since then, the administration of the municipalities has been larger. The public sector peaked in size in 1988, when some 215,000 employees worked for the government and more than 400,000 for the municipalities. The number of government employees has since decreased to about 120,000. (Temmes 2008)

The administrative structure of the state of Finland is largely based on policy sectors (coordinated by twelve ministries), and much of policy is prepared in the ministries. At the same time, the state structure is decentralised and many powers have been delegated from the ministries to agencies. For example, the Ministry of Transport and Communications coordinates the operation of nine agencies and institutions and four state-owned companies. The multi-party government typically reinforces sectoral policymaking, because the divides between policy sectors can also be divides between political parties. Nevertheless, instruments supporting horizontal cooperation have also been developed and they are coordinated by the Prime Minister's Office.

The horizontal instruments include the Government Programme, the Government Strategy Document, Government Policy Programmes, results-based management and inter-ministerial committees and working groups. These are covered in Chapter 3.

Direct obligations related to climate change are mainly divided between the Ministry of Employment and the Economy (MEE), the Ministry of the Environment (MoE), the Ministry of Foreign Affairs (MFA), the Ministry of Agriculture and Forestry (MAF) and the Ministry of Transport and Communications (MTC). However, the actions of the other ministries also have an influence on climate change mitigation and adaptation. Table 2.1 shows the responsibilities and links related to climate issues in all the twelve ministries.

The decentralisation of governance occurs through state provincial offices, regional councils and municipalities. In contrast to some other European countries, Finland

Table 2.1 The responsibilities and policy areas of ministries related to climate issues

Ministry	Responsibility in climate policy	Policy areas that have links to climate issues
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, waste*	Guidance of land use and construction General guidance of sustainable development Environmental legislation, permits, wastes
* Share of the total value of all public procurement		

has only two official levels of governance: the state and the municipalities. The state provincial offices include fifteen TE Employment and Economic Development Centres, thirteen Regional Environment Centres and nine Road Regions. In 2008, a reform project for the state regional administration was initiated, whereby the duties of the existing provincial administration will be reorganised to combine the services of the currently separate offices.

There are a total of 19 regional councils representing the municipalities in their respective regions. They do not have politically elected governments as the political power in the regions is held by the 348 municipalities. At the regional level, the regional councils, according to the legislation, have three main means of regional development. A long-term regional strategic plan including a vision for the future, strategies and developmental objectives. A more frequently issued regional programme includes development projects for the region. A regional plan focuses on land use planning based on the regional strategy and programme as well as on national plans and legislation. The regional plan does not have any legislative power as such and the responsibility for its implementation is shared between the state and the municipalities.

As in other OECD countries, public sector reforms under the umbrella of 'new public management' have swept through Finland, especially since the 1980s (Pollitt and Bouckaert 2004, Temmes 2008). According to Rhodes (2000: 56) new public management originally consisted of two main ideas: corporate management and marketization, where corporate management refers to the effort to import management practices from the private sector to the public sector. These practices included, for instance, performance measurement, management by results and customer focus. Marketization, on the other hand, refers to redefining the tasks and the way they are provided through contracting-out, privatisation, creation of quasi-markets and so on.

The Finnish public management reforms have been characterised by "a history of substantial but non-doctrinaire reforms, which have been adopted calmly and continuously" (Pollitt and Bouckaert 2004, 49). As a whole these reforms already in the late 1990s had resulted in a public sector remarkably different compared to what it was just a decade earlier (Temmes 1998, 449) and the changes have continued (Temmes 2008). Some of the key features of the Finnish reforms include a sharp decrease in the number of civil servants through the creation of state enterprises and, in some cases, later, state-owned companies; the introduction of a framework budgeting system and results-oriented budgeting; restructuring of central agencies and shifting of responsibilities to the regional and especially to the municipal level; and reform of human resource management including the salary systems (Pollitt and Bouckaert 2004, 241-2).

One of the most important features of the Finnish reforms from the perspective of this study is the decentralisation of power. During the period 1987 – 1995 many reforms took place, the central agencies were largely abolished and many functions were transferred to regional agencies and municipalities. The position of the state provinces was weakened, since many planning duties were transferred to the regional councils and the new TE Employment and Economic Development Centres, Regional Environment Centres and Road Regions. Before these reforms Finland had been characterised as a country with a strong central administration, whereas afterwards it had two more equally strong administrative levels. (Temmes 2008) The increased duties and responsibilities have been difficult for small municipalities to handle and the economic situation has been hard for many. The state has promoted the merging of small municipalities and, thus, the number of municipalities has diminished from 461 in 1988 to 348 in 2009 (Figure 2.1).

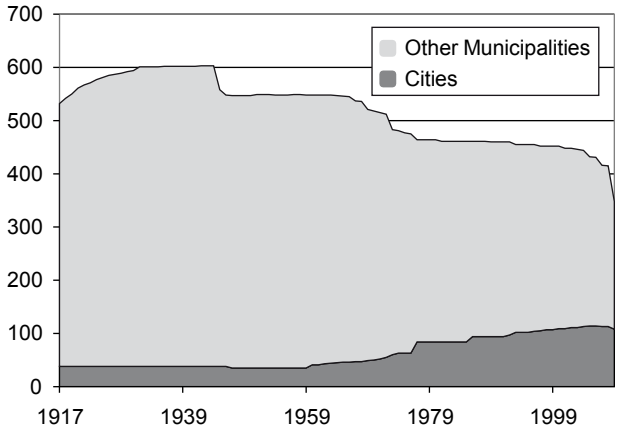


Figure 2.1 Number of cities and other municipalities in Finland 1917-2009 (Source: Association of Finnish Local and Regional Authorities)

2.3

Barriers, promoters and key challenges for climate change mitigation and adaptation

Although climate change is increasingly a politically acknowledged issue, there are a number of barriers affecting structural changes towards a more climate friendly society. These relate, for example, to the structure of the energy sector, to other societally important policy goals, and to the willingness of people to change their behaviour and actions. Some of the barriers can also be seen as challenges as the outcomes of the surrounding debates are still unclear.

With respect to climate policy, Finland has largely been a follower of what happens in the EU. It has not aimed to go further than the targets set for the country in international agreements, and in many policy areas it waits for the influence of the EU Directives tackling climate change. Despite the drafting of climate strategies since early 2000 and the appointment of CO_2 committees already in the early 1990s, the history of Finnish climate policy can be characterised by a lack of political will and commitment. Often there has been neither sufficient funding nor concrete action proposals to match Finland's climate policy objectives – which have tended to be rather vague. During 2007 and 2008 the importance of climate change increased in the political agenda but its practical implications are still to be seen.

Climate change mitigation has largely been framed in Finland as energy policy, because the energy sector has been the largest emitter of greenhouse gas emissions. The Finnish energy system can be characterised by a multi-fuel base, where (in addition to hydro) only peat and wood are domestically available (Kivimaa 2008a). Thus, promoting climate friendly technology partly also supports domestic fuel use. The electricity network is largely centralised, while for heating there is an extensive district heating system in larger towns (Kivimaa 2008a). District heating has been a very effective way to improve the efficiency of the energy system and, thus, to reduce its CO_2 emissions. Increasingly, energy sector market developments, such as the sharp raise in oil prices in 2007 and the first half of 2008, promote behavioural changes in a climate friendly direction (e.g. in transport and space heating choices). Yet the need for more action persists.

Apart from bioenergy, renewable energy has increased modestly in recent decades. In the 1950s, the primary source of electricity at that time, hydroelectric power, began to meet increasing opposition from local communities, due mainly to a feeling that the level of compensation for disrupted fishing and farming activities was too low (Myllyntaus 1991). The Water Act of 1961 made the construction and modification of hydroelectric plants subject to a permit, but achieved little in the way of addressing local concerns (Kivimaa 2008a). At this juncture nuclear power was perceived as a

way of 'rescuing the rapids from hydropower', and some Finnish environmentalists supported a speedy introduction of this new technology (Myllyntaus 1991: 143). Later, especially since the 1990s, environmentalists have largely opposed nuclear energy, while many politicians have viewed this as a climate friendly alternative (see Box 3.2). The possibility to construct more hydropower has been taken up (especially by the politicians) after years of moratorium. This was such an important issue in the negotiations of Prime Minister Matti Vanhanen's second Cabinet that the statement "The Government proposal to overhaul the Water Act may only be given to Parliament if all the cabinet parties consent to it" was agreed upon by the Steering Group for the negotiations and published with the Governmental Programme (Prime Minister's Office 2007: 70). The debates over different energy sources show the challenges that the climate issue poses to energy and environmental policies.

The debate on climate policy is increasingly shifting also to cover other sectors than energy. This provides greater opportunities to really act on climate change mitigation and adaptation. However, the challenge lies in how to coordinate climate policy goals successfully with other important policy goals, such as industrial viability and the welfare of citizens. Therefore, coupling climate change with other on-going policy discourses is vital. In some areas, especially in innovation, this has somewhat promoted climate issues. In other areas, such as regional development, the discourse appears disconnected from climate policy, creating potential barriers for climate change mitigation, if the other discourses gain more importance.

In more specific issues, land use planning is one of the most challenging issues impeding climate change mitigation. It is often argued that as the powers of land use planning are held by the municipalities, the big picture is not always taken into account. This leads to scattered settlements and an increase in private vehicles. Despite the Government and municipalities acknowledging the need to link transport and land use planning for the purposes of climate change mitigation already in the 1990s, the process of integrating them has been slow. In addition to transport issues, there are also other conflicting demands for land use.

The energy sector is the most significant source of Finland's greenhouse gas emissions (Figure 2.2). This is related to the energy intensive nature of the Finnish industry and an extensive need for heating and transport. Energy related CO_2 emissions experience fairly significant annual fluctuations mainly due to the economic situation, the energy supply structure and climate conditions. In 2007, energy use decreased due to warmer weather than that of previous years as well as to the increased use of hydropower and imported electricity. Emissions from transport have increased by approximately 15% from the 1990 level. Emissions in the industrial processes sector have been growing, which is largely consistent with the economic trend. Emissions from the agriculture and waste sectors have decreased since 1990.

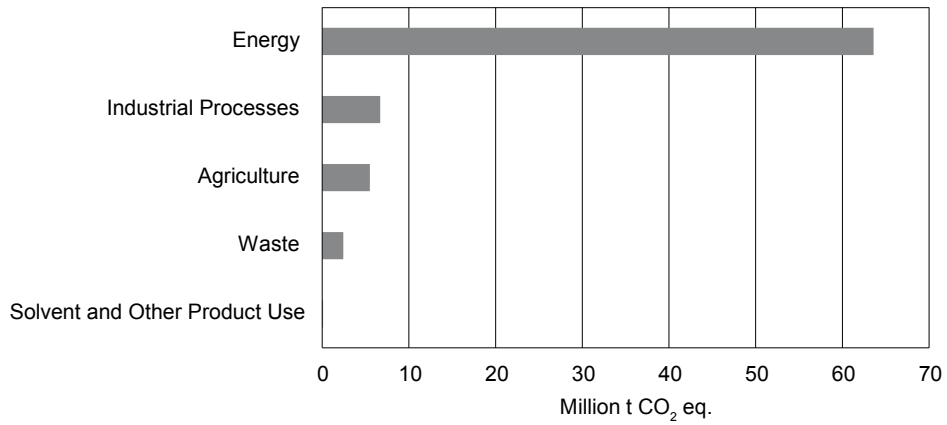


Figure 2.2 Composition of Finnish greenhouse gas emissions in 2007. (Source: Statistics Finland 2009)

3 Horizontal climate policy integration and coherence at the national level

3.1

Governmental programmes and strategies

The Government Programme is a plan of action that the parties forming the Government agree on. In addition to the Government Programme, the Government adopts Policy Programmes that are wide cross-sectoral action plans to meet specific key goals of the Government Programme (this instrument was introduced in 2003). The Government Strategy Document is a more specific document intended to enforce the implementation and monitoring of the Government Programme and its Policy Programmes. The Government Budget, in turn, allocates resources for the desired action. The analysis of climate policy integration in Government programmes and strategies focuses on the Government Programme and Policy Programmes of 2007, the Government Strategy Document of 2007 and the Government 2009 Budget (Table 3.1).

Climate change issues are more prominent in the ***Government Programme of 2007*** than ever before. The preface already acknowledges that *"Climate change and globalisation reinforce the inter-dependence between nations and citizens"* (Prime Minister's Office 2007: 4). Climate change is linked most with energy policy in Chapter 8 of the programme 'Climate and energy policy', and also with transport policy. The Government Programme states that the Government will prepare a long-term climate and energy strategy and a foresight report on climate and energy policy. For the purposes of the foresight report the Prime Minister's Office has commissioned several background studies – one of them (Mickwitz et al. 2009b) dealing specifically with climate policy integration. In the Government Programme, the mitigation of climate change is taken into account in the financial strategy as a precondition of the economy on the one hand and an export opportunity for technology development on the other hand. In connection with development policy, it is stated that emphasis on climate issues will be increased along with the prevention of crises and support for peace processes. Under chapters dealing, for example, with education policy and agricultural policy, climate change is not explicitly mentioned. None of the ***Government Policy Programmes*** are related to climate change (the three policy programmes are: for employment, entrepreneurship and work life; for health promotion; and for the well-being of children, young people and families).

According to the Prime Minister's Office, the Government Programme is monitored through the process of Government strategy documents, mainly by using indicators. The ***Government Strategy Document of 2007*** (Prime Minister's Office 2008) articulates some policy measures that will be used to promote climate change mitigation. Climate and energy are included as one of total eight subject areas under special monitoring. In this section, the document recognises that to meet the climate and energy policy goals, actions in other policy sectors are also needed. In relation to the three policy programmes, climate policy is mentioned in the context of the policy programme on employment, entrepreneurship and work life as influencing rural entrepreneurship.

Table 3.1 Horizontal climate policy integration in the Government Programme 2007, overnment Strategy Document 2007 and Government Budget Proposal for 2009

Criterion	Government Programme 2007	Government Strategy Document 2007	Government Budget Proposal 2009
Inclusion	Climate change is frequently mentioned in pages 5, 7, 9, 12, 13, 40, 41 and 45-48.	Climate change is included and specific policy plans are formulated to meet the set climate change related objectives. Climate change is frequently mentioned on pages 7, 8, 18, 51-56, 63, 64, 66, 79, 80, 82, 84, 88, and 89.	Climate change mitigation and adaptation are mentioned. It is a goal for the Prime Minister's office, Ministry of Foreign Affairs, Ministry of Agriculture and Forestry, Ministry of Transport and Communications, Ministry of Employment and Economy, and Ministry of the Environment. It is mentioned in the operational and research expenditure of only four research institutes.
Weighting	The importance of climate objectives against other policy objectives is not explicitly addressed in the Programme. However, implicitly the frequency of references to climate change and a chapter on it indicate that it is high in importance. It is mentioned already in the second sentence of the preface and as part of chapters dealing with foreign policy, EU policy and financial strategy. It has a special chapter devoted to it (climate and energy policy) but it is not mentioned in connection with chapters dealing with education, agriculture, commerce and welfare.	The importance of climate change objectives against other policy objectives is not explicitly addressed. Yet implicitly the frequency of references to climate change and its inclusion as one of eight subject areas under special monitoring indicate that it is at least equal in importance to other areas under special monitoring. It is already mentioned in the first paragraph of the introduction as one of the corner stones of the Government Programme. It is also briefly mentioned in three other subject areas: innovations, restructuring of local government and international position.	Climate change concerns are included to a wider extent than before. The proposal states as part of economic policy foundations that *"the focuses of the budget proposal for 2009 are to increase the incentives for work, climate and energy policy, ensuring the supply of skilled labour and development of a caring social security."*
Consistency	Within energy policy, it is stated that ways are sought which will fulfil all energy policy goals including climate change mitigation. In other parts, consistency with other policy goals is not explicitly discussed although different policy goals are often in conflict with each other.	The document states that to meet climate and energy policy goals actions in other sectors are also needed, inc. transport, forestry, community structure, building and development policy (p.51). It is also acknowledged that climate policy has connections to security policy, innovation policy and the development of sectoral research (p. 52). The ways to act in relation to conflicting policy goals are not addressed.	Consistency of different budget allocations from the point of view of climate change mitigation or adaptation is not addressed.
Reporting	The Prime Minister's Office states that monitoring and assessment of the Government Programme will be carried out half-way through the electoral period at the latest. The assessment is to provide the Government with relevant information on the main trends of societal development. The programme is also followed up through the strategy documents.	Specific indicators are listed in the document to follow up the progress of each policy plan. The indicators will also serve the monitoring and assessment of the Government Programme.	The financial controller, established in 2004, monitors, among other things, the realisation of societal effectiveness goals of the budget. Thus, monitoring of climate objectives depends on what kinds of objectives are set in the budget and what resources are allocated for meeting them (dependent on climate policy integration into the goals and funding of sectoral ministries). Only two sectors have quantitative climate goals.
Resources	Resource allocation is not specified in the programme. (See government budget proposal 2009)	Resource allocation is not specified in the document. (See government budget proposal 2009)	Some new resource allocations e.g. support for public transport in large cities but resource allocations are generally quite small.

Financial resources allocated for the implementation of the Government Programme and the Strategy Document are part of the state budget. Government Budget Proposals are presented to Parliament annually. Climate policy integration into the budget can be viewed as important, because many budget allocations have direct or indirect effects on greenhouse gas emissions. The budget can affect climate change mitigation in three ways: through taxes and charges, through subsidies and budget allocations, and through the content of texts that specify the use of the funds or the collection of taxes and especially the effectiveness goals set in relation to the allocations to different administrative sectors. The ***Government 2009 Budget Proposal*** deals with climate change to a much larger extent than the previous proposals. Climate change is mentioned as an objective for six policy sectors (Prime Minister's office, Ministry of Foreign Affairs, Ministry of Agriculture and Forestry, Ministry of Transport and Communications, Ministry of Employment and Economy, and Ministry of the Environment). For those ministries that have earlier had climate related budget objectives, climate change is now related to more sub-items. However, the climate related goals are generally very vague and, when they are accompanied by increased resources or new budget allocations, the resources are generally very small compared to the climate challenge. The reform of vehicle taxation in 2007 is, however, an example of a tax reform where climate change mitigation had a major role.

In 2008, the Environmental Committee of Parliament had a debate on the budget proposal for 2009 as a climate policy instrument (in which one of the authors of this report took part). This debate was then reflected in the statement of the environmental committee on the budget proposal which among other things stated that *"The budget proposals should be developed so that the efficiency and effectiveness of different policy instruments, as well as their detrimental or incoherent incentives can be recognised and evaluated better than hitherto."* (YmVL 22/2008 vp, 4) In addition to the more in-depth debates on climate policy in the "substance" committees another change in Parliament is the establishment in 2007 of a new committee, the Audit Committee. The duty of this committee is to oversee the management of government finances and compliance with the budget. The Audit Committee may in the future become an important forum for evaluation of how the budget is used to achieve goals such as climate mitigation and adaptation.

Although some countries, such as France and Sweden, have planned or carried out specific cross-sectoral budget allocations for climate change mitigation or adaptation (Mickwitz et al. 2009b), this is not the case for the Government's 2009 budget proposal partly due to strong sectoral divides between the ministry budgets. Monitoring and assessment mechanisms are in place through the State Financial Controller and the National Audit Office. The monitoring of climate objectives in the budget, however, requires that the budget includes these objectives and funding for them. The report on the final central government accounts for 2007 was adopted by the Government on May 23rd 2008. The report includes a 13-page general review of climate and energy policies, dealing with climate change in the specific chapters for the Ministry of Transport and Communications, the Ministry of Employment and Economy, and the Ministry of the Environment. Since the objectives have been very vague, so also are the assessments. For example, for transport, instead of assessing effectiveness, only the challenge is described (Government 2007 Accounts, p. 238).

The latest government strategies include climate change extensively. The emphasis of climate objectives against other policy objectives, however, can only be assessed implicitly to be increasing. The strategies link climate issues to other policy sectors but consistency with other sectoral goals is not explicitly discussed. Although the 2009 budget has clearly improved the inclusion of climate issues, climate policy integration is not yet apparent in the budget sections of all administrative sectors nor are horizontal climate allocations defined in the budget.

3.2

Climate change strategies

Climate change became a policy concern in Finland in the late 1980s, although the first climate related discussions were already carried out by Finnish scientists in the 1970s (Huutoniemi et al. 2006: 164, 167, 174). For long, climate policy was merely discussed in relation to energy policy (Box 3.1). This was partly due to the fact that climate policy in Finland has been seen as a continuation of more traditional air pollution policy, thus, considering, first and foremost, similar emission sources as traditional air emissions: energy production, industry and transport (Huutoniemi et al. 2006: 167). Later, however, its links to consumption, structural changes and economic policy have also been acknowledged.

In 1990, the Prime Minister's Office appointed the Carbon Dioxide Committee to investigate alternative strategies and measures for limiting greenhouse gas emissions (Carbon Dioxide Committee 1991). The committee included representatives from seven ministries (environment, trade and industry, foreign affairs, transport, agriculture and forestry, finance, and the Prime Minister's Office), two government agencies (the Meteorological Institute, the Government Institute for Economic Research) and the Innovation Fund, the Confederation of Finnish Industry and the Finnish Association for Nature Conservation. The 1991 report of the committee included goals for Finnish climate policy. Although it was heavily based on the production and consumption of energy, the impact of community structure and land use planning was also mentioned. A carbon-based energy tax was also introduced in 1990, Finland being among the first countries in the world to do so. However, in 1997, the tax on electricity production was switched to consumption, while the taxation of heat energy continued to be based on the carbon content of the fuel (e.g. Määttä 2000, Vehmas et al. 1999).

The second Carbon Dioxide Committee already began its operations in 1991 and published a report in 1994. Its composition was similar to that of the first committee with a slight decrease in the number government organisations involved and an increase in NGO representatives. Its task was to propose measures aimed at reducing CO_2 emissions and increasing carbon sinks in Finland. The main measures proposed included a continuation of the Government's energy saving programme, research and development (R&D), increasing natural gas and bioenergy (possibly also nuclear power), reducing waste, and increasing carbon sinks (Carbon Dioxide Committee II 1994). The report also mentioned the renewal of vehicles through economic incentives and the promotion of public transport. The phrasing regarding the carbon based energy tax was less ambitious than before (Box 3.1) – to use it without impairing the competitiveness of Finland – reducing the emphasis of climate policy integration in the instruments for energy policy. Climate policy in Finland prior to the Kyoto Protocol was characterised as "the period of weak climate policy" due to its low political importance (Tirkkonen 2006).

Box 3.1 Climate issues in Finnish energy policy during the 1980s and 1990s

As early as 1979 the main goals for Finnish energy policy were a more efficient use of energy and an increasing use of domestic energy sources primarily peat and wood (Helynen 2004). Developments in the energy system, such as an increase in the use of bioenergy, the development of efficient combined heat and power (CHP) technology, and the extension of the district heating system, were, during the 1980s and 1990s, largely promoted and achieved for other reasons than climate concerns. The initial reasons for this were primarily related to security of supply following the oil crises of the 1970s, while fairly abundant biomass resources and the technological development of the forest industry enabled a high share of bioenergy in electricity generation (Kivimaa 2008a). Prior to the 1990s wood energy had few supporters in the energy and forest sectors (Kivimaa 2008a), and the most significant developments here have occurred fairly rapidly over the past decade (Åkerman 2005). During the 1990s the focus on wood energy increased partly due to global climate change concerns (Kivimaa 2008a).

The governmental energy strategies of 1992 and 1997 paid some attention to climate change. It has been argued, however, that in the preparation of government energy policy reports of the 1990s, climate change was rather seen as an unavoidable consequence of energy production and use than as a problem that should be consciously tackled (Ojala 2006). The 1992 energy strategy mentioned climate change mitigation requirements in relation to environmental protection and sustainable development (Council of State 1992). However, it also stated that limiting the CO_2 emissions is difficult to achieve in the Finnish energy sector and grounded this based on measures that have already been carried out in Finland. Regarding measures, the strategy highlighted the importance of long-term carbon based energy taxation, energy saving agreements and inputs into technological development especially in bioenergy. The 1997 energy strategy aimed at moving away from coal based energy production and at increasing bioenergy (Council of State 1997). R&D on energy technologies was identified as one of the main instruments.

Since 2001 Finland has had a National Climate Strategy produced cross-sectorally by various ministries. The first national climate strategy, the preparation of which began in 1999, was heavily focused on energy. The second one in 2005 was also energy-based, with some emphasis on other sectors. The new long-term strategy of 2008 covers all sectors. The strategy was approved by the government on November 6th 2008 and was extensively discussed in Parliament during spring 2009. The preparation of the first National Climate Change Adaptation Strategy was started in 2003 and the strategy was published in 2005.

The ***National Climate Strategy*** (2001) outlined for the first time the national effort to combat climate change and to reach the targets set in the Kyoto Protocol in 1997. The strategy, however, presented only two future scenarios, where the principal energy sources were either natural gas or nuclear power. At that time, the strategy did not take into account the emissions trading system or other Kyoto mechanisms. (Kivimaa, 2008a) The implementation of the Action Plan for Renewable Energy from 1999 (revised in 2002) and of the Energy Saving Programme were seen by the Government to meet the aims of the National Climate Strategy. At a later stage the strategy resulted in a decision to build a new nuclear power plant in Finland (Box 3.2).

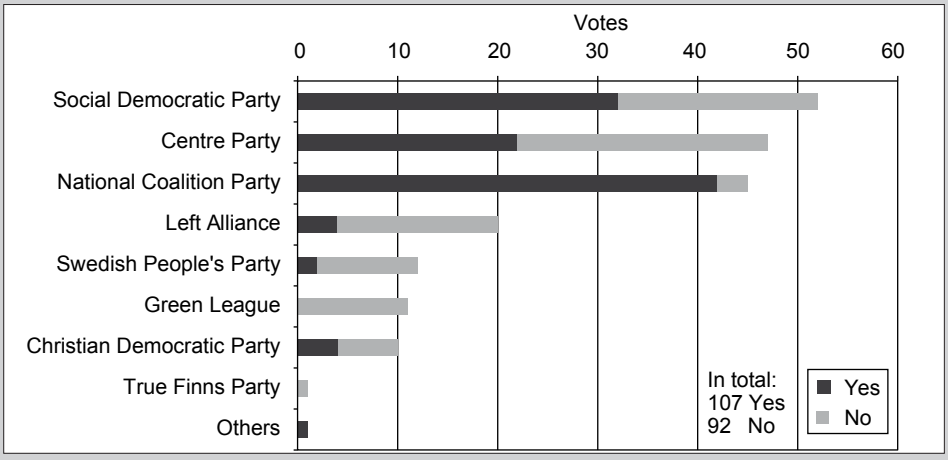
Box 3.2 The decision to approve the application of the fifth nuclear power plant in Finland

The first nuclear power plant started to operate in Finland in 1977 and was seen as a hallmark of economic and technological co-operation between Finland and the Soviet Union (Michelsen and Särkilahti 2005). This power plant was soon followed by a second, third and fourth in the 1970s and the 1980s. However, the application for a fifth nuclear power plant was rejected by the Parliament in 1993 (90 votes in favour, 107 against and two absent).

In 2000 Teollisuuden Voima Oyj applied for permission to build a fifth nuclear power plant. In the parliamentary debate the fifth plant was discussed as an essential aspect of energy policy. Climate change mitigation was one of the main arguments in the Parliament along with energy security, the competitiveness of Finnish industry and employment (TaVM 9/2002). When Parliament voted on the application, approval was linked to four statements:

1. The Government should rapidly take measures to reduce the use of coal
2. The Government should
   - increase energy savings and steer land use to save energy
   - start preparing an energy saving act
   - require that energy companies inform consumers about energy savings, and
   - reform the energy taxation so as to promote energy savings.
3. Parliament requires that research, development and introduction of renewable energy is promoted in accordance with the National Climate Strategy
4. The Government gives a report to Parliament about the realisation of these statements during the next term of the Parliament

The application (in combination with the four statements) was approved by 107 votes in favour and to 92 votes against. Since the Speaker of the Parliament is not allowed to vote, all MPs were present and either voted yes or no. (One MP afterwards stated that she had pushed the wrong button. She was in favour, although she voted against the proposal. This is stated in the protocol but did not affect the votes.) All political parties except the Green League were divided on the voting.



Votes on the application for the 5th nuclear power plant by the Finnish Parliament 24 May 2002

A new ***National Energy and Climate Strategy*** for implementing the Kyoto requirements was presented to Parliament on November 24th 2005. The 2005 strategy aimed to meet the Kyoto emissions reduction target by (mainly) continuing domestic investments in bioenergy, and using the Kyoto mechanisms. An assumption was made that emissions trading would notably improve the competitiveness of renewable energy resources, and that it was not necessary to propose new promotional measures. In addition, the construction of a fifth nuclear reactor was expected to reduce Finland's greenhouse gas emissions significantly after 2008. The Environmental Impact Assessment of the strategy stated that the measures were fairly mild and would not lead to major changes in production or consumption (National Energy and Climate Strategy 2005, p. 44) and in hindsight have not done so. Members of Parliament representing the opposition criticised the new strategy for short-sightedness and lack of concrete measures. The strategies were portrayed, in short, as plans for meeting the Kyoto targets, not as long-term blueprints for an alternative, more energy-efficient society. (Kivimaa, 2008a)

The 2005 strategy does not deal extensively with coherence problems and win-win areas, but some are briefly or implicitly mentioned (Table 3.2). Coherence issues are of significance, because the strategy overlaps several policy areas coordinated by sectoral ministries, such as energy, agriculture, nature conservation, forestry, trade, regional development, land use, transport, waste management, research and development, and construction.

The National Climate and Energy Strategy of 2005 states that safeguarding of energy security through the promotion of domestic energy sources is compatible with the promotion of renewable energy sources (apart from peat). This is peculiar for Finland, because its domestic energy sources have so far been limited mainly to bioenergy and hydropower. However, the description of peat in the strategy provides an interesting example of conflict avoidance: peat is viewed as a slowly renewable resource differing from the EU definition. Other potential win-win areas identified in the strategy include promoting energy-saving and domestic innovation and promoting bioenergy and rural and regional development. Innovation in energy technologies is seen as a means to increase technology exports.

By contrast, the goal of low energy prices is not compatible with climate policy as the emissions trading tends to increase the price of electricity to consumers regardless of the mode of production. Also, the promotion of wood energy is feared to take resources away from the forest industry that contributes to about 20% of total export value in Finland, and to negatively influence forest biodiversity and the amount

Table 3.2 The potential synergies and conflicts addressed in the National Climate and Energy Strategy of 2005

National Climate and Energy Strategy 2005	
Coherence and win-win areas addressed between climate policy and other policy goals	**Potential conflicts between climate policy and other policy goals addressed**
Promotion of domestic energy sources (bioenergy and hydro) and renewable energy	Promotion of peat vs. CO_2 emissions calculated by the EU (although the report views peat as a slowly renewable energy source)
Promotion of energy saving and renewable energy and domestic innovation.	Promotion of low energy price vs. emissions trading
Promotion of bioenergy and integrated bioenergy solutions in pulp and paper mills	Promotion of wood energy vs. the resource availability of Finnish forest industry
Promotion of bioenergy and rural and regional development	Promotion of bioenergy vs. improved biodiversity and nutrients in soil
Aim to concentrate community structure and conservation of natural resources	

of nutrients in the soil (National Energy and Climate Strategy 2005). Conflicts on a higher level between, for example, economic development and climate policy are not addressed in the strategy. Since the 2005 strategy, no notable changes towards a climate friendly direction have been observed in energy consumption, greenhouse gas emissions, share of renewable energy, transport or community structure (Hildén et al. 2008).

Following the Government Programme of 2007 and the new EU climate and energy package, the preparation of the new ***Long-term Climate and Energy Strategy*** was started in 2007 in coordination by the Ministry of Employment and the Economy. The preparation process was steered by a ministerial group on climate and energy issues which included 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 were represented in the ministerial working group, for example the Ministry of Transport and Communications. These ministries, however, were represented in the connected network of senior civil servants responsible for the detailed drafting of the strategy. The Long-term Climate and Energy Strategy was given to Parliament by the Government on November 6th 2008. In Parliament the Long-term Climate and Energy Strategy was debated in plenary and scrutinised in several committees. Six committees (Finance, Transport and Communications, Agriculture and Forestry, the Committee for the Future, Employment and Equality, and Environment) issued statements about the Climate and Energy Strategy based on extensive hearings of experts, e.g. the Environment Committee consulted almost seventy experts. These statements were presented to the Commerce Committee that made the report on the strategy.

The goals of the Long-term Climate and Energy Strategy are much more ambitious than those of the strategies from 2005 and 2001. The strategy aims – for the first time – to reduce the final consumption of energy, although this is mainly to take place during the period between 2020 and 2050. The new strategy also includes considerably more ambitious goals than the previous strategies for those emissions that are from sources not included in the emissions trading system. These goals, however, are based on the previous agreements of the European Union. For example for traffic, the aim is to reduce the CO_2 emissions by 15 % from the 2005 level by 2020. This is quite ambitious, given that the CO_2 emissions from traffic have increased by 15 % between 1995 and 2005.

In order to achieve its aims, the strategy states that integrated energy and climate policy measures should be implemented. These policies should emphasize energy efficiency and energy saving and the increased use and production of renewable energy. It also states that when energy capacity is renewed, priority will be given to plants that do not emit greenhouse gases or result in low emissions, for example, combined power and heating plants using renewable fuels and "financially profitable and environmentally acceptable hydro and wind power plants". The strategy is also based on the construction of additional nuclear power. Although energy is still the focus of the 2008 Long-term Climate and Energy Strategy, other policies are examined to a greater extent than before. The policies examined include: research, technology and innovation, education, consultation and communication, buildings and construction, transport, spatial planning and community structure, waste, and agriculture and forestry. The Long-term Climate and Energy Strategy emphasises the importance of innovation options. It states that "Resources for research as well as development, diffusion and commercialization of new technologies and innovations will be increased substantially in the coming years, so that this finance has at least doubled by 2020." The Long-term Climate and Energy Strategy states that its

implementation will be followed up by the Government and that it is prepared to adapt the strategy if the development of international negotiations or the context makes it necessary. In addition to the monitoring by the EU Commission a thorough mid-term evaluation is scheduled for 2016.

Finland was the first European country to agree on an adaptation strategy to climate change (Swart et al. 2008). The ***National Adaptation Strategy to Climate Change*** accepted in 2005 describes the impacts of climate change in the following sectors: agriculture and food production, forestry, fisheries, reindeer husbandry, game husbandry, water resources, biological diversity, industry, energy, traffic, land use and communities, building, health, tourism and recreation, and insurance (MAF 2005). In one section, the strategy briefly assesses the importance of policy integration and coherence. According to the strategy (MAF 2005), the starting point of the implementation is that a detailed assessment of the impacts of climate change and the specification of adaptation measures will be integrated as a part of planning, execution and monitoring of activities in different sectors and organisations. Moreover, the strategy emphasises that all sectors will be required to improve coordination and cooperation between administrative sectors, organisations and actors.

Despite the general goals for integration and coherence, the National Adaptation Strategy largely approaches impacts and adaptation measures sector specifically. The responsibility for the implementation has been delegated to sectoral ministries and the strategy itself does not deal with different levels of administration (Swart et al. 2009). Apart from the division between public and private measures, the suggestions for adaptation measures do not deal with the question which specific actors should carry out those measures. The mentioning of specific integration and coherence measures differs between the sectoral suggestions (Table 3.3.). For example, the adaptation measures for fisheries and game management are practical and do not include particular suggestions for integration and coherence. By contrast, the energy, transport, land use and construction sectors mention the need to include adaptation considerations in long term planning activities. Measures relating to intersectoral coherence are rarer. The strategy includes clear statements on how its progress will be followed-up but it does not specify resources for carrying out the measures identified.

Table 3.3 Specific integration and coherence measures stated among the adaptation measures identified in the National Adaptation Strategy

	Specific integration measures	Specific coherence measures
Agriculture	Integration of changed climatic conditions and plant protection requirements into plant improvement programmes	n/a
Forestry	Inclusion of climate change aspects in the National Forest Programme Revision of forest management recommendations to correspond to climate change Research on developing forest management adapting to climate change and mitigating it	n/a
Fisheries	n/a	n/a
Reindeer husbandry	n/a	Coordinating the interests of reindeer husbandry and forestry Comprehensive planning of different forms of land use
Game management	n/a	n/a
Water resources management	n/a	Land use planning to reduce flood risks and especially to avoid construction in flood areas Cooperation between authorities
Biodiversity	Including an evaluation of the impacts of climate change in the ongoing planning and development projects for the promotion of biodiversity	Increasing cooperation, information and consultation between the different administrative sectors
Industry	Inclusion of adaptation to climate change in the long-term surveys of different industrial sectors	n/a
Energy sector	Inclusion of adaptation to climate change in long-term planning and strategies	n/a
Transport and communications	Inclusion of climate change in long-term planning New planning norms and guidelines for road and railway construction	n/a
Land use and communities	Evaluation of the impact of climate change to be included in the long-term planning of regional and urban structures Town planning processes to be associated with a requirement to carry out additional investigations on adaptation to climate change	n/a
Construction and buildings	Climate change will be included in long-term planning and research in the sector Potential revision of design standards, instructions and regulations based on research information	n/a
Health	Securing the capacity of health care to correspond to changing climatic conditions	Cooperation between climate researchers and health care and social services Links to electricity sector and urban planning
Tourism	Integration of adaptation to climate change with tourism strategies	n/a
Insurance	n/a	Links to environment, building, land use and water management sectors

3.3

Strategic environmental assessment

Ex-ante evaluations of national strategies and programmes, i.e. strategic environmental assessments, have been carried out in Finland for over a decade. They are based on legal requirements first included into the Finnish Act on Environmental Impact Assessment (468/1994). The 1994 Act did not, however, specify how the assessments were to be carried out. The emphasis on the impact assessments of national programmes increased after 1999, when the Chancellor of Justice required a more thorough environmental assessment of the national forest programme. In 2001, the EU adopted the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (i.e. the SEA Directive). To fulfil the requirements of the directive, an Act on the environmental impact assessment of the plans and programmes of government authorities was passed in Finland (200/2005). (Mickwitz et al. 2009b)

The assessments carried out to date show a wide variation. For example, the weighting of environmental, economic and other societal objectives varies in the programmes evaluated, which is then reflected in the selection of assessment approaches. Equally, the role of climate change varies considerably. For example, the strategic environmental assessment of the national forest programme in 1999 did not directly evaluate the climate impacts. In 2007, in the pre-assessment of the new national forest programme, climate change was extensively acknowledged, indicating an increasing awareness of the climate impacts of strategies and programmes. (Mickwitz et al. 2009b) There are still, however, a number of programmes and plans, the climate impacts of which are not at all or not thoroughly evaluated at the planning stage.

3.4

Regulatory impact assessments

It is likely that nearly all legislation has at least indirect impacts on greenhouse gas emissions or the adaptation to climate change. Therefore, acknowledging these impacts in the proposals for new and amended legislation is important. (Mickwitz et al. 2009b) However, the legal obscurity of the integration obligation slows down the real integration of environmental issues into legislation in different sectors (Nollkaemper 2002). In Finland, the Government issued renewed guidelines for the impact assessment of legislative drafting in November 2007 (MoJ 2008) and the need for expert services for regulatory impact assessment was also assessed in 2007 (MoF 2007). Table 3.3 summarises the analysis of climate policy integration in the new guidelines for regulatory impact assessment.

Table 3.4 Climate policy integration in the guidelines for regulatory impact assessment

Criterion	Guidelines for the impact assessment of legislative drafting (2007)
Inclusion	Climate change is mentioned on pages 32 and 51.
Weighting	Impacts on climate change is directly one question out of seven in the guidelines for environmental impact assessment. Six other questions related to impacts that indirectly also influence climate change mitigation or adaptation are also included.
Consistency	N/a
Reporting	N/a
Resources	Evaluation is generally the responsibility of the ministry doing the legislative drafting, and specific expertise is seldom provided internally. The report on expert services for evaluation deals more with knowledge resources for evaluation.

In the new guidelines for impact assessment in legislative drafting (MoJ 2008), there are four impact categories: economic impacts, impacts on public administration, environmental impacts and social impacts. The category of environmental impacts comprises seven questions that need to be answered in the impact assessment. Of these, one question is "Does the proposal have an impact on the soil, waters, air, climate, climate change, natural diversity, plants and animals?", i.e. it deals specifically with climate change. In addition, five other questions address issues closely related to climate change mitigation or adaptation: the use of natural resources and energy; production or consumer behaviour; location of operations and the need for transport; the quantity, quality or processing of emissions and waste; and community structure. Therefore, climate issues are well integrated into the impact assessment of legislative drafting in theory. Yet the guidelines are so new that it has not been possible to evaluate their realisation in practice.

In practice, the scope, details and methods of each impact assessment are adjusted according to the content of the legislative proposal and the significance of the anticipated impacts. Climate change related impacts, for example, are evaluated in those cases in which a person preparing the proposal or some other key stakeholder has noted the possibility of significant effects on climate change mitigation or adaptation. Therefore, the knowledge and know-how of the ministry concerned and those preparing the proposals are crucial in identifying the evaluation needs. It can be extremely demanding to recognise an evaluation need in those cases in which a legislative proposal can cause significant but indirect climate impacts. (Mickwitz et al. 2009b)

3.5

Other key means for horizontal climate policy integration

Apart from the strategies, not a great deal has been done so far on a cross-governmental level to promote climate policy integration. Some temporary offices and institutions have, however, been set up.

3.5.1

Government climate policy specialist

In May 2007, to promote climate issues, the Prime Minister invited a Member of Parliament, Mr. Oras Tynkkynen (the Green League), to act as a Government Climate Policy Specialist during the term of the present Government. The main tasks of the specialist include preparing the Government Foresight Report on Climate and Energy (presented to Parliament in October 2009), participating in the meetings of the Government's ministerial task force on climate and energy policy, and coordinating climate policy. This is a new task in Finland. Government-appointed climate policy experts have been used, for example, in Germany, the United Kingdom and Italy. The Finnish solution differs from those of the other countries in that the invited expert is not a recognised expert in science or business, but a Member of Parliament. (Mickwitz et al. 2009b) The post is so new that it has not been possible to assess its importance for climate policy integration.

3.5.2

Horizontal cooperation in climate issues

Horizontal cooperation between the ministries has been typical of Finland's sectorally divided policy. The ministerial task forces on climate and energy policy of the first and second Governments of Vanhanen have had a significant impact on the formation of Government policy definitions and promoting policy coherence. They have also supported vertical policy integration within different administrative sectors. The current task force includes the Minister of Economic Affairs, the Minister of the Environment, the Minister of Agriculture and Forestry, the Minister of Finance, the Minister of Foreign Affairs, the Minister of Housing, the Minister of Culture and Sports, and the Minister of Labour. Due to the political composition of the Government, not all relevant ministers, such as the Minister of Transport, are included in the task force. The missing administrative sectors, however, are represented in the inter-ministerial network composed of government officials. (Mickwitz et al. 2009b)

In addition to the network of ministers on climate and energy policy, different coordination groups composed of the representatives of various ministries work on EU legislative proposals, for example, on emissions trading of air traffic and on CO_2 limits for motor vehicles. In issues concerning several ministries, bilateral cooperation groups are used. For example, the Ministry of the Environment is involved in the Metropolitan Region transport system work coordinated by the Ministry of Transport and Communications. All in all, working groups composed of different administrative levels and stakeholders exist.

3.5.3

Sustainable Development Commission

The Finnish National Commission on Sustainable Development (FNCSD) was set up in 1993 by the Government of Finland and, in 2008, the Government decided on the FNCSD's fifth term until the end of 2012. The mandate of the FNCSD is to promote sustainable development in Finland and provide guidance in issues concerning the UN and its Commission for Sustainable Development. In addition it oversees and evaluates the implementation of the National Sustainable Development Strategy (revised in 2006). However, the actual implementation of the Sustainable Development Strategy is left to the sectoral ministries, who are to draft legislative provisions that may be necessary for the implementation (MoE 1998).

The FNCSD has 43 members representing all ministries, Parliament, the municipalities and regions, industry, the scientific community and the NGOs. It is a hybrid between a governmental coordinating body and an expert advisory body (Rouhinen 2008). The Secretariat is located in the Ministry of the Environment. The various administrative sectors of the state are required to report on progress and on the impact of the Sustainable Development Strategy in their sectors. The FNCSD, in turn, monitors the progress and the different sub-programmes carried out by various organizations. Sustainable development indicators have been developed by the Finnish Environment Institute to assist the monitoring. (Kivimaa 2008a)

Climate issues are part of the remit of the FNCSD. Climate change, for example, is the first issue mentioned under the heading "Balance between the use and protection of natural resources" in the 2006 strategy, and the first three sub-chapters in that section deal with limiting greenhouse gas emissions, increasing energy-efficiency and the use of renewable energy, and adapting to the adverse effects of climate change (FNCSD 2006). In addition, a division of the Commission set up to promote sustainable development in regional and local administration has decided to focus its early stages specifically on climate change mitigation and the promotion of sus-

tainable energy economy at the local and regional levels (Rouhinen 2008). However, as sustainable development is such a wide area, the chances of the FNCSD to mainstream climate policy are likely to be limited. The Commission will, nevertheless, seek synergies between other horizontal strategy processes of the Government, such as the Government Programme, working groups preparing foresight reports and the renewal of sectoral research (Rouhinen 2008).

3.5.4 Sectoral research on climate change

Finland has several sectoral research institutes that produce both scientific and practically applicable information related to climate change, emissions and policy. These include, for example, the Finnish Meteorological Institute, the VTT Technical Research Centre of Finland and the Finnish Environment Institute. There is, however, no research institute devoted exclusively to climate change research or an organization to coordinate climate change research on a national level. The sectoral research institutes have direct connections to the ministries in their own sectors, but contacts to other ministries are project-specific. In energy issues especially related to energy efficiency the national energy agency Motiva acts as the distributor of research results and information.

In 2007, a process was initiated that aims to renew the structure of sectoral research carried out in public research institutes operating under the ministries. This work is still on-going but several reports have been published recently by the Advisory Board for Sectoral Research (e.g. Rantanen 2008, Hyytinen et al. 2009). Climate policy integration has been assessed in the report by Professor Rantanen (Table 3.4). The structural renewal highlights sustainable development that is chosen to be one of the four core research areas. Climate change is included within this area. In general the report does not describe the research areas in detail nor does it articulate what kinds of resources are allocated to climate change related research. The lack of focus on climate change can probably be explained by the early stage of the process and the focus of the report mostly on administrative structures rather than on research topics.

Table 3.5 Climate policy integration in the structural renewal of sectoral research

Criterion	The report on the structural renewal of sectoral research (Rantanen 2008)
Inclusion	Climate change is mentioned on pages 19, 31-2, 57, 92, 95, 145 and 180. Environment or clean energy is mentioned on pages 10, 17 and 18.
Weighting	Sustainable development is one of four research areas identified. Climate change is included within this area. Although climate change is not mentioned on many pages, much of the report is rather focused on administrative structures than research topics.
Consistency	The consistency of the four research fields in relation to climate change is not addressed.
Reporting	No reporting requirements are included.
Resources	Resource allocation is not specified in the report.

3.6

Conclusions on horizontal climate policy integration at the national level

The analysis of the key government strategies shows that the inclusion of climate aims in the strategies is extensive. However, the weighting given to climate issues varies between the strategies, although climate issues need to be clearly emphasised and prioritised if significant action is to be achieved. More specific objectives for different administrative sectors, larger resource allocations and new tax incentives for climate change are needed in the state budget. The consistency of climate issues with other policy goals, reporting on the realisation of climate aims, and human and financial resources allocated to promote climate issues are rarely addressed. Due to the variation in the emphasis given to climate objectives and the lack of open discussion on consistency, vertical integration – i.e. the implementation of climate objectives – into policy instruments and into regional and local levels is an interesting issue to be examined in more detail (Chapters 4, 5 and 6).

Finland has a nearly two-decade history of acknowledging climate change in policymaking. However, the reports of the two CO_2 Committees of the 1990s and the more recent climate strategies have tended to state the same means to mitigate climate change since the early 1990s. Apart from the measures required by the EU, such as emissions trading, little new concrete development has been presented in the recent strategies despite the fact that CO_2 emissions and energy consumption have continued to increase in Finland. For structural change new means are required.

Some important key means for promoting climate policy integration and coherence, such as horizontal cooperation between administrative sectors and stakeholders, do exist. Yet, apart from the establishment of the new temporary post for Government Climate Policy Specialist, new organisations, organisational structures or offices have not been established or proposed. In light of the analysis of this study, the feasibility of new structures, organisations and offices should be evaluated. In addition, the possibility to strengthen the strategic environmental assessment needs to be assessed. This would most likely require more concrete objectives in the strategies.

As discussed in Section 2, the new constitution gives Parliament more power than before but in practice politics have been "almost completely government-driven" (Raunio and Wiberg 2008, 595). Nevertheless, the work of Parliament is changing and some of these reforms may become important with respect to climate policy integration. The parliamentary committees have started to debate climate policies more, they invite experts and produce statements that could enhance climate policy integration.

4 Sector specific climate policy integration and coherence at the national level

4.1

Policy integration and coherence in the transport sector

4.1.1

Background to the transport sector and transport policy in Finland

In Finland, the CO_2 emissions from transport have grown by over 10 % since 1990. They account for some 20 % of Finland's total emissions. The growth in emissions has occurred despite the availability of more energy efficient vehicles, because the travel kilometres, especially of passenger cars, have increased markedly in recent decades (Figure 4.1). The number of passenger vehicles has grown by about 30 % between 1990 and 2006 (Statistics Finland 2007: 100). Passenger transport has increased for several reasons. The commuting distances as well as leisure traffic have grown, influencing the transport volumes together with the increasing dispersal of community structure.

The dispersal of community structure can be attributed to different reasons, but the fact remains that community structure has dispersed since the end of the 1990s, when governmental powers in land use planning were increasingly transferred to municipalities through a revision of the Land Use and Construction Act of 1999. Many of the interviews showed that at ministerial and regional level the decentralisation of power in land use planning was seen to lead to municipality-specific planning often ignoring the big picture and resulting in higher greenhouse gas emissions. By contrast, at local level, the system was seen to function well. Yet the recent trend appears to point towards dispersing community structures.

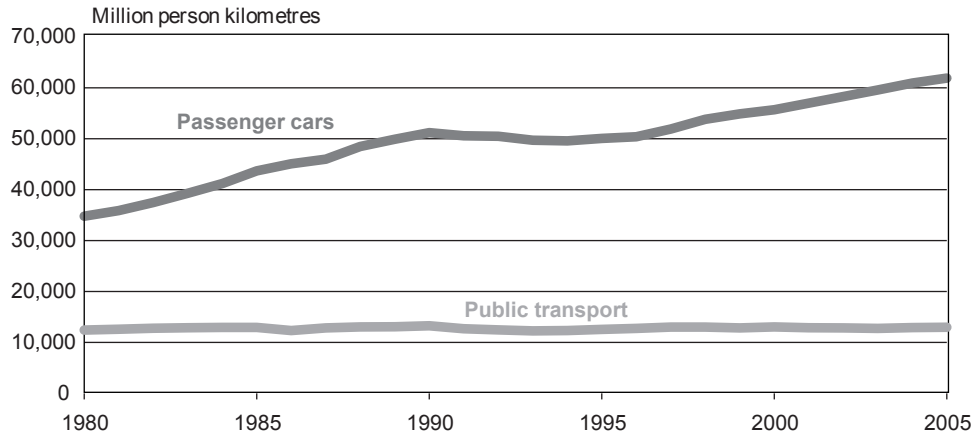


Figure 4.1 Development of public and private transport 1980-2005

In the Finnish Government's transport report to Parliament (MTC 2008a) transport policy is defined as all measures that focus on the different sectors of the transport system and serve to promote national competitiveness and economic activity as well as to maintain the well-being of citizens. Thus, transport policy is closely related to other policy fields, such as economic, industrial, employment and regional policies. In practice, many actions carried out in other policy fields, such as employment and land use, have direct effects on transport needs and behaviour. The transport system itself comprises the transport infrastructure, means of transport, passengers and goods being transported, and the regulations and organisations involved (MTC 2008a). It is vital for people's everyday lives and the development of business and industries.

Transport policy in Finland is coordinated by the Ministry of Transport and Communications (MTC). The policy coordinated by the MTC is fairly limited dealing with passenger and freight traffic, vehicles, traffic and safety, and environmental questions related to traffic lanes and vehicles. The MTC has nine agencies and authorities in its administrative sector. These include the Finnish Road Administration, the Motor Vehicle Registration Centre, the Central Organisation for Traffic Safety in Finland, the Finnish Rail Administration, the Finnish Maritime Administration, the Finnish Civil Aviation Authority, the Finnish Civil Aviation Administration, the Finnish Meteorological Institute, and the Finnish Ice Service. As noted above, extended transport policy is also related to economic and regional issues which fall under the mandate of other ministries (Table 4.1). For example, the Ministry of Finance is responsible for transport taxation, the Ministry of the Environment deals with regional and community structure influencing transport needs, and the Ministry of Employment and Economy is responsible for the development of biofuel innovations (MTC 2008a). In addition, much of the legislation influencing the transport sector originates in the EU.

Table 4.1 Division of responsibilities directly influencing transport in different administrative sectors

Ministry	Responsibilities directly influencing transport
Ministry of Transport and Communications (MTC)	Passenger and freight traffic Road investments Development of public transport Vehicle use Traffic and safety Environmental questions related to traffic lanes and vehicles
Ministry of the Environment (MoE)	Regional and community structure National land use objectives Supervision of regional and local land use planning Guidance for environmental impact assessments
Ministry of Finance (MoF)	Transport taxation and other economic instruments
Ministry of Employment and the Economy (MEE)	Support for R&D and commercialisation of biofuel innovations Other innovation activities

In addition to the Government, the municipalities and regions make decisions related to transport policy. They are responsible for regional and city planning, light traffic and pedestrian lanes, and local public transport. While the Government funds much of road development and maintenance, public transport has been left mostly to the responsibility of the municipalities. Transport pricing and parking regulations in city centres are also under the authority of the municipalities (MTC 2008a), which have significant powers in land use planning within their borders.

While previously the Government has mainly assisted public transport in remote districts and bought services from the national rail company, it has recently decided to participate in the financing of public transport in large cities starting from 2009 (MTC 2008a). However, the financing for public transport has only increased by 2 million euros since the 2008 budget. Moreover, of the total sum of 60 million euros, the new

sub-item for public transport in large cities is limited to 5 million euros. Even though the state budget for financing public transport in cities is low during the first year, it is hoped to lead to increased support later on. The Government's transport policy report emphasises the role of the municipalities in combating the climate change effects of transport (MTC 2008a).

4.1.2

Integration of climate change issues into transport policy strategies

In spring 2008, the Finnish Government presented to Parliament a report on long-term transport policy (MTC 2008a). It is based on the Government Programme 2007 and was produced by a working group consisting of six different ministers (not the Minister for the Environment). Two hundred groups and organisations were consulted during the process.

Climate change is a central part of the report (Table 4.2). A chapter is devoted to it and another chapter deals with the promotion of public transport and pedestrian and bicycle traffic as attractive modes of transportation. One fourth of the guidelines is focused on climate change and public transport. The report goes beyond mere statements. It also examines the general guidelines of climate policy in the transport sector and the efficiency of the main instruments of transport policy in mitigating climate change. According to the report, traffic management and control as well as the promotion of the use of environmentally friendly vehicle and fuel technology through taxation and regulations can be used to reduce CO_2 emissions. The report provides examples of measures, such as promoting urban infills, promoting public transport by favouring rail investments, increasing the use of renewable energy sources, full utilisation of new vehicle technology, transport pricing and influencing attitudes. Attention is also paid to community structure and special issues of the large cities. Some of the interviewees point out that a shortcoming of the report is that, despite discussing the potential of different policy measures, the actual decisions on concrete policy measures are left to other instances to make at a later stage. The more concrete goal setting depends on the new climate and energy strategy that is expected to come out at the end of 2008 (Section 3.2). A view was also expressed in the interviews that governmental strategies and policy are lagging behind, while some regions have reacted to EU policies faster than the Government.

Prior to the long-term transport policy report to Parliament, the MTC published its operational and financial plan for 2009-2012 (MTC 2008b). This is a more short-term plan and focused merely on the administrative sector of the MTC. The plan includes climate change issues extensively (Table 4.3). Climate change is mentioned in the preface and a chapter is dedicated to the mitigation of climate change effects related to transport. In addition, climate change is integrated into other sections of the plan and concrete measures for mitigation are listed. It also outlines plans for increasing the resources for government funding of public transport and bicycle and pedestrian routes. Therefore, it shows signs of vertical integration in the form of specific policy instruments. Consistency with land use planning and, therefore, improved cooperation with the Ministry of the Environment responsible for land use planning is emphasised.

Other slightly earlier documents describe issues similar to the 2008 plans and strategies. For example, the strategy prepared by government officials at MTC (2007a), Transport 2030, depicts climate change as the most significant challenge and suggests means, such as stopping the fragmentation of urban structures and growth in the use of private cars, for improving the energy efficiency of transport, and new low-emission fuels to meet this challenge (Table 4.4). Similarly the need for horizontal

cooperation and policy coherence with other ministries is mentioned. Combining land use and transport planning and the use of taxation and employment policies are stated as important means to control greenhouse gas emissions from transport. These fall under the responsibilities of the Ministry of the Environment, the Ministry of Finance and the Ministry of Employment and Economy. The MTC alone can merely influence the CO_2 emissions of transport by implementing EU directives and making decisions on traffic lanes and public transport investments.

Table 4.2 Climate policy integration in Transport policy guidelines

Criterion	Transport policy guidelines and transport network investment and financing programme until 2020 – Government transport policy report to Parliament (2008)
Inclusion	Climate change is explicitly mentioned on pages 1-3, 6-7, 11-17, 53 and 62 (total 67 pages). Implicitly it is covered in the chapter dealing with public transport and bicycle traffic (pages 18-24).
Weighting	A key aim of the report is to improve long-term sustainability in transport policy. Climate change is mentioned in the summary and a special chapter is devoted to it at the beginning of the report. In addition, another chapter deals with the promotion of public transport and pedestrian and bicycle traffic. The report highlights that in the coming decades controlling climate change will be a key priority in transport policy (p. 1). In the report there are four sections of guidelines, of which one (total 10 guidelines) is devoted to climate change and public transport.
Consistency	It is noted that government must meet the challenge of climate change (increased traffic volumes) without jeopardising the operations and transport flows of business life (p.7). The need to coordinate land use and the transport system is highlighted in the guidelines section, but as the report mainly addresses the administrative sector of the MTC, it cannot act alone on the need. The report itself is contradictory in that one of the key aims is the reduction of CO_2 emissions, but at the same time the report includes an ambitious, extensive plan for the near future road investments.
Reporting	According to the report, the environmental impacts of transport policy guidelines were evaluated as extensively and specifically as possible in the preparation of the report. However, impact assessments appeared not to account for indirect, long-term impacts e.g. of traffic lane investments. Requirements for ex-post evaluation and reporting were not specified in the report.
Resources	Apart from already decided road investments, resource use is not specified in the report.

Table 4.3 Climate policy integration in the MTC's operational and financial plan

Criterion	**The Ministry of Transport and Communications – Operational and financial plan for 2009-2012. Programmes and strategies 1/2008**
Inclusion	Climate change is explicitly mentioned on pages 3, 5, 17-18, 21-22, 26-27, 29 and 34 (total 44 pages). Concrete measures for reducing CO_2 emissions from transport are listed.
Weighting	Climate change as a challenge is mentioned in the first paragraph of the preface to the plan. One chapter is specifically devoted to mitigating emissions from transport, but climate change is also mentioned in relation to other parts of the plan. Mitigating climate change is also one out of four focal points in the maintenance and development of the transport system.
Consistency	The plan sees improved consistency between land use planning (under the mandate of the Ministry of the Environment) and transport as important in relation to climate change. Consistency with other issues is not discussed.
Reporting	Evaluation and reporting will be carried out as part of governmental results based management. Climate change adaptation will be added to the impact assessments of route plans.
Resources	The plan states that the Government's road allowances are focused on the construction of bicycle and pedestrian lanes. Government funding for public transport is allocated through town or city district based development programmes combined with an obligation for these municipalities to also invest in public transport. In the budget, specific resources are reserved for extending the metropolitan area metro. The funding for purchasing and developing public transport are increased by 23% between 2007 and 2012 according to the budget.

Table 4.4 Climate policy integration in Transport 2030 strategy

Criterion	Transport 2030 – Ministry of Transport and Communications Programmes and Strategies 2/2007
Inclusion	Climate change and/or greenhouse gas emissions are explicitly mentioned on pages 3, 5-6, 8-9, 12, 16, 18, 20, 27-29 and 32-33 (total 44 pages).
Weighting	Climate change is mentioned as the most significant challenge of the nine identified challenges. It is already mentioned in the foreword to the strategy.
Consistency	Consistency is highlighted between transport policy aims and other policy aims such as land use planning. According to the strategy a balanced transport policy must find ways to reconcile the objectives of reducing greenhouse gas emissions, ensuring the competitiveness of the logistics sector and ease of daily travel. Coordination and consistency with land use planning, taxation and employment policies are also emphasised.
Reporting	Reporting on the achievement of objectives is not specified.
Resources	Resource use is not specified in the strategy but is shown in the operational and financial plan of MTC.

The third environmental programme of the Ministry of Transport and Communications (MTC 2005) *"Environmental Guidelines for the Transport Sector until 2010"* was adopted in 2005 (the previous programmes are from 1994 and 1999). The programme defines key environmental guidelines for all modes of transport. Although the substance of these programmes has developed, all programmes have been based on the principles of environmental management systems (ISO 14001) and annual monitoring has been emphasised. Climate policy, both mitigation and adaptation, is a central issue in the programme (Table 4.5). One of the nine aims of the programme is "Mitigation of greenhouse gases and adaptation to climate change". Climate change, however is also related to the aim "Integration of the environmental perspective into the work on traffic systems", since the sub-goals of this aim include reducing the energy demands of transport and promoting public transport and denser urban structures. In relation to transport systems the large number of different actors and the conflicts between the different goals related to the development of the traffic systems are explicitly stressed. The programme states that even though conflict resolution is a political task, it should be assisted through impact assessments and evaluations that fully incorporate environmental aspects.

Table 4.5 Climate policy integration in the environmental programme "Environmental Guidelines for the Transport Sector until 2010"

Criterion	Environmental Guidelines for the Transport Sector until 2010 – Ministry of Transport and Communications, Programmes and Strategies 4/2005
Inclusion	Climate change issues are included in detail in the environmental guidelines on pages 3, 5, 12, 16-17, 24, 28, 30-31 and 34 (total 40 pages)
Weighting	Climate change and/or greenhouse gas emissions are one of the key aims (directly aim 2 but also related to the aim "Integration of the environmental perspective into the work on traffic systems"). Climate change is mentioned as a significant global challenge in the foreword to the strategy by the Minister and the Permanent Secretary.
Consistency	Consistency is highlighted between transport policy aims and other policy aims such as land use planning. The conflicts between the different goals related to the development of the traffic systems are explicitly stressed.
Reporting	Reporting on the achievement of objectives is well specified. Indicators are defined for the specific aims and the programme will be evaluated (mid-term and ex post).
Resources	The impacts of the programme are assessed at three different resource levels: the present resources, new personnel and research resources, and added environmental investments (pp. 32-35)

In the section "Mitigation of greenhouse gases and adaptation to climate change" the goals until 2010 are stated as: *"The measures of the administrative sector of the Ministry of Transport and Communications support the development and implementation of the national as well as international climate policy. The total greenhouse gas emissions from transport will be no more than in 1990"* and *"The administrative sector is aware of the requirements of adaptation and starts their realisation"* (MTC 2005, 17). The means promoted for mitigation are related to planning and promoting public transport, promoting eco-driving, promoting eco-logistics and economic instruments, and information related to car purchasing.

The new strategies and plans issued in 2007 and 2008 are important because the 2006 environmental follow-up report of the environmental guidelines in the transport sector (MTC 2007b) stated that in 2006 the actions of the administrative sector had not supported the national climate strategy. The efficiency of the energy systems and the use of energy efficient transport modes were reported not to have increased as intended in the strategy. By contrast, traffic from passenger transport in private vehicles had increased. The actions of 2006 included various working group reports on trains and public transport, campaigns for economical driving and energy saving agreements with different transport sector groups. The working programme for the remaining period 2007-2010, however, included plans for relatively concrete measures, some of which have already been realised.

4.1.3 Vertical integration of climate policy into state transport policy instruments

Although there is much to be done to implement the new strategies in practice, some examples of vertical integration in the form of more concrete measures can be found. These relate to impact assessment guidelines, procurement guidelines, public-private and public-public agreements and taxation.

Measures already implemented include the energy efficiency agreement in the freight transport and logistics sector signed in January 2008 and the amendment of the Vehicle Tax Act and Car Tax Act to be weighted based on CO_2 emissions. In 2007, vehicle taxation was renewed to take into account the carbon dioxide emissions from vehicles. Although this measure was prepared by the Ministry of Finance, it can be viewed as a transport policy instrument. The change in taxation has already reduced the CO_2 emissions of new cars sold.

The MTC is working increasingly with the municipalities to improve the public transport system. The development programme for public transport in medium-sized urban areas was mentioned in the interviews. In addition, in August 2008, the MTC signed an agreement of intent with the cities of the Metropolitan Region regarding the transport system. It stipulated that the cities will promote the tightening of community structure around main transport routes, whereas the Government will aim to support the development of public transport. The decision made in connection with the Government Transport Policy Report to Parliament to assist the public transport investments of the Metropolitan Region further supports the cooperation. Although in the first phase the assistance is of symbolic rather than of financial importance due to the small sums involved.

Greenhouse gas emissions are one factor to be evaluated in the impact assessments of public transport (MTC 2007c). Regarding public procurement, the MTC published guidelines for taking into account energy efficiency and environmental aspects in the procurement of transportation services (freight and public transport) in 2007. Although the guidelines do not impose additional requirements on the public procurement legislation, they specify how requirements for environmental and energy

aspects can be brought to bear in transport service procurement and how these can be assessed (MTC 2007d). The impacts of these new guidelines remain to be seen.

Much of the future development depends on how the Government actually commits to climate issues and whether the strategic policy goals relating to climate change mitigation and adaptation are implemented. Challenges include, according to some of the interviewees, the established ways of doing fairly dispersed land use planning based on municipalities competing for residents as well as obtaining the financial commitment of the Government to considerably support climate-friendly developments. At present, the Government spending for road infrastructure is clearly more extensive than for public transport. In addition, despite the legislation and guidelines for strategic environmental assessments of policies and environmental impact assessments of projects, the impact assessments may not in practice be carried out to comprehensively examine long-term and indirect impacts on climate issues. Even when carried out, the role of the information provided by the impact assessments is often small in many decisions compared to the role of political values and ideology. It has been argued that environmental impact assessments are often carried out from a perspective supporting the alternative selected before-hand instead of evaluating a variety of alternatives. The transport policy report aligns many road investments whose impact assessments tend to be limited to short-term direct effects. A wider assessment could show indirect long-term impacts on increasing transport and, therefore, on greenhouse gas emissions.

4.1.4

Vertical integration of climate policy into the strategies and operation of transport sector agencies

As noted above, the transport sector includes several agencies subordinate to the MTC. In general, the Ministry has a network where the environmental experts of each agency and office meet regularly. However, this network has no significant decision-making power to advance climate policy integration. The MTC has, nevertheless, specifically promoted the consideration of climate change adaptation in its agencies. It has set up a results objective, requiring that each agency will draft a report on what climate change adaptation will necessitate from the operation of those agencies, for example, regarding the construction and maintenance of transport routes. In early 2008, the Finnish Road Administration, the Finnish Rail Administration, the Finnish Maritime Administration and the Finnish Civil Aviation Administration presented preliminary assessments of those measures that the agencies will implement to adapt to climate change. The Finnish Road Administration, which takes care of road maintenance and construction in Finland, has been one of the front runners of the MTC's administrative sector in identifying climate change challenges influencing its operations. It is used here to provide an example of vertical integration in the agencies of the transport sector. So far, no specific requirements have been made regarding climate change mitigation in the operation of the agencies despite the strategies having more extensive focus on mitigation than adaptation.

The Finnish Road Administration has drafted its own environmental programme until 2010, where climate change mitigation and adaptation were for the first time identified as the greatest challenge (Finnish Road Administration 2006, Table 4.6). Two of the three goals of the programme relate to climate change: reducing the environmental burden and consolidating the community structure. The programme identifies concrete measures to tackle the problems related to climate change. These include, for example, taking into account energy efficiency in the procurement contracts for road maintenance and adding a selection criterion that requires the contractor to have an energy saving agreement. In addition, the Road Administration aims

to plan necessary adaptation measures for the road network and assess the impacts of road surfacing, road structures and traffic arrangements on the energy efficiency of transport. The indicators, such as the greenhouse gas emissions of transport and traffic performance, through which the progress of the programme is monitored and evaluated, were agreed on as part of the programme.

Table 4.6 Climate policy integration in the environmental programme of the Finnish Road Administration

Criterion	The Environmental Programme 2010 of the Finnish Road Administration
Inclusion	Climate change is frequently mentioned on pages 2, 5, 9, 13, 21, 29-31, 33 and 37.
Weighting	Climate change mitigation and adaptation addressed as the most significant challenge. No separate projects due to lack of financing but will be acknowledged as part of other investments. The programme includes concrete measures to be carried out, showing the commitment.
Consistency	Consistency is not addressed as such, but a need for cooperation between land use and transport planning is highlighted. In addition, the programme's impacts are assessed to be indirect and greater impacts are assessed to be achieved through cooperation.
Reporting	The programme states that the progress of the programme will be monitored and operations will be developed based on evaluations. Indicators for monitoring and reporting are specified.
Resources	Resources use is not specified in the report apart from the fact that no financing is available for separate environmental projects.

In addition to the environmental programme, the Finnish Road Administration has drafted a pre-assessment regarding the climate change adaptation challenges in road administration (Saarelainen and Makkonen 2007). Based on the report, the adaptation to climate change in road management and transport includes the following: 1) the description of tasks, contents, focusing and organising in protection and rescue planning operations; 2) the adaptation of road maintenance (friction control, snow removal, protection against flooding, erosion control and so on); 3) the re-evaluation of design criteria (wind, rain, flood elevation) and the improvement of current roads to secure the level of service; 4) the improvement of the sustainability of the road structures to wind, rain and floods; and 5) the communication of warnings and other information.

The regional agencies of the Road Administration, Road Regions, have environmental managers, but the Road Administration does not have specific climate experts. Consultants are used to address climate issues in its assessments and plans. A long history of developing the environmental impact assessments and a culture where decisions are made under the pressure of multiple policy goals may aid successful climate policy integration into the Finnish Road Administration. The Road Administration also has cooperation on climate issues with other actors. On a governmental level they are in contact with the Ministry of the Environment regarding the environmental impacts of road traffic. Yet, while climate impacts are assessed as part of environmental impact assessment (EIA), they have often been carried out rather sketchily, akin to some strategic environmental assessments (SEAs) in the general policy level (see Section 3.3). The regional agencies of the Road Administration are involved in the processes of land use planning of municipalities and provinces.

4.2

Climate policy integration and coherence in the technology and innovation sector

4.2.1

Background to the technology and innovation sector in Finland

Technology and innovation policy has little direct influence on greenhouse gas emissions but indirectly its impact is significant. For example, new technologies, whose development has been partly funded by the state, can either increase or decrease the emissions when the technologies are taken into use and replace older technologies. The Intergovernmental Panel on Climate Change (IPCC 2007: 150) regards technology policy as an important protection strategy in reducing future emissions and emphasises that funding and drivers are required in all areas of the innovation systems. Moreover, climate issues are an important part of innovation and technology policy, because the potential of both public and corporate environmental policies to influence product development is dependent on complicated information transfer mechanisms, while public innovation policies can have extremely direct impacts on company projects through targeted R&D funding (Kivimaa 2008b).

The fundamental aim of a national technology policy is frequently to seek competitive advantages for the country in question, and to increase productivity growth (e.g. Lemola 2002, Russell and Williams 2002). In high-income countries, such as Finland, its focus is often on establishing capacity in producing the most recent science-based technologies and applying these innovations (Lundvall and Borrás 2005). In Finland, 'the innovation system outlook' was adopted through the establishment of the Science and Technology Policy Council in the late 1980s (Kivimaa and Mickwitz 2006).

Technology policy as a whole covers a variety of different activities, such as laws governing intellectual property rights, support for new businesses, and the funding of basic and applied research (Kivimaa 2008b). Due to research and technology based policies proving to be partly ineffective in delivering successful technological advances (e.g. Russell and Williams 2002), many countries have adopted more innovation-oriented technology policies that have paid attention to markets and commercialisation in addition to R&D support (Kivimaa 2008b). The multi-sectoral impacts of innovations have also created a need for horizontal innovation policy embedded in a wider socio-economic context (Lundvall et al. 2002, Smits and Kuhlmann 2004). At present, innovation policy is largely integrated into different sectors, including both economic and welfare objectives (Mickwitz et al. 2009b). It can nevertheless also be studied as a specific policy sector, because specific organisations work on the field of innovation policy.

The main actors in innovation policy in Finland include the cross-sectoral Science and Technology Policy Council (STPC), the Ministry of Employment and the Economy (MEE), the Finnish Funding Agency of Technology and Innovation (Tekes), the regional Employment and Economic Development Centres (T&E Centres), the Finnish Innovation Fund (Sitra) and some other funding organisations. The STPC is an advisory body chaired by the Prime Minister. It coordinates science and technology policy and issues strategic reviews every third year. The Council includes eight ministers and a wide range of representatives from universities, public organisations, companies and NGOs. Municipalities tend to have a minor role in public innovation policy, although some revival of regional innovation policies has been observed (Hjelt et al. 2008). The public actors of the Finnish innovation environment can, however, be seen to consist of a wider group of organisations (Figure 4.3) than those mentioned above.

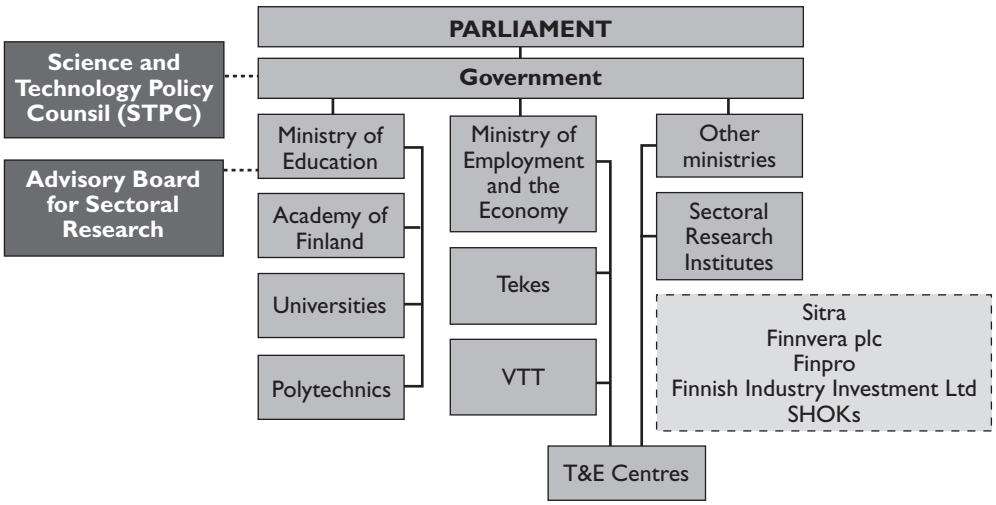


Figure 4.3 Public actors of the Finnish innovation environment

Recently perspectives in the Finnish policy have expanded from science and technology based innovation toward market, customer and demand based innovation policy. This type of innovation policy also emphasises the importance of social innovations. Recent developments in national innovation policy, such as the creation of the National Innovation Strategy, the establishment of Strategic Centres for Science, Technology and Innovation (SHOKs) and the renewal of sectoral research create potential for the better acknowledgement of societal goals in innovation and technology policy. (Mickwitz et al. 2009b) Special attention, however, needs to be paid to the integration of climate goals into innovation policy, because innovation policy has not yet truly internalised the principles of ecological sustainability (e.g. Heaton 2000, Schienstock 2005).

4.2.2

Integration of climate change issues into technology and innovation policy strategies

The strategic review of the Science and Technology Policy Council (2006) "Science, Technology, Innovation", the National Innovation Strategy (2008) and the strategic definitions of Tekes (2008) "People, Economy, Environment – Priorities for the Future" are the three key strategies in the innovation sector. The integration of climate policy into these strategies is examined below.

The 2006 review of the STPC does not mention climate change at all. Although the previous reviews of the STPC from 1990, 1993, 1996 and 2000 dealt with the need to integrate environmental issues into R&D and the importance of coordination between different ministries, the two latest reviews do not specifically address these issues (Kivimaa and Mickwitz 2006). The 2006 review merely states that, within horizontal innovation policy, innovations are created by actions taken in different policy sectors, including the environment sector (Science and Technology Policy Council 2006: 34). The review does mention, however, the establishment of the strategic centres among which energy and environment is proposed as one of five topic areas (see Section 4.2.3).

The National Innovation Strategy was released in June 2008. It was produced by the Innovation Department of the Ministry of Employment and the Economy, and its steering group consisted of three ministries (excluding the Ministry of the Environment), Tekes, five business representatives and two university representatives. In the

process, a variety of stakeholders were consulted through an Internet-based open consultation receiving some 600 opinions and through eleven thematic workshops (none on climate or sustainable development) for over 300 invited experts.

The National Innovation Strategy outlines sustainable development as one of four key drivers for change that are preconditions for a successful innovation policy. It states that the growing awareness of climate change and the threats it poses has created a pressure to transfer to ecologically sustainable production and consumption (NIS 2008: 3). However, in the contents of the strategy, climate change or innovation responding to climate change are not mentioned (Table 4.7). The report merely mentions in the explanation of its strategic aim "innovation-based development of productivity" that ideally economic growth is combined with the wellbeing of people and the environment (NIS 2008: 4). The horizontality of innovation policy is acknowledged as one of four strategic basic choices. It is stated that a holistic view is necessary, for example, for solving environmental problems, rationalizing public services and building regional innovation clusters (NIS 2008: 10).

Table 4.7 Climate policy integration in the National Innovation Strategy

Criterion	National Innovation Strategy (2008)
Inclusion	Climate change is mentioned on page 3 (total 47 pages).
Weighting	Climate change is merely noted as one of the drivers for change, but it is not addressed elsewhere in the strategy.
Consistency	Because climate change is not discussed, neither is its consistency with other aims.
Reporting	No reporting requirements are included.
Resources	Resource allocation in not specified in the strategy.

As Finland is characterized by a decentralized government structure, it has been argued that the decisions regarding the substance of research are made rather by the innovation funding agencies than the ministries themselves. Yet the funding is also allocated directly by the ministries to research projects carried out by research institutes and universities, which indicates that ministries also make some decisions on substance. Yet the National Innovation Strategy alone may be an incomplete indicator of climate policy integration in research and innovation. Therefore, it is useful to examine the strategy of the Finnish Funding Agency of Technology and Innovation (Tekes) in addition to the overarching National Innovation Strategy.

The new strategic definitions of Tekes (2008) clearly include climate change, and the challenges and the research and innovation needs it poses for different themes (Table 4.8). Four out of total eight strategic themes of Tekes clearly mention climate change, and on-going research programmes related to these are listed. Climate change is not only discussed in relation to energy but also acknowledged as an important consideration in resource management, built environment, and service business and innovation. Therefore, climate change is well integrated into Tekes's strategy, although neither consistency nor reporting on the achievement of aims is discussed.

In the Government Budget Proposal for 2009, climate change is not mentioned at all in the Section (32.20) on innovation policy. This also means that it is not mentioned in relation to the budget proposal of Tekes (32.20.06) or VTT (32.02.02). The fact that both Tekes and VTT are active in the area of climate mitigation and adaptation is, thus, not a result of specific allocations of resources for climate R&D by the Government or the Parliament in the budget. This shows the limits of result based budgeting in practice. On the other hand, it also shows that agencies may integrate climate policy aims without specific requirements to do so in national strategies, such as the innovation strategy, or in the budget.

Table 4.8 Climate policy integration in Tekes's strategic definitions

Criterion	People, Economy, Environment – Priorities for the Future (Tekes's strategic definitions, 2008)
Inclusion	Climate change is mentioned on pages 5-6, 9, 16-18, 21-23, 27, 46, 50, 56 and 58 (total 60 pages).
Weighting	Climate change, greenhouse gas emissions and clean energy are discussed extensively throughout the strategy, and recognised as drivers for change. The strategy has eight themes and climate change is mentioned in relation to four of them: clean energy, scarce resources, built environment, and service business and service innovation. Within clean energy several different types of development solutions related to consumption and energy services, communities, energy production and radical innovation are mentioned. In addition, climate change is dealt with in relation to three cooperative clusters: energy and environment, forest, and the construction and building clusters.
Consistency	Consistency with other strategic aims is not addressed.
Reporting	No reporting requirements are included.
Resources	Resource allocation is not expressed in financial terms, but on-going research funding programmes related to the themes and climate change are listed.

4.2.3

Vertical integration of climate policy into state innovation policy instruments

Innovation policy in Finland is largely implemented by Tekes, although the Academy of Finland and some ministries also fund R&D carried out in companies, universities and public research institutes. The instruments used by Tekes comprise R&D programmes, selective project funding, commercialisation of R&D, and support for the creation of new companies. The implementation is mainly in the form of R&D funding and low interest loans. The Finnish Innovation Fund (Sitra) provides also funding instruments for innovation. R&D programmes, first initiated in the early 1980s and viewed by Tekes as a proactive instrument to set priorities, are a major innovation policy instrument and a means to allocate R&D funding (Kivimaa and Mickwitz 2006). While Tekes has aimed to acknowledge climate change in its operations as an issue cutting across units and programmes, it has in practice often realised in targeted R&D programmes (Mickwitz et al. 2009b).

The first climate related research funding programme in Finland, SILMU, was set up in 1990 and it has been followed by other programmes in the late 1990s and early 2000s. During the preceding decade, between 1999 and 2008, Tekes has initiated eight climate related R&D programmes, of which two are focused solely on climate change (Table 4.9). The funding of the climate related programmes has been more significant in recent years. In 2008, Tekes had 25 on-going programmes, of which four were climate related. In the other 21 programmes, the environmental aspect was one of the objectives in two out of 21 programmes. An earlier study found that, despite the existence of environmental project funding criteria, environmental aspects are often in practice considered only in relation to operations intended to have clear positive effects on the state of the environment – no systematic assessments of the positive and negative environmental impacts of all the funded projects or programmes have been carried out (Kivimaa and Mickwitz 2006). Of the already finished 45 programmes initiated since 1999, four can be seen to be climate related. Thus, the number of climate related programmes by Tekes has increased in recent years. In addition, Sitra and the Academy of Finland are funding research programmes related to sustainable energy and production.

Table 4.9 Climate related R&D programmes initiated by Tekes during 1999-2008

Research Programme	Duration	Budget	Objectives
Sustainable Community	2007-2012	100 million €	To generate new business activities in designing, constructing and maintaining sustainable and energy efficient areas and buildings.
BioRefine	2007-2012	137 million €	To develop innovative technologies, products and services related to biomass processing; to promote second-generation production technology in biofuels for transport.
FuelCell	2007-2013	144 million €	To improve fuel cell research in Finland, create new business for Finnish companies.
ClimBus - Business Opportunities in the Mitigation of Climate Change	2004-2008	70 million €	Development of cost-effective, climate friendly technologies; ideas for future businesses; creation of networks and co-operation.
Densy – Distributed Energy Systems	2003-2007	57 million €	Strengthening the knowledge-base and business excellence of Finnish companies and research centres.
Streams - Recycling Technologies and Waste Management	2001-2004	27 million €	Focus on waste prevention, management of waste streams, waste handling technologies, processing waste into raw materials and new products, and landfill-site technologies.
Wood Energy	1999-2003	42 million €	To integrate energy production into conventional forestry and the procurement of industrial timber, etc.
Climtech – Technology and Climate Change	1999-2002	5 million €	To support the mitigation of climate change by contributing to technological choices, research, development, commercialisation and development, and the attainment of climate aims.

A recent initiative in Finnish innovation policy is the establishment of Strategic Centres for Science, Technology and Innovation (SHOKs), where companies, universities and research institutes agree on a joint research plan. The operation of the SHOKs is based on a strategic research agenda defined by the centre's owners, i.e. companies and research institutes. The research agenda will be implemented through research programmes, consortium projects and company projects. The centres develop core shared know-how, technology and service platforms and utilise shared research environments and research tools. Forest Cluster Ltd was established in 2007, while the information and communication industry cluster (TIVIT) and the metals and engineering cluster (FIMECC) were established in 2008. The energy and environment cluster CLEEN was about to be established in 2008, while there are also plans for a health and well-being cluster. (Tekes 2008b) The energy and environment SHOK, CLEEN, relates most to climate change through its topic. Its research agenda includes the following main areas: carbon neutral energy production, distributed energy systems, sustainable fuels, energy market and smart grids, efficient energy use, resource-efficient production technologies and services, recycling of materials and waste management, and the measurement, monitoring and assessment of environmental efficiency (Federation of Finnish Technology Industries 2008). The other SHOKs have the potential to integrate climate concerns into their operations and their role is essential in advancing climate beneficial innovation in other than energy sectors.

The focus group discussion held in February 2008 and gathering together actors in Finnish technology and innovation policy (see Appendix 1), viewed SHOKs as a key instrument for policy coherence and integration, although integration in practice was perceived to be challenging. The SHOKs do not automatically support climate policy integration but can influence it by setting relevant project and programme criteria. In addition, the focus group discussants jointly mentioned the utilisation of existing strategic and practical processes in mainstreaming climate issues. This means that, during different policy processes, synergies and common questions should be sought to promote the more general innovation policy as well as climate change mitigation and adaptation. (Mickwitz et al. 2009b)

Niche management has been portrayed as a way to support the emergence of radical innovations that could be needed to really mitigate climate change. Although the SHOKs bring Finnish innovation policy closer to the companies through shared ownership, it is still much more focused on large-scale actions and established sectors than on niches. The companies owning the SHOKs tend to be large and one of the aims of SHOKs is to generate large research programmes and support technology demonstration. Niche management could, however, be promoted through the customer and user oriented approach described in Tekes's new strategy.

4.3

Conclusions on sector-specific climate policy integration at the national level

Climate policy integration appears different in the two sectors examined – transport and innovation. Finnish policymaking is different in the two sectors, and the extent of policymaking on different administrative levels varies. Innovation policy consists mostly of policies and measures at the national level. By contrast, transport policy entails policymaking and policy instruments at all administrative levels, from the EU through the national to the local. This means that transport policy has more opportunities to include climate policy integration at least on some level, but the challenge to achieve overall integration is greater.

Innovation and transport policies in Finland also portray slightly different characteristics with respect to climate policy integration at strategy and instrument levels. While the top level strategies of innovation policy, such as the Science and Technology Policy Council Review and the National Innovation Strategy, acknowledge climate objectives extremely weakly, if at all, in transport policy the inclusion of and emphasis on climate objectives are extensive on the level of cross-governmental and ministerial strategies. In innovation policy, the first strategy to thoroughly discuss climate objectives is at the agency level, by Tekes. However, strategies alone are a poor indicator of climate policy integration as actions are needed to achieve real benefits. For example, even though the transport policy strategies emphasise climate change mitigation, the results objective set by the MTC for its agencies deals with only adaptation.

As noted above, in transport policy, the agencies have been required by the Ministry to take into account climate change adaptation in their operations. More internal expertise, or easily available external expertise, seems necessary to achieve climate change integration on an organisational basis. Despite the extensive consideration of climate issues in transport policy strategies and the relatively wide scope of means proposed to mitigate climate change, the financial allocation to climate issues in the transport sector has been rather meagre. This, however, is contingent upon the Government's budget proposal, for the preparation of which the Ministry of Finance is more central than the Ministry of Transport and Communications. In innovation

policy, more funding has been allocated to climate related measures, mostly through R&D funding. Regardless of a long history of funding climate related R&D, e.g. bioenergy, CO_2 emissions and energy use in Finland have increased. This indicates the importance of also financing other climate policy measures than merely R&D. In addition, increasing climate-related economic instruments is important in the transport sector.

Some commonalities between climate policy integration and coherence in the two sectors can also be found. The inclusion of climate objectives is good overall but consistency with other administrative sectors is not thoroughly acted upon – even if this is acknowledged in the strategies. Increasing resources are needed in both sectors to support climate policy integration, which is largely dependent on the state budget. Climate in the budget is an important issue, because it largely determines the actual implementation of planned policy measures. Specific expertise on climate issues is often external to organisations, especially in the ministries. This highlights the importance of sectoral research and the availability of good consultancies to carry out more detailed evaluations of the policy measures needed to promote climate policy integration in different sectors and to improve coherence between the sectors. In addition, inter-ministerial cooperation is crucial due to complicated and cross-sectoral cause-effect chains related to climate impacts. Thorough ex-ante and ex-post evaluations are needed to highlight the potential impact chains and what means can best mitigate climate change. Yet so far, impact assessments in the sectoral policies have not been comprehensive enough. Their have either had too narrow a perspective or have not covered all policy instruments.

5 Horizontal climate policy integration and coherence at the regional and local level – The Regions of Kymenlaakso and Helsinki Metropolitan Area

5.1

Introduction

Regional Councils, representing municipalities in a particular province, have two legally based tasks: 1) regional development based on the Regional Development Act (2002/602) resulting in a Regional Strategy and 2) the drafting of the Regional Land Use Plan based on the Land Use and Building Act (1999/132) and the National Land Use Guidelines. The Regional Strategy and the Regional Programme based on the Strategy collect and synthesize the interests of various actors. They need to be approved by all municipal councils in the region. In addition the Regional Councils represent the municipalities in their regions in various national issues. The Regional Councils are funded by the municipalities and, since 1995, the EU structural funds.

The Regional Council of Kymenlaakso acts as a link between the region's municipalities and the Government and looks at issues from the regional perspective. Often the municipalities have a perspective limited by their borders, thus, gaining a wider view of the region is important. The Region of Kymenlaakso (or the Province of Kymenlaakso) is characterised by busy through-traffic from its harbours and from elsewhere in Finland to Russia. It is a so-called "logistics region", which is why development and plans on regional level are of great importance. In addition, smaller municipalities do not have the resources to gather information on environmental issues. Therefore the Regional Council has carried out assessments on issues such as wind power.

In the Metropolitan Region, the role of the Regional Council (representing the Province of Uusimaa) is of lesser importance than in Kymenlaakso.[1] The Regional Council of Uusimaa does indeed take care of regional land use planning, but many activities are carried out by the Helsinki Metropolitan Area Council YTV that was set up by the capital of Finland Helsinki, and three other towns (Espoo, Vantaa and Kauniainen) in the vicinity of Helsinki. YTV's board is composed of the cities' elected representatives. Its tasks include planning and developing the Metropolitan Region transport system, waste management, air quality monitoring and the gathering of information. In addition, the YTV is active in climate issues. The YTV was one of the first local level actors to participated in an international climate project in Finland (Huutoniemi et al. 2006: 191) and, in 2003, the mayors of the metropolitan region delegated the YTV to develop a climate strategy for the Metropolitan Region. The strategy was published in 2007. The YTV also monitors the progress of the climate strategy and has started working on an adaptation strategy.

[1] The term 'region' has two meanings in this study. In the case of Kymenlaakso and Uusimaa, it refers to provinces based on joint municipal decision making (Act on Provincial Division 11.12.1997/159). In connection with the Metropolitan Region, it refers to a slightly narrower cooperative area between the cities of the Metropolitan Region. The Metropolitan Region belongs to the Province of Uusimaa comprising 24 municipalities.

5.2

Regional and municipal programmes and strategies

5.2.1

The Region of Kymenlaakso and the Town of Kotka

The ***Region of Kymenlaakso*** issued its latest regional strategy in 2005 (Kymenlaakson maakuntasuunnitelma 2005-2015) and a regional programme in 2006 (Kymenlaakson maakuntaohjelma 2007-2010). The regional programme also included a separate environmental declaration. It must be noted that the regional documents of Kymenlaakso (Table 5.1) precede the latest Government programme and its initiatives for climate change. However, the current regional programme is being revised to include climate change issues in greater detail.

The Regional Strategy of Kymenlaakso 2005-2015 (Regional Council of Kymenlaakso 2006a) does not explicitly mention climate change or greenhouse gas emissions. However, its vision is for Kymenlaakso to be "a welcoming and eco-efficient international interactive district". The strategy includes some remarks related to mitigating climate change. For example, in relation to transport, the aim is to implement ecologically sustainable solutions. These include the development and efficient use of existing infrastructure, aiming to minimise transport needs in land use planning, and favouring light traffic and public transport as modes of transport.

The Regional Programme of Kymenlaakso 2007-2010 (Regional Council of Kymenlaakso 2006b) mentions climate change more explicitly than the strategy, although climate change has not been granted any elevated status in the programme. It is mainly mentioned as a part of improving environmental knowledge and as a consideration in the development of regional structure. However, the regional programme includes a supplement that acts as its environmental account listing the programme's major environmental impacts after a process involving stakeholder consultations. The Regional Development Review (Regional Council of Kymenlaakso 2007) acts as a kind of reporting instrument on past strategies and programmes (see Table 5.1).

The environmental account (Regional Council of Kymenlaakso 2006c) mentions climate change more frequently and in more detail than the programme itself. It includes a specific section "Impacts on energy consumption, emissions, air quality and climate". This section discusses, for example, the reduction of CO_2 emissions from industry through improved eco-efficiency and increased use of bioenergy. It also mentions conflicts between the positive and negative effects of bioenergy. Eco-efficiency is stated as a theme integrated into the whole Regional Programme and a means to mitigate climate change. In addition, some indirect effects of the programme's actions on climate change are mentioned. The follow-up and reporting of impacts on climate are to be carried out through eco-efficiency indicators (ECOREG indicator Y1: CO_2 emissions from industry, energy production and transport).[2] The same indicator is also mentioned in relation to assessing the impacts on transport and the impacts on nature conditions and resources. In addition, climate change is mentioned in connection to impacts on consumption and production and international cooperation.

[2] In 2002-2004, the Finnish Environment Institute and the Regional Council of Kymenlaakso together with other partners carried out a Life-Environment Project, ECOREG (The Eco-efficiency of Regions – Case Kymenlaakso). The ECOREG Project demonstrated the applicability of the concept of eco-efficiency on a regional scale and produced: 1) a set of indicators for measuring conditions of regional eco-efficiency; 2) concepts, approaches, working processes and methods for constructing these indicators; and 3) a mechanism for applying the indicators in monitoring changes in regional eco-efficiency and in social development. (Melanen et al. 2004; for applications see Toikka 2005.)

Table 5.1 Climate policy integration in the regional documents of Kymenlaakso

Criterion	**Regional Strategy of Kymenlaakso 2005-2015** (Regional Council of Kymenlaakso 2006a)	**Regional Programme of Kymenlaakso 2007-2010** (Regional Council of Kymenlaakso 2006b)	**Environmental Account of the Regional Programme of Kymenlaakso 2007-2010** (Regional Council of Kymenlaakso 2006c)	**Regional Development Review of Kymenlaakso Province 2006 (published in 2007)** (Regional Council of Kymenlaakso 2007)
Inclusion	Climate change or greenhouse gas emissions are not explicitly mentioned. The vision of Kymenlaakso includes improving its eco-efficiency.	Climate change is mentioned on pages 22, 32 and 43-44 (total 44 pages). In addition CO_2 emissions are mentioned on pages 10 and 34.	Climate change is mentioned on pages 6, 8, 12-14, 17, 22-23 and 27 (total 29 pages). In addition, CO_2 emissions are mentioned on pages 18, 21 and 26.	Climate change as such has not been mentioned, but CO_2 emissions have been mentioned to have reduced in energy production (p. 22) and industry (p. 23) and increased in transport (p. 22).
Weighting	n/a	Climate change is not mentioned in any chapter headlines or as specific lines of action. It is mentioned as a part of action "Knowledgeable Kymenlaakso" in connection to improving environmental knowledge. It is also mentioned in relation to action "regional structure" that actions are supported to mitigate and adapt to climate change.	Climate change is explicitly mentioned in connection with many identified impact areas but not all. Impacts on climate change are one of seven impact categories under the heading "ecological impacts" and one of a total 28 of impact categories under social, ecological, cultural and economic impacts.	The review is an assessment of the current state, so different policy goals are not emphasised.
Consistency	n/a	Consistency is not addressed in the programme.	The overall impacts and the conflicts and consistency between four different lines of action are addressed in the report. The report states that if all lines of action are equally fulfilled, the negative impacts of a particular line of action can be mitigated.	Consistency is not addressed.
Reporting	The strategy states that the impact assessment is mainly carried out through the regional programme. Eco-efficiency is monitored through an indicator based system.	The impact assessment part acknowledges that the increase described in transport may negatively influence the climate. However, the programme aims to improve knowledge and innovation as well as eco-efficiency which may lead to positive climate effects. Reporting is also carried out through annual regional development reviews.	An indicator for CO_2 emissions from industry, energy production and transport is used among the indicators to monitor the impacts of the Regional Programme.	The review acts as a report of past developments and the present state. Examples from the follow-up report of eco-efficiency indicators are provided in the report (developments in CO_2 emissions).
Resources	Resource use is not specified in the report.	Resource use is specified in the regional plan and the implementation plan of the regional programme (Chapter 7).	Resource use is not specified in the report.	Resource use is only mentioned in terms of projects carried out. In 2006, there were 39 projects related to state of the environment and 19 projects related to actors in cultural and environmental fields. State and municipality funding for the different project groups is listed in the review.

In April 2008 the ***Town of Kotka*** issued its latest strategy (Kotka 2008a) for the years 2008-2016 (Table 5.2). The strategy has five strategic goals, one of which is a "clean and safe living environment". Under this goal climate change mitigation is identified as one of three critical success factors. In total the strategy includes 15 critical success factors. The measures of success in mitigating climate change include promoting energy saving measures, use of renewable energy sources, reducing the amounts of waste, increasing the use of public transport and favouring durable and environmentally friendly procurement. The strategy is short (8 pages) and does not, therefore, address the goals in greater detail.

The 129-page budget plan of Kotka addresses climate change very briefly (Kotka 2008b). However, many interviewees argued that what is more important than the budget is to integrate the consideration of climate issues in the everyday work of the civil servants. In the budget, climate change is only mentioned briefly in the focus areas of the Environment Centre and the Rescue Services. Climate issues are not apparent, for example, in the focal areas or evaluation criteria of the town government, the procurement centre, the town planning centre or the technical board. The budget includes separate sections for traffic lanes but none for public transport. The need for coherence is addressed by the Environment Centre, which aims to develop cooperation projects with town planning and building supervision.

Table 5.2 Climate policy integration in Kotka's town strategy

Criterion	The town strategy of Kotka
Inclusion	Climate change is mentioned on pages 4, 7 and 8 (total 8 pages).
Weighting	Climate change mitigation is one of 15 critical success factors in the strategy. It is one of three success factors under the strategic goal "clean and safe living environment". Emphases between the success factors are not stated.
Consistency	Consistency of the different goals or success factors is not discussed.
Reporting	Reporting requirements are not stated.
Resources	Resource allocation and use is not specified.

5.2.2

The Metropolitan Region and the City of Helsinki

The latest operational and financial plan of the ***Helsinki Metropolitan Area Council YTV*** (YTV 2008b) deals with the next four years 2008 - 2010. Although climate change is not specifically mentioned frequently, the operations outlined – public transport planning, waste management and information gathering – relate strongly to climate change mitigation (Table 5.3). The rationale provided for the aims of the report emphasises the importance of mitigating climate change and achieving coordination between transport-related activities, such as living and land use planning. The YTV, however, has limited capability to influence land use planning, which is outside its operational remits and belongs directly to the municipalities in its region. The plan outlines the need for concrete measures, including a planned agreement of intent aiming to reduce greenhouse gas emissions in the Metropolitan Area by one third by 2030.

The Internet pages of the City of Helsinki state that the budget report also includes Helsinki's strategic definition of policy. Climate change mitigation or adaptation are not explicitly a part of the objectives of the city according to the budget report (Helsinki City Council 2007; Table 5.4), and climate issues are mentioned only once in a while in connection with different functions of the city. In connection with public utilities, climate issues are a part of the operational goals of Helsinki Energy's environmental strategy (p. 95) while Helsinki Water focuses on the adaptation challenges (p. 99). In other city operations, the strengthening of environmental competence in

the procurement centre (p. 121), climate related impact assessment (p. 139) and eco-support personnel training are mentioned. Integration is not realised to the extent that the importance, consistency, reporting or resources of climate change mitigation or adaptation would be discussed.

Table 5.3 Climate policy integration in the operation and financial plan of YTV

Criterion	Operational and Financial Plan of the Helsinki Metropolitan Area Council YTV 2008-2010
Inclusion	Climate change is only mentioned on pages 5, 17, and 32-33 (total 45 pages) but it is clearly discussed and also implicitly available through YTV's operations relating to public transport and waste management.
Weighting	One of the aims of the plan is to provide a functional, uniform and efficient public transport system, which has positive implications for climate change mitigation. In addition one of the key areas in information provision by YTV is the mitigation of climate change and the development of cooperation between transport, living and land use.
Consistency	The need for consistency between transport, living and land use is highlighted. Extending the transport system planning to 14 municipalities will enable more consistent transport decisions.
Reporting	The plan states that emissions impact assessment and monitoring will be developed for the evaluation of different measures. Progress in greenhouse gas emissions will be reported.
Resources	Resource use relating to climate change issues is not specified. The plan, however, includes spending on public transport and waste management.

Table 5.4 Climate policy integration into Helsinki's budget

Criterion	Budget of City of Helsinki for 2008-2010
Inclusion	Climate change is mentioned sporadically on pages 95, 96, 99, 121, 139 and 325 (total 377 pages). Greenhouse gas emissions are not mentioned, but energy saving is mentioned on pages 38, 129, 150 and 181.
Weighting	Climate change does not appear in the main strategic goals but is mentioned in connection with some city functions, such as energy production and the construction and environmental unit. In addition the actions of the city transport services mention energy saving, increasing public transport and biofuel testing in the bus fleet.
Consistency	Consistency of climate and other objectives is not discussed.
Reporting	n/a
Resources	Climate issues do not appear as separate sub-items of the budget.

5.3

Regional and municipal climate change strategies

Neither Kymenlaakso nor the town of Kotka had a climate strategy in autumn 2008. The climate strategy of the Metropolitan Region was published at the end of 2007 (YTV 2007). It was started by a decision of mayors to carry this out jointly for the four metropolitan cities, and different stakeholders have been invited to its working seminars. The Metropolitan Region Climate Strategy is a very comprehensive document covering a range of areas, where cities can take action to reduce greenhouse gas emissions, including transport, land use, electricity consumption, space heating, procurement, consumption and waste, and energy production. The intention is that this strategy will be directly implemented in the cities, without there being additional climate strategies on a municipal level.

On an overall level the strategy emphasises the importance of climate action and its integration into management procedures:

"Reducing greenhouse gas emissions will be raised to one of the most important factors influencing decision-making." (YTV 2007: 50)

"The existing management systems and energy saving agreements will be utilised to integrate the strategy into the processes of the city on all levels." (YTV 2007: 50)

In addition to drawing strategic lines, the strategy includes an extensive list of concrete measures (9 pages) that can be taken up to reduce emissions in practice (Table 5.5). Prior to the strategy, some measures reducing greenhouse gas emission have already been carried out. These include energy saving agreements between the (former) Ministry of Trade and Industry and Helsinki (1993), Espoo (1999) and Vantaa (2000) and an international project on the development of an efficient research, information exchange and planning system for mitigating climate change.

The YTV will publish a follow-up review on the Metropolitan Region Climate Strategy every six months. The review will outline examples of how the climate work is progressing in the cities. The first review shows that all the cities have started action based on the strategy (YTV 2008). For example, in Espoo, a letter from the mayor was sent to administrative areas listing concrete measures to be implemented speedily: e.g. construction of new buildings using low-energy solutions, switching to energy-saving light bulbs and taking into account energy efficiency in the procurement of appliances. Vantaa has set up a management group to guide climate work. Helsinki is actively involved in developing new energy technology among other things. The concrete Metropolitan Region Climate Strategy and the commitment of the cities have a great potential to improve vertical climate policy integration at the regional and local levels.

Table 5.5 Examples of measures suggested in the Metropolitan Region Climate Strategy supporting climate policy integration and coherence of policies

Measures promoting integration	Measures promoting coherence
• Integration of climate strategy into the strategies, programmes and management systems of the cities • Assessment of greenhouse gas emissions as part of project planning and follow-up • Including climate change and its mitigation in teaching on all educational levels and in personnel training • Defining low-emission level and setting low emissions as public procurement criteria • Calculation of greenhouse gas emissions as part of impact assessment and selection of alternatives in master plans, town plans and construction projects • Training and support for real estate management	• Creating a common will among different administrative sectors to reduce greenhouse gas emissions and developing cooperation between the cities • Pricing, infrastructure and service level of transport to favour public transport, cycling and walking • An agreement of intent between land use and transport planning

5.4

Other key means

5.4.1

The Region of Kymenlaakso and the Town of Kotka

Climate change became one of the top priorities in Kotka in spring 2008, when the mayor initiated a process to take it better into account. That spring an interactive seminar with stakeholders was organised and in that context an informal "brainstorming group" was selected to prepare Kotka's climate change issues further. This group includes active citizens in addition to town representatives. Within the town administration, the idea is to encourage different departments to participate in the process, including town planning and social and health care.

Related to this process, Kotka has sought funding for a project that would develop the integration of eco-support personnel into different parts of the town administration. The project is joint between the City of Helsinki, which has already initiated eco-support personnel activities and with two Estonian cities, Tallinn and Tarto.

The key means related to transport are discussed in Chapter 6.

5.4.2

The Metropolitan Region and the City of Helsinki

In the Metropolitan Region Climate issues were first taken into account by the organisation of the YTV. They have adopted the Green Office principles, which guide energy saving in the use of office equipment and the transport means of the staff. Green Office is also applied in the offices of the City of Helsinki. The YTV appointed a climate expert in 2003 and, in addition, a part of the working hours of other personnel is devoted to climate change issues.

The YTV's key means to mitigate climate change relate largely to transport, and are discussed in Chapter 6. The YTV works a lot jointly with the municipalities and ministries, for example, in the steering group of the Metropolitan Climate Strategy. In different working groups, the YTV explicitly brings forward and discusses consistency and conflict between climate policy aims and other policy goals. The towns of the Metropolitan Region are preparing an agreement of intent with the Government that would list the means through which climate change mitigation can best be advanced in cooperation with the cities. For example, common climate related criteria for public procurement would guarantee more interest from the suppliers to develop their services and products further.

Helsinki has taken up eco-support action, the intention being to integrate environmental issues into all the city's activities. An eco-support person is appointed for each operating unit. At the beginning of 2008, the city departments had appointed over 350 eco-support people, of whom 105 worked in health centres (Mickwitz et al. 2009b). The aim was to have the eco-support training completed by the end of 2008 (Helsinki City Council 2007). The trained eco-support people can influence climate change by motivating and advising other personnel to minimise waste, save energy and use transport modes that reduce CO_2 emissions. They can also participate in the discussions about location and procurement and provide first hand information in relation to the practice of producing specific public services.

Construction is another area where Helsinki has taken action. For example, precautions have been taken regarding the possible rise in the sea level and the minimum distance from the sea level for construction has been increased. In addition, in May 2008 the Public Works Department had prepared a proposal for the ecologically sus-

tainable construction programme 2008 - 2012. Action on the programme would be taken jointly by different departments, including, among others, the city planning department, the building regulation department, the public works department, the economic and planning centre, the education department and the environment centre (Helsinki Technical Board 2008).

Helsinki Energy, the energy company owned by the city, has a low share of renewable energy in its production. This is alleviated by the fact that the Metropolitan Region has an extensive and efficient district heating system, and many households use district heating to heat their homes. The city has also made an energy policy definition whereby the share of renewable energy in Helsinki Energy's production should be increased to 20 % by 2020 (Helsinki City Council 2008). This decision was preceded by an unusual debate in Finland. Prime Minister Matti Vanhanen wrote a letter to the editor of the largest Finnish newspaper *Helsingin Sanomat*, published on January 9th 2008, in which he argued that Helsinki and Helsinki Energy should rely less on fossil fuels and invest more in renewable energy than currently envisaged, according to a newspaper article published the day before.

5.5

Conclusions on horizontal climate policy integration at the regional and local levels

The analysis of climate policy integration and coherence at the regional and local levels reveals that the emphasis on climate change in general strategies is rather weak. However, the regions studied have either strong climate-specific (Metropolitan Region) or environment-specific (Kymenlaakso) strategies or programmes for which exceptionally specific monitoring schemes have been designed. In both cases, integration of climate issues into management and operational processes in different parts of the regional and municipal administration is favoured over detailed climate-specific allocations in the budgets. The municipalities studied have incorporated a human resources angle into the promotion of climate policy integration and policy coherence. The financial resources of the regional level actors to act on climate issues are limited and heavily dependent on the input from the municipalities to the regional organisations. Assessments are needed on how the organisational approach to climate policy integration has worked and whether financial inputs have been sufficient to implement climate policy integration in the regions and municipalities studied.

The Metropolitan Region has taken an active role in promoting climate issues – at least on the strategy level. The Region's climate strategy is ahead of Government climate strategies in many ways. The Metropolitan Region Climate Strategy has, for example, a strong emphasis on integrating climate objectives into management procedures. In addition, it includes a wide variety of concrete measures, several if not all sectors are taken into account in the strategy, and a six-monthly follow-up of the strategy has been planned and is already on-going. Thus, at least in some ways, climate policy integration in the regional and local levels may exceed that in the national level.

Regions and municipalities should enhance climate policy integration into their general strategies and programmes. The success of the planned and ongoing activities to integrate climate issues into management and operational processes, e.g. through eco-support personnel in Helsinki, should be evaluated. Government support may be needed to implement the successful integration processes in other regions and municipalities.

6 Vertical policy integration and coherence at the regional and local levels in the transport sector

6.1

The Region of Kymenlaakso and the Town of Kotka

At the level of policy instruments climate issues appear better acknowledged than in the strategies and programmes of ***Kymenlaakso***. The regional land use plan is the main measure to implement regional strategies and programmes. However, it is still a very general level plan that needs to be implemented through master and town plans at the municipal level. The implementation is aided by the fact that municipalities can express their views during the development process of the regional land use plan. Moreover, there are regular contacts between the Regional Council of Kymenlaakso and the Town of Kotka in land use planning and transport issues. Impact assessments of land use plans are carried out according to the legal requirements.

Although the recent regional plan for Kymenlaakso (Regional Council of Kymenlaakso 2006d) explicitly mentions climate change only on four pages of its description section, issues related to climate change occur throughout (Table 6.1). Adaptation to climate change is listed as one of the objectives in the section on the state of the environment. Impacts on climate change are in turn discussed in the section on impact assessment.

Table 6.1 Climate policy integration in the regional land use plan for Kymenlaakso

Criterion	Regional Plan of Kymenlaakso 2006-2030 – population centres and their surroundings
Inclusion	Climate change is mentioned on pages 27, 82 and 94-95. In addition planning issues favouring climate change mitigation or adaptation are mentioned on pages 19, 21-22, 31, 34, 52-53 and 55.
Weighting	Climate change is not mentioned as a specific heading, but it is mentioned in the objectives section under the state of the environment. In addition, climate change impacts are mentioned in the impact assessment section in general and as part of impacts on water resources and impacts on community and energy economy. Several parts of the plan highlight measures that promote climate change mitigation.
Consistency	Coordination between land use and transport planning is highlighted. In addition measures that aid both national climate and energy strategy and national objectives for land use are listed. Centralisation of community structure is deemed to benefit both the viability of town centres and the environmental impacts of transport.
Reporting	The Regional Council of Kymenlaakso is claimed to follow up the realisation and impacts of the regional plan.
Resources	The plan does not discuss financial resource allocation.

The descriptive part of the regional plan lists several objectives or actions that are favourable to mitigating climate change. These relate to transport, energy production, waste management, construction and community structure. As a downside of the plan, climate impacts are not discussed in connection with the use of forest resources. Regarding peat, the document only acknowledges the impacts of emissions trading on the competitiveness of peat as a fuel.

Regarding transport, the land use plan aims to reduce traffic by favouring light traffic and public transport as well as coordinating land use and transport planning. For example, reservations for railways are made in the regional land use plan. According to the plan, the accessibility of town centres by public transport should be improved to aid equal access to services and reduce passenger traffic in the centres. In addition, the plan aims to renew the stock of housing in connection to population centres and existing infrastructure. Although consolidating the community structure is not one of the four key focal points, the document states that the plan must safeguard a sound municipal structure even when population development is negative. This also means that new services should be located to support the existing service structure within population centres.

The Regional Council of Kymenlaakso has limited influence on transport related issues in the municipalities. A problem for many smaller municipalities is their falling number of inhabitants. They thus try to increase their population by offering attractive sites for the construction of new houses in natural surroundings. This is often contrary to the climate change mitigation aim of making spatial structure more compact. The Regional Council may try to influence this development through the Regional Land Use Plan, for example, by limiting the spread of population centres by reserving recreational areas around them. In addition to land use planning, the Regional Council of Kymenlaakso aims to develop an overall logistics system for Kymenlaakso and carry out projects related to transport near harbours.

In Kotka, the main actor in transport and town planning is the town planning department. It has many connections to other departments. In addition, a town plan group consisting of a variety of stakeholders meets once a month. The group has a good working culture due to a long history, and its importance has recently increased as it now reports directly to the mayor of Kotka.

In Kotka, land use planning aims to support ecological sustainability, for example, by reducing daily transport needs by mixed areas of housing, jobs and services. Light traffic routes are emphasised in master planning. However, climate change is not systematically considered in every town plan. Kotka is currently looking into the possibility of adopting new town plan requirements, such as mandatory connections to district heating in areas where this is possible and tighter energy efficiency requirements. These have now been applied to a new larger residential area.

Table 6.2 shows the strategies and instruments of Kymenlaakso and Kotka that influence the transport sector and that promote climate policy integration and its implementation. In the absence of a climate strategy, at the strategy level, the land use plans are the strategies to promote the implementation of climate issues. The instruments include conditions and limitations in land use plans, R&D projects, financing and cooperation between land use and transport planning.

Table 6.2 Transport related strategies and instruments influencing the Kymenlaakso region and the town of Kotka

Regional Council of Kymenlaakso		City of Kotka	
Strategies & plans	**Instruments**	**Strategies & plans**	**Instruments**
Regional plan	Conditions and limitations for residential and business areas in the regional plan Projects related to transport near harbours Participation in town and transport planning meetings of Kotka	Master plan Town plan	Condensing community structure and reducing transport needs, e.g. mixing housing, jobs and services in town planning and allocating routes for light traffic Researching new town plan requirements related to energy use Financing of public transport

6.2

The Metropolitan Region and the City of Helsinki

The process for developing the Regional Plan of Uusimaa[3] began in 1999 and was completed in 2004. It is a comprehensive document covering the 24 municipalities in the region, including the Metropolitan Region. One fourth of the Finnish population lives in this area, and the plan takes into account the marked projected population growth. The Regional Plan acknowledges that the community structure of the region is disperse and inefficient from an international perspective. (Regional Council of Uusimaa 2007)

Although the Regional Plan was developed before the recent national emphasis on climate change, it includes explicit references to climate change and many of the planning recommendations include climate change considerations implicitly (Table 6.3). The measures supporting climate change mitigation include among others the promotion of public transport, the locating of projected population increase and jobs and the large-scale units for retail trade near densely populated areas, and energy saving land use solutions. To supplement the goal of making the spatial structure more compact, the Regional Plan aims to retain unbuilt areas as uniform as possible. The orders of the Regional Plan include stipulations supporting climate change mitigation. For example, in relation to densely populated areas, the Regional Plan orders that:

> *"In the more detailed planning of the area, special attention needs to be paid to making the spatial structure more compact by locating the focus of housing production and other activities in relation to existing community structure, railway network and main transport routes… In the more detailed planning of the area, the development conditions for public transport need to be ensured and community structure supporting light traffic and public transport needs to be promoted by the location of activities and sufficient efficiency of land use… In the more detailed planning, the operational conditions of local centres need to be ensured and attention needs to be paid to the possibilities of having food shops close at hand." (Regional Council of Uusimaa 2007: 81)*

[3] Uusimaa is the province that Helsinki and the Metropolitan area are part of.

Table 6.3 Climate policy integration in the regional land use plan of Uusimaa

Criterion	Regional Plan of Uusimaa 2005-2030
Inclusion	Climate change is mentioned on pages 14, 18-19, 52, 63, 123 and 215. 27, 82 and 94-95 (total 220 pages). In addition planning issues favouring climate change mitigation occur throughout the descriptive part of the regional plan, e.g. in relation to transport arrangements, community structure and energy production.
Weighting	Climate change is not mentioned as a specific heading, but it is related to the objectives of the plan and is mentioned in reference to international agreements. It is acknowledged that transport policy is a challenge to keeping international climate agreements. The first objective of the plan is to achieve a compact regional structure and easily accessible services. In addition, climate change impacts are mentioned in the impact assessment section. Several parts of the plan highlight measures that promote climate change mitigation.
Consistency	Coordination between land use and transport planning is highlighted. In addition measures that aid both national climate and energy strategy and national objectives for land use are listed. Centralisation of community structure is deemed crucial.
Reporting	The ex-ante assessment of the Regional Plan was first made internally in the drafting phase and later externally in the proposal phase. Descriptions of the impacts are included in relation to each area of the plan.
Resources	The plan does not discuss financial resource allocation.

As noted above, the Regional Plan has a limited influence on the municipalities. However, for example, both Helsinki and Espoo are working on increasing public transport by rail. Yet the impacts of land use planning appear slow. According to the interviews, the aims of making spatial structure more compact and railway reservations in land use plans have existed for some time, but their implementation has been slow. More concrete plans need to be made to realise the aims of the land use plans.

For the Metropolitan Region, the YTV is the actor which plans and realises public transport in the Metropolitan Region more concretely. The Metropolitan Region Climate Strategy (Section 5.2) lists several concrete measures that the towns can undertake to mitigate climate change. In addition, the YTV plans and organises the region's public transport system and carries out pilot projects for testing biofuels in bus fleets. In the metropolitan region transport system plan climate issues have been taken into account, for example, in the pre-assessment questions on how to reduce greenhouse gases were included. The YTV is also undertaking studies examining the possibilities to improve parking for light traffic and feeder parking for those arriving in central locations by car from the more remote areas. Yet the pricing level of public transport has been criticised. While the YTV can take concrete measures regarding public transport, the conditions and needs for transport are created in its member towns through land use planning and housing development.

The City of Helsinki is carrying out many concrete projects that improve the mitigation of climate change. Previously industrial areas in the centre of the city are being converted for residential use and new public transport connections are being improved by extending the tram network. These measures aim to make the urban form more compact. Yet high apartment prices in the city centres may hinder this development. The organisation of public transport in these new residential areas is carried out in cooperation with town planning and the city transport services. Energy efficiency is addressed by aiming to build new homes in areas of the existing district heating network. In addition, new investments have been made to increase rail traffic, such as tram lines in the city centre. Other means include a negotiated agreement between the City of Helsinki and the joint car service City Car Club, whereby the holders of direct debit seasonal tickets on public transport receive discounts when joining the car rental service. The purpose of this is to reduce the need to own a private vehicle.

Table 6.4 Transport related strategies and instruments influencing the Metropolitan Region and the city of Helsinki

Regional Council of Uusimaa		Helsinki Metropolitan Area Council YTV		City of Helsinki	
Strategies & plans	**Instruments**	**Strategies & plans**	**Instruments**	**Strategies & plans**	**Instruments**
Regional plan	Conditions and limitations for residential and business areas in the regional plan	Metropolitan region climate strategy Transport strategy Metropolitan region transport system plan	Climate expert in YTV Studies on parking for light traffic, feeder parking etc. Organisation of the metropolitan region public transport system Pilot projects for testing biodiesel in the bus fleet	Master plan Town plan	Condensing community structure, e.g. new residential areas with good public transport in city centre New investments in increasing rail traffic Financing of public transport Discount from the joint car service City Car Club to holders of direct debit seasonal tickets on public transport

Table 6.4 shows that the Metropolitan Region has an additional level of strategies and instruments compared to the Kymenlaakso Region (Table 6.2). While the role of the Regional Council is small in transport related issues, concrete measures for mitigating climate change are taken at both the level of the Metropolitan Region and the City of Helsinki.

In the election campaign for the municipal elections of October 26th 2008 climate change was an important issue. One of the most debated issues was the kind of community structure that would be desirable in the future, and one of the most discussed aspects was its link to climate change. In addition, other climate issues were discussed in relation to transport, especially public transport and road tolls. It was interesting to note that the two largest parties gaining votes in Helsinki had very different views on road tolls. Based on an internet questionnaire preceding the election, all 21 representatives elected from the Green League were in favour of road tolls, while only four representatives of the National Coalition Party were in favour and 22 against (Figure 6.2).

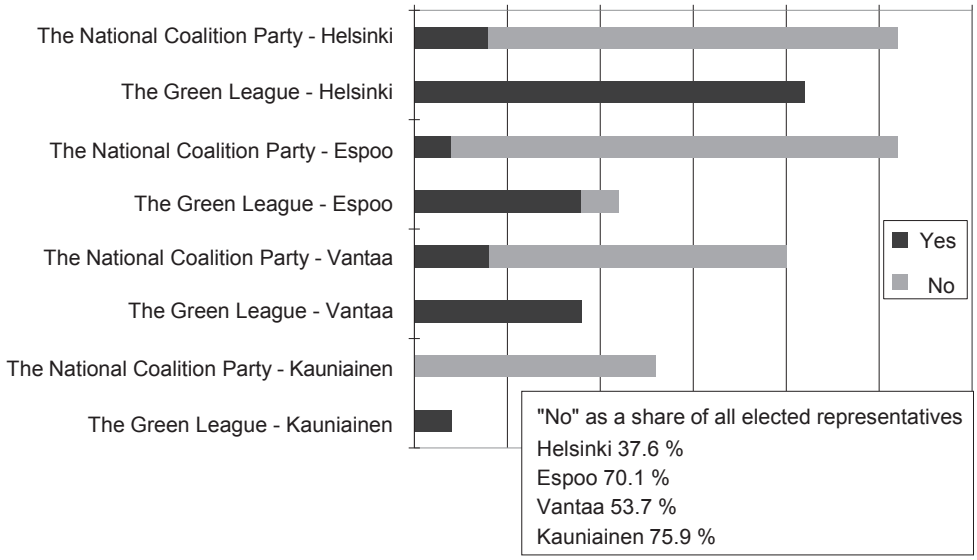


Figure 6.2 Opinions on road tolls (Yes = in favour, No = against) of the municipal council representatives elected on October 26th, 2008, based on their pre-election responses to a questionnaire by the largest Finnish newspaper Helsingin Sanomat. (Source: Helsinki, Espoo and Vantaa Helsingin Sanomat 28.10.2008, Kauniainen own calculations based on data from www.vaalikone.fi/kunta2008)

6.3

Conclusions on vertical climate policy integration at the regional and local levels in the transport sector

At the level of specific policy instruments signs of vertical climate policy integration in the transport sector can be observed mainly in relation to land use planning in the studied regions. Yet more could be done. The regional land use plans, updated half a decade ago and valid until 2030, include conditions conducive to climate change mitigation. Improved coordination between land use planning and transport planning as well as making spatial structure more compact are mentioned in the regional land use plans of the two regions studied. In addition, the land use plans include reservations for public transport and light traffic routes. Unfortunately the regional land use plans have a limited influence on the municipalities, which actually make the more detailed master and town plans and provide funding for constructing and running public transport infrastructure. It appears that full coordination between land use planning and transport planning is yet to be achieved although the need for this has been emphasised for over a decade. One factor hindering this is the municipalities' competition for residents and companies and, therefore, their willingness to allow exemptions from climate beneficial land use planning objectives.

Smaller municipalities, especially those with large geographical areas, have fewer resources to advance climate-friendly transport. However, the cities in the Metropolitan Region have introduced many instruments for improving the public transport system climate-wise. Helsinki and Espoo are making significant new investments in rail transport. In addition, the Metropolitan Region has a common transport system plan and the YTV carries out projects, for example, testing biofuels on bus fleets. Overall, the greatest problems for vertical policy integration in the transport sector are caused by several competing interests in land use planning and the inadequate attractiveness of public transport in terms of pricing and convenience. Coordinating land use and transport planning calls for stronger incentives or stricter requirements than at present. In addition, increased government support for public transport, especially in areas with high private vehicle traffic, is crucial.

7 Discussion

7.1

Meanings and manifestations of climate policy integration

Although the concept of environmental policy integration is much discussed, climate policy integration has so far received less attention. Most of the discussion has focused on climate policy integration in the context of development policies (e.g. Klein et al. 2005, Kok and de Coninck 2007, Persson and Klein 2008) and not all of the discussion has followed in the footsteps of environmental policy integration in terms of terminology and definitions. In effect, a lack of solid theoretical foundation and methodology for climate policy integration has been observed (Persson and Klein 2008, Urwin and Jordan 2008). The need for climate policy integration is acknowledged to enhance the effectiveness of climate policies (Kok and de Coninck 2007), while challenges are created by the existing policy frameworks that are often not designed to promote mainstreaming (e.g. Kok and de Coninck 2007, Urwin and Jordan 2008).

The Finnish case of climate policy integration shows different framings of climate change in different policy contexts and discourses. It has been argued that to achieve the integration of climate issues into sectoral policies, policy reframing and dilemma sharing among sectoral actors are important elements (Nilsson and Nilsson 2005). In the Finnish case a variety of framings have existed both across time and concurrently that have used climate change as a tool to achieve other policy goals in relation to regional goals (transport, bioenergy) and to support certain economically or regionally important energy production forms (nuclear power, peat, bioenergy). Sometimes this partly 'symbolic' use of climate change objectives in the policy discourses has also led to actual climate benefits. This is the case, for example, regarding bioenergy.

A purposeful process of policy learning and reframing to first and foremost achieve mitigation or adaptation goals can be perceived as a form of climate policy integration (Nilsson and Nilsson 2005) along with other suggested forms of policy integration as a normative priority (e.g. Lafferty and Hovden 2003, Lafferty 2004), a policy process (e.g. Hertin and Berkhout 2003, Nilsson and Persson 2003) organisational integration (e.g. Sorensen 2003) and policy output or outcome (e.g. Lenchow 2002, Hertin and Berkhout 2003, Nilsson and Persson 2003). Policy reframing necessitates addressing policy dilemmas (e.g. Nilsson and Nilsson 2003), corresponding to the identification and discussion of consistency (or lack of it) in our policy integration framework. As the inconsistency of climate and other policies is still rarely discussed in Finnish policy making, the necessary reframing may also be lacking despite increasing political emphasis on climate change.

Given the lack of specific literature on climate policy integration, literature on environmental policy integration can be used to construct a picture of the different manifestations of climate policy integration. For example, policy integration can be described in terms of the content of policies or of organisational forms (e.g. Sorensen

2003). Different manifestations exist for several reasons. For example, this study shows that policy integration needs to take place both in the political sphere and the administrative sphere. Although public administration implements political goals, "ministries and authorities do not just mirror political will" (Sorensen 2003: p. 3). There can also be trade-offs between these two spheres. While climate policy integration in the administration could be quite strongly be adhered to, it may become non-democratic if it overrides political will. Lafferty (2004) has reported that an ultimate 'trade-off' exists between existing democratic norms and the goals and operational necessities of sustainable development. The Finnish case showed, for example, that impact assessments are important mechanisms for revealing climate impacts but in Finland the political decisions can be only guided - not determined - by the results of impact assessments. So far this has led to decisions that have been non-optimal from the climate perspective

By combining the analytical and theoretical frameworks described in the environmental policy integration literature (Hertin and Berkhout 2003, Nilsson and Persson 2003, Sorensen 2003, Lafferty 2004), we have divided policy integration into two overall categories: 1) policy and organisational processes and 2) policy contents and outputs. Table 7.1 presents more specific elements that belong to these categories. An analysis of how these elements show in the Finnish case follows below.

Table 7.1 The process and content/output based perspectives on climate policy integration

	Policy and organisational processes	**Policy content and outputs**
Agenda setting		Political will to act on climate issues
Policy strategies	Horizontal communication, including from the climate perspective relevant ministries, departments & actors in strategy preparation	Climate change related statements and objectives in general strategies Existence of climate strategies
Policy implementation	Body responsible for climate policy (integration) Procedures for taking into account climate issues in budgeting Procedures for taking into account climate issues in results-based management Human resources for climate issues and their participation in policy processes	Constitutional mandate for climate policy integration Existence of climate objectives and resources in the budget Policy instruments supporting climate change mitigation and adaptation
Policy learning	Ex-ante assessments of climate impacts Monitoring and retrospective evaluation processes for realisation of climate objectives Policy debates Initiation of new integration processes	Increase in climate change related statements, objectives and instruments
Policy support	Research organisations examining climate change Dialogue forums and advisory bodies on climate issues	Resources for climate change research and development

An analysis of the Finnish case demonstrates some signs of horizontal climate policy integration in policy and organisational processes as means for horizontal communication and a climate policy specialist appointed by the Prime Minister. Yet the process based integration lacks many elements for climate policy integration in policy implementation, learning and support. Finland does not have a specific body responsible for climate policy nor procedures to take into account climate issues in budgeting and other administrative processes. Ex-ante assessments include climate impacts in principle, but the realisation of climate objectives is rarely monitored and evaluated retrospectively. The on-going policy debates show that some learning

is taking place but it has not led to the initiation of new integration processes. In policy content and outputs, horizontal climate policy integration is somewhat more advanced showing in strategies and policy instruments. Yet the integration could be improved by increasing the number of climate objectives in the budget and of policy instruments supporting climate change mitigation and adaptation. The occurrence of climate policy integration mainly in policy content and outputs indicates that it is sporadically - not consistently - applied in policymaking.

The state transport policy shows good, although not complete signs, of climate policy integration in both processes and policy content and outputs. The latest strategies and their preparation processes have included climate aspects fairly well. However, regarding policy implementation, there are no climate specific responsible body, internal human resources or procedures for taking climate issues into account. The Ministry of Transport and Communications has issued a results based requirement for its agencies to take into account adaptation but not mitigation. Some climate resources and policy instruments do exist, but these are quite small. On the positive side, policy learning has taken place in the last few years according to ex-ante assessments of climate impacts, policy debates surrounding the climate issues of transport and increase in climate related objectives and instruments. To proper take advantage of this learning, integration into the policy implementation stage is needed through new processes and instruments.

The use of the climate change issue in connection with only those policy issues that include policy means and aims that are fairly easily in synergy with climate change mitigation and adaptation prevents the development of comprehensive climate policy integration in public administration. Policy reframing in policy content and outputs as well as an appropriate recognition and discussion of inconsistencies can be aided by adopting the items in Table 7.1.

7.2

Multi-level governance issues

Although general top-down strategies increasingly incorporate climate objectives and new climate strategies are drafted, they involve problems such as lack of detailed discussion on means, synergies and conflicts. National policy strategies are often rather vague, which complicates their implementation by regional and local actors. This is a wider phenomenon than merely the Finnish case. For example, Urwin and Jordan (2008) found that references to adaptation in the UK's strategies for water, farming and biodiversity tended to be in the form of vaguely worded statements of intent. In effect, according to Persson and Klein (2008), one of the key questions of climate policy integration is whether it is best pursued top-down.

Although national level climate policy integration is extremely important, especially due to the influence of budgeting, our study shows that some regions or municipalities can implement climate policy integration independently of the national efforts. This has also been observed, for example, in the corresponding Dutch study (Bommel and Kuidersma 2008). One of the reasons for this is that certain policy conflicts may be avoided at lower levels, thereby reducing barriers to climate policy integration. Urwin and Jordan (2008, p. 3) argue that implementers at lower administrative levels can find creative ways to avoid the occurance of potential conflicts which are suggested in the formal, written content of policies. However, they also acknowledge that conflicts unforeseen in written policies may appear in the implementation stage. For example, coordinating land use planning and transport planning has been highlighted in Finnish policy strategies on many levels, but the practices on the municipal level have shown implementation problems due to conflicting municipal interests and to the extent of decision-making power that the municipalities hold in planning issues.

In effect, the Finnish public sector reforms have produced several managerial and administrative challenges for climate policy integration. The administrative culture has developed from a predominantly administrative-legalistic one into one where public interests are more emphasised (Pollitt and Bouckaert 2004: 54, Temmes 1998). The functional specialisation of administrative sectors and the greater independence of regional and municipal administrations have increased the need for reporting and information-based steering from central government, which largely sets the frame for climate policy integration. Result-oriented budgeting calls attention to demonstrate the effects of policies but practices are still in a developing phase. The result-oriented budgeting requires that specific enough goals can be set and followed up. This is the case in general as well as for climate change mitigation and adaptation. Achieving co-ordination within the whole governmental apparatus for any particular challenge, such as climate policy, without blurring the independence and customer responsibilities of individual agencies and public enterprises has become a huge challenge (Temmes 1998, 2008).

What can therefore be done about the multi-level facilitation of climate policy integration? Urwin and Jordan (2008) suggest at least three important tasks for national policies as prerequisites: stronger statutory support for 'no regrets' measures and integrating mandatory requirements into policy instruments; subjecting new policy proposals to a climate proofing process, e.g. by including climate change into regulatory impact assessment, and in the long-term re-assessing the underlying goals of non-climate policies. The findings of this study support the undertaking of the above measures. Statutory support through mandatory requirements to consider climate issues, for example, in municipal land use planning would certainly facilitate speedier change towards more effective utilisation of public transport. Climate issues are already included in regulatory impact assessments but how this kind of climate proofing works in practice needs further assessment. Moreover, we have discovered a variety of partly contradictory policy goals. Provided it is indeed decided to tackle climate change, the contradictory policy goals need to be re-assessed. When win-win solutions are exhausted, the weighting of policy objectives and the analysis of trade-offs is required but these are not as systematically addressed with respect to climate (adaptation) policy integration as in environmental policy integration (Persson and Klein 2008). Top-level strategies and requirements as well as policy and practice oriented initiatives at regional and municipal levels are equally crucial to achieving both horizontal and vertical climate policy integration.

8 Conclusions

Climate change issues are increasingly included in the more general strategies of Finnish public administration at the Government, regional and municipal levels. They have received enhanced status since 2007, when the Prime Minister started talking in strong terms about the need to address climate change. Yet climate issues were covered in the strategy level even earlier. For example, energy policy strategies have acknowledged climate change in the 1990s and the Ministry of Transport and Communications has covered climate change at length in its environmental guidelines published in 2005. At the regional level, the cities of the metropolitan region initiated the preparation of their common climate strategy in 2003. By contrast, the Government Programme addressed climate change strongly for the first time only in 2007 and strategies in the innovation sector have not discussed climate change extensively until this year in the new strategic definitions of Tekes. Similarly, although the Regional Council of Kymenlaakso has addressed climate change to some extent in its strategy and programme before 2007, a thorough consideration of climate issues began in the region and its municipalities in 2008.

The findings of the study show that there is sectoral and regional variation in the ways in which climate issues are considered. However, the status of climate change in general is increasing in all sectors and on all levels following the recent political emphasis on climate change. Both the latest Government Programme and the Government Budget Proposal place more emphasis on climate change mitigation and adaptation than the previous programmes or budgets. However, the wide integration at the level of strategies has not yet been fully reflected in the implementation of specific measures. For example, the state budget still lacks concrete climate objectives for most sectors and evaluations of the climate impacts of different budget allocations and revenue generating measures. The regions and municipalities studied combined the increased weighting of climate change with concrete action proposals in their strategies, some of which have been fulfilled. The towns of the Metropolitan Region, for example, have increased their investments in public transport but much is still to be achieved with respect to energy production and land use planning from a climate perspective.

As there are many other important policy goals besides climate change mitigation and adaptation, the consistency of measures aiming at climate change mitigation and adaptation with the measures directed at other policy goals needs be addressed and analysed. Seeking synergies and resolving conflicts would lead to better integration of climate change into policymaking. However, at the strategy and instrument levels, consistency is seldom thoroughly addressed despite the strategies acknowledging links between climate policy and other policy sectors. The interviews carried out for the study established that consistency is addressed in some – but not all – working groups at governmental and regional levels.

Potential synergies and conflicts were widely addressed for the first time in the National Climate and Energy Strategy of 2005. It discusses the consistency of climate change mitigation in relation to other aims, such as the promotion of domestic en-

ergy sources, innovation, the forest industry, rural and regional development, low energy prices and biodiversity, but does not make choices between contradictory aims. Climate change has frequently been promoted as a way to support domestic export-oriented innovation in Finland. A similar reframing has also occurred in some other European countries. The need for urgent action in other areas may have been overshadowed by the climate innovation discussion that has often been energy related. In the transport sector, the need to coordinate land use planning and transport planning has been noted in all levels of governance. Despite the need already being first acknowledged in the early 1990s, the actual realisation of this coordination has in many places been slowed down by administrative boundaries and municipalities' competition for residents and investments.

Both knowledge and financial resources are crucial for the implementation of the climate objectives and measures outlined in the strategies. The strategies have rarely articulated the knowledge or financial resources required for their implementation. Thus, financial resources are dependent on the normal governmental, regional and municipal budgetary processes. As an exception, the sums for road and rail investments are listed in the recent transport policy guidelines presented to Parliament. Some strategies on both national and regional levels, in turn, list funding for on-going environmental or climate programmes or projects. A better consideration of resource need for climate policy integration appears necessary.

Government or municipal budgets do not include explicit items specifically titled under climate change mitigation and adaptation. Yet some budget allocations, such as those for renewable energy or public transport are justified by references to climate change. Some budget allocations, by contrast, may lead to developments that have negative impacts on greenhouse gas emissions. The impacts of different budget allocations on climate change mitigation or adaptation, however, are not assessed before they are decided upon. This is a clear shortcoming of the budgets, because the implementation possibilities of climate objectives therefore remain largely obscure to outsiders. It may not be necessary to include explicit sub-items for climate change but the relevance of the items in the budgets for climate change mitigation and adaptation should be clearly assessed and presented.

The issues and needs for climate related knowledge and expertise are slightly different on national and regional levels. It appears that ministries and government agencies are heavely dependent on external knowledge in evaluating the climate impacts of their operations and planning and implementing climate beneficial policies. Despite many public organisations having one or two environmental experts, they lack the more detailed climate-specific knowledge. The frequent lack of sufficient knowledge resources has emerged in personal communication with the public actors. This highlights the importance of the availability of climate expertise in sectoral research institutes as well as consultancies. Although consultancies can be used to support ministries in ad-hoc and short term studies, sectoral research is important for the availability of long-term scientific knowledge. Finland does not have, nor is planning to have, a specific research organisation or a coordinating agency for climate change research. For example, the report assessing the need for expert services for regulatory impact assessment in 2007 found that the existing sectoral research institutes can fulfil the needed expertise requirements. Therefore, improving climate change research in the existing sectoral research institutes is crucial and of relevance to the on-going renewal process of sectoral research.

The two municipalities studied have adopted a human resources angle on climate and environmental policy integration. The town of Kotka is planning to follow up the example of the city of Helsinki in setting up a scheme of eco-support personnel in all or most departments of the town administration. The human resources angle is further supported in the Metropolitan Region Climate Strategy that includes among

the key aims the integration of the climate strategy into the processes of the city at all levels utilising existing management systems. As the integration plans are still fairly new, the actual success and implications of the plans are not yet known. When the first experiences of the organisational integration of climate issues in the metropolitan region and elsewhere become available, lessons can be lernt to benefit climate policy integration in other regions and at other levels of public governance.

Like resources, the means planned for evaluating the realisation of strategies and reporting on it are seldom explained in the strategies. Despite this, evaluation and reporting processes do exist at all levels of governance. The Government programmes are monitored by the Prime Minister's Office, while the realisation of the budget is followed by the financial controller and the National Audit Office. Similarly, in sectoral administration, evaluation and reporting will be carried out as part of results-based management. This indicates the increasing need to have specific climate expertise as part of these functions in the future. Moreover, results-based management requires concrete climate goals to be set so that their achievement can in effect be evaluated.

Overall the study shows that vertical integration of climate issues into sectoral or regional levels can occur ahead of government policy. However, the regions and municipalities, especially those with fewer resources, are dependent on the example, inputs and rules from the government level to adopt and implement the idea of climate policy integration. Like companies, municipalities compete with each other, for example, for residents, taxpayers and investments. The actions taken may therefore often be problematic from a climate perspective. Moreover, uncertainties about future climate policies may delay the climate actions of municipalities. Therefore climate policy integration and coherence are needed horizontally on the government level as well as vertically in different administrative sectors. The study shows that high political importance assigned to climate issues is a necessary but not a sufficient condition for extensive climate policy integration. Although climate change has been a well-known environmental issue for nearly two decades, stronger emphasis on it at different levels of governance depends on the political will at the highest level.

Impact assessments of proposed actions as well as retrospective evaluations of measures already adopted are key means of achieving climate friendlier policies. Although, for example, strategic environmental assessments and environmental impact assessments have already been undertaken, more attention needs to be paid to how they are carried out and used in decision-making. For example, the influence of the time-scale can be significant in the outcome of impact assessments and evaluations. The short-term and long-term impacts, for example, of a road investment are different. While a new road may initially reduce emissions through decreased congestion, changing behavioural patterns enabled by the improved road access may in the long-term have more significant negative impacts on greenhouse gas emissions.

Some positive examples of concrete action on climate issues can already be seen. For example, the reform of vehicle taxation to be emissions-based has already had visible impacts. Yet challenges lie ahead, because climate change also requires more than the obvious win-win solutions. Yet solutions that appear to hinder industry could in the long-term prove to be win-win solutions. As an example, the forest industry has managed through innovation to reduce considerably the use of wood-fibre per tonne of pulp and paper, while improvements in energy-efficiency have been more modest due to low energy prices. Thus, policies that appears not to have win-win solutions in the short-term may prove to be beneficial in the long run.

The need for climate policy is more widely recognized than ever before – horizontally within the governmental administration as well as vertically at all levels of governance. This recognition of the need for action, however, has not yet resulted in specific measures that would be comparable in stringency to the magnitude of the climate change challenge. This could be due to several reasons. First, it may simply be

a matter of timing: after the new climate and energy strategy, specific and sufficient measures may follow. Second, the political importance assigned to climate policy may still not be sufficient when climate policy aims are in conflict with other political aims. Third, many actors still argue that others should be responsible for more of the specific policies: this argument is still frequently used to justify postponing actions in different sectors and levels of governance. Whatever the reason for adequate measures not having been implemented, the challenge is becoming greater, not smaller, under the existing policies. Most structural changes in the production and consumption patterns that a low carbon society would require are still ahead. More efficient climate policy integration than experienced to date will be one of requirements for the achievement of structural transformations. The coherence of and conflicts between climate policy and other policy aims will also need to be addressed, not just avoided. Open discussion and actions on coherence may turn the unexplored into opportunities. Often, however, reducing policy conflicts may require that some other aim, such as unlimited and inexpensive mobility, must be sacrificed.

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Appendix 1. Research materials

Horizontal policy integration and coherence at the national level		
	Public documents	**Interviews**
Governmental programmes and strategies	Government Programme (2007) Government Policy Programmes (2007) Government Strategy Document (2007) Government Budget Proposal (2009)	**Esko Mustonen,** Financial Expert, Ministry of Finance (13.2.2008) **Petri Malinen**, Financial Secretary, Ministry of Finance (20.2.2008) **Heikki Joustie**, Financial Counsellor, Ministry of Finance (6.2.2008) **Pekka Nurmi**, Department Head, Ministry of Justice (7.2.2008) **Pekka Tervo**, Senior Inspector, Ministry of Employment and Economy (26.9.2008) **Ari Nissinen**, Senior Researcher, Finnish Environment Institute (1.2.2008) **Esko-Olavi Seppälä**, Secretary General, Science and Technology Policy Council (14.2.2008) **Ulla-Riitta Soveri**, Negotiating Official, Ministry of the Environment (7.2.2008)
Climate change strategies	Report of CO2 Committee I (1991) Report of CO2 Committee II (1994) National Climate Strategy (2001) National Energy and Climate Strategy (2005) Climate Change Adaptation Strategy (2005) Long-term Climate and Energy Strategy (2008)	
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	Public documents	**Interviews / other**
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Policy integration and coherence in the innovation and technology sector	National Innovation Strategy (2008) The strategic definitions of the Finnish Funding Agency for Technology and Innovation (2008) Strategic review of Science and Technology Policy Council (2003)	**Esko-Olavi Seppälä**, Secretary General, Science and Technology Policy Council (14.2.2008) Focus group discussion with Pentti Puhakka & Sirkka Vilkamo (Ministry of Employment and Economy), Jarmo Heinonen & Pirjo Kyläkoski (Tekes), Antti Hautamäki (Sitra), Esko-Olavi Seppälä (Science and Technology Policy Council) and Pirjo Karlsson (TE Centre of Uusimaa)
Horizontal policy integration and coherence at regional and local level		
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Regional and municipal programmes and strategies in the Metropolitan Region	Metropolitan region operational and financial plan 2008-2010 Budget of the city of Helsinki (2007)	**Irma Karjalainen**: Director of Regional and Environmental Information, Helsinki Metropolitan Area Council YTV (15.8.2008) **Pekka Sauri**: Deputy Mayor, Helsinki (public works and environmental affairs) (2.7.2008) **Markku Antinoja**: Transport Planning Director, City of Espoo (18.8.2008)
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Metropolitan Region	Regional Plan of Uusimaa 2005-2030 (2007)	**Irma Karjalainen** (15.8.2008) **Pekka Sauri** (2.7.2008) **Markku Antinoja** (18.8.2008)

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<tr><td>Abstract</td><td colspan="4">Tackling climate change in Finland and other industrialised countries requires major changes in production processes and consumption patterns. These changes will not take place unless climate change becomes a crucial factor in general and sector-specific policy-making. In this report climate policy integration in Finland is studied at different levels of policy-making: at the national level, regionally in Kymenlakso and the Metropolitan Area, as well as in the city of Helsinki and the town of Kotka. At the national level climate policy integration is assessed in general governmental policies, such as government programmes, budget proposal and impact assessment guidelines but also in more detail for policies, agencies and practices of transport and innovation policies.

Climate change appears increasingly in the more general strategies of Finnish public administration. The latest Government Programme and indeed the 2009 Government Budget Proposal emphasise climate change mitigation and adaptation more than before. However, integration has not yet been fully reflected in the implementation of specific measures. For example, the state budget still lacks concrete climate objectives for most sectors and evaluations of the climate impacts of different budget allocations. Kymenlaakso and the Metropolitan Region as well as the city of Helsinki and the town of Kotka have increased the weighting of climate change in their strategies. In spite of some specific measures, such as increased investments in public transport, much remains to be done at the local level, for example, in energy production and land use planning. In the context of extended climate policy integration, the coherence of and conflicts between climate policy and other policy aims require attention. This requires, for example, increased availability of climate expertise in the public administration. Reducing policy conflicts may mean that other aims, such as unlimited and inexpensive mobility, must be subordinated to climate change mitigation.</td></tr>
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<tr><td>Tiivistelmä</td><td colspan="3">Ilmastonmuutoshaasteeseen vastaaminen Suomessa ja muissa maissa edellyttää suuria muutoksia tuotantoprosesseissa ja kulutustavoissa. Nämä muutokset eivät tapahdu ellei ilmastonmuutoksesta tule keskeinen tekijä yleisessä ja sektorikohtaisessa politiikassa. Ilmastopolitiikan integraatio on konsepti joka laajentuu ilmastonmuutoksen hillintään ja sopeutumiseen suunnitelluista politiikkatoimista keinoihin, joiden kautta ilmastoasioita tarkastellaan myös yleisten ja muita politiikkatavoitteita tukevien politiikkatoimien osana. Tässä raportissa ilmastopolitiikan integraatiota tarkastellaan politiikan eri tasoilla: kansallisella tasolla, Kymenlaaksossa ja pääkaupunkiseudulla, sekä Helsingin ja Kotkan kaupungeissa. Ilmastopolitiikan integraatiota tarkastellaan ensin yleisissä politiikoissa, kuten hallitusohjelmassa, budjettiehdotuksessa ja vaikutusten arvioinnin ohjeissa. Lisäksi sitä arvioidaan tarkemmin liikenne- ja innovaatiosektoreiden politiikoissa ja toiminnoissa.

Ilmastoasiat ovat enenevissä määrin osa hallinnon strategioita kaikilla tasoilla. Viimeisin hallitusohjelma ja vuoden 2009 budjettiehdotus korostavat ilmastonmuutoksen hillintää ja siihen sopeutumista enemmän kuin aiemmin on tehty. Integraatio ei kuitenkaan ole vielä kokonaisvaltainen osa politiikan toteutusta. Esimerkiksi konkreettiset ilmastotavoitteet useiden sektoreiden kohdalla ja arvioinnit rahoituskohteiden ilmastovaikutuksista puuttuvat valtion budjetista. Kymenlaakso, pääkaupunkiseutu, Helsinki ja Kotka ovat lisänneet ilmastonmuutoksen painoarvoa strategioissaan. Vaikka ne ovat toteuttaneet joitakin toimia, kuten uusia julkisen liikenteen investointeja, paljon on vielä saavuttamatta paikallisella tasolla – esimerkiksi energiantuotannossa ja maankäytönsuunnittelussa. Suurin osa rakenteellisista muutoksista, joita vähähiilinen Suomi edellyttäisi, ovat vielä edessäpäin. Tehokkaampi ilmastopolitiikan integraatio on yksi tällaisten rakenteellisten muutosten edellytyksistä. Ilmastopolitiikan integraation laajentaminen edellyttää ilmastopolitiikan ja muiden politiikkatavoitteiden koherenssin ja konfliktien huomioimista. Tämä puolestaan edellyttää muun muassa ilmastoasiantuntijuuden lisäämistä julkishallinnossa. Politiikkakonfliktien vähentäminen voi vaatia, että jostain toisesta tavoitteesta – kuten rajoittamaton ja edullinen liikkuminen – tulee ilmastotavoitteita vähäpätöisempi.</td></tr>
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<tr><td>Sammandrag</td><td colspan="4">För att Finland och andra industrialiserade länder skall kunna nå klimatmålen måste produktionsprocesser och konsumtionsmönster förändras radikalt. Dessa förändringar kommer inte att äga rum om inte klimatförändringen blir en viktig faktor i så väl generell som sektorspecifik politik. I denna rapport studeras integreringen av klimatpolitik i Finland på olika nivåer: nationellt, regionalt i Kymmenedalen och huvudstadsregionen samt lokalt i Helsingfors och Kotka. Nationellt bedöms integrationen i allmän politik så som regeringsprogrammet, regeringens budgetproposition och anvisningarna om konsekvensbedömning av lagförslag. Dessutom studeras integrationen mera i detalj för strategier, åtgärder och aktörer inom transport och innovationspolitik.

Klimatförändringen beaktas i dag mer än tidigare i allmänna strategier inom alla nivåer av förvaltningen. Det senaste regeringsprogrammet och regeringens budgetproposition för 2009 beaktar minskandet av och anpassningen till klimatförändringen mer än någonsin tidigare. Integrationen har dock inte ännu fullt implementerats i konkreta åtgärder. Till exempel i regeringens budgetproposition saknas konkreta klimatmål för de flesta sektorerna, likaså saknas bedömningar av budgetmedlens effekter på klimatförändringen. I såväl Kymmenedalen, huvudstadsregionen, Kotka som Helsingfors har klimatförändringens tyngd i strategierna ökat. Även om vissa konkreta åtgärder har vidtagits, som till exempel ett ökat stöd till den offentliga trafiken, återstår mycket att göra lokalt, till exempel inom energiproduktionen och planeringen av markanvändningen. När integrationen av klimatpolitik ökar, kräver koherensen och konflikterna mellan olika politiska mål allt mera uppmärksamhet. Detta förutsätter också en ökad tillgång till klimatexpertis inom den offentliga förvaltningen. En sammanordning av olika motstridiga mål kan förutsätta att någon annan målsättning måste tonas ner, som till exempel målet om obegränsad och billig rörlighet till förmån för klimatmålet.</td></tr>
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Climate change appears increasingly in the more general strategies of Finnish public administration. The latest Government Programme and indeed the 2009 Government Budget Proposal emphasise climate change mitigation and adaptation more than before. However, integration has not yet been fully reflected in the implementation of specific measures. For example, the state budget still lacks concrete climate objectives for most sectors and evaluations of the climate impacts of different budget allocations. Kymenlaakso and the Metropolitan Region as well as the city of Helsinki and the town of Kotka have increased the weighting of climate change in their strategies. In spite of some specific measures, such as increased investments in public transport, much remains to be done at the local level, for example, in energy production and land use planning. Most structural changes in production and consumption patterns required for a low carbon Finland still lie ahead. More efficient climate policy integration is essential for such structural transformations. In the context of extended climate policy integration, the coherence of and conflicts between climate policy and other policy aims require attention. Reducing policy conflicts may mean that other aims, such as unlimited and inexpensive mobility, must be subordinated to climate change mitigation.

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