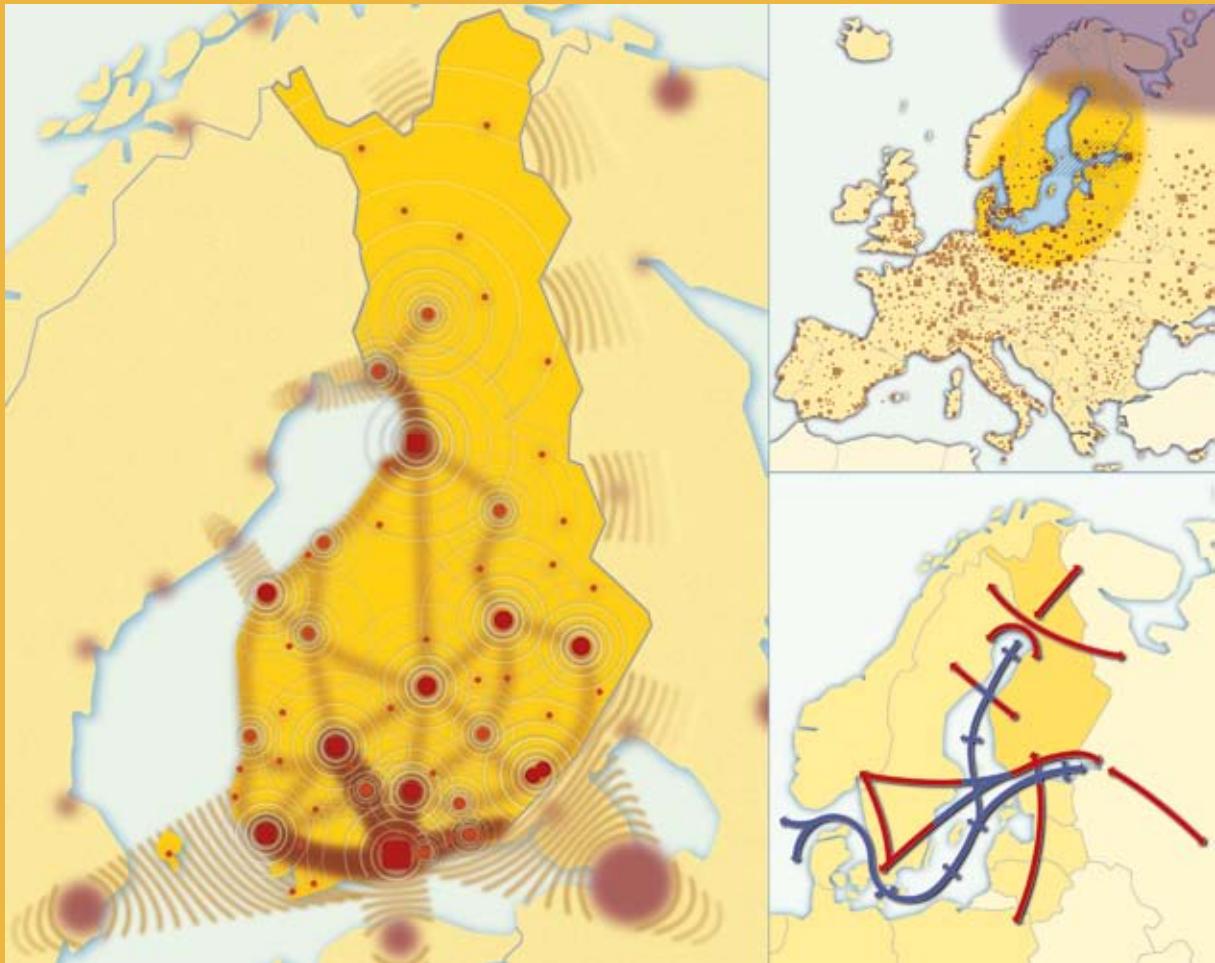


Competitiveness, welfare and eco-efficiency

Perspectives for spatial structure
and land use in Finland

BUILT
ENVIRONMENT



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**Perspectives for spatial structure
and land use in Finland**

Helsinki 2006

MINISTRY OF THE ENVIRONMENT



YMPÄRISTÖMINISTERIÖ
MILJÖMINISTERIET
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PREFACE

Land use and spatial structure in Finland are influenced by globalisation and an economic development based on know-how, by the ageing of the population and the climate change. As time goes on, the challenges increase in number and volume. For Finland, success in a global economy means that its spatial structure has to be integrated with developments in Europe and in the neighbouring areas. We must be able to draw benefit from the potentials provided by the Baltic Sea and thus to promote the emergence of co-operation zones stretching across national boundaries.

This document presents the Ministry of the Environment's views on the long-term development of land use and spatial structure in Finland. The aim is to give these a sustainable direction by supporting Finland's competitiveness and eco-efficiency, as well as the well-being of the citizens. Decisions on land use and spatial structure have considerable influence on the future, and therefore, it is important to ponder these issues now.

Building up a polycentric spatial structure supports the strengths of our different regions, and the utilisation of existing infrastructure and facilities. Increased interaction between urban regions, and between urban regions and rural areas will contribute to the emergence of an attractive and functional spatial structure all over the country. We have to improve accessibility, but this should be done in an environmentally sound manner. Our varied natural surroundings are a strength indeed, providing an excellent foundation for a high-quality living environment, more efficient tourist services, and better utilisation of natural resources.

This vision is based on interactive preparation and on the study of national and international plans and research documents. The work was started by experts' assessments of the outlook and trends. In the course of the work, numerous discussions were arranged so as to provide forums for joint consideration of the development of spatial structure and land use in Finland. Towards the end of the preparatory work, comments were invited from an extensive assembly of contact groups and interested parties. The Ministry of the Environment presents its thanks to all those who have contributed to this work.

In the future it will be increasingly important to base the development of spatial structure and land use on dialogue and mutual support between regions and different regional levels. Those regions which are capable of networking and co-operating will meet with success. Here, we have tried to integrate regionally desirable developments into a unified and strong national entity, which will contribute to inter-regional co-operation and the best possible utilisation of the joint resources.

This document is intended for use as support and background information for Regional Councils and the government administration in their long-range work to direct land use and spatial structure. The aim is also to make an impact at the international level by presenting Finland's views and needs of co-operation. I sincerely hope that this contribution, holding spatial structure and land use viewpoints, will be beneficial for discussions and decision-making on future development.

Jan-Erik Enestam
Minister of the Environment

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1 Introduction

International comparisons indicate that for the last few years, Finland has been among the leading countries in both economic competitiveness and sustainable development. With regard to competitiveness, Finland's has quite a peripheral geographical location, and the domestic market potential is small; yet the country has held its own and improved its relative position in the opening economic conditions, while domestic development trends have taken a sustainable direction. Finland's strengths are its national innovation system and high technology, coupled with the smooth running of society and good spatial structure. Finland can also boast a strong environmental management, and therefore the state of the environment is mainly good, in places even excellent.

Although the overall situation in Finland is quite satisfactory by international comparison, differences between regions have increased. Growth has been strong in the Helsinki Metropolitan Region and in most major urban regions, while both workplaces and population figures have gone down in remoter regions. In spite of Finland's continuing growth, economic investors have not, in the ever tightening international competition, found Finnish cities equally attractive as alternative, competing locations in other countries. Moreover, Finland is still among those industrial countries which consume the biggest amount of natural resources per capita. There are still major challenges to be found on the road to a successful future. Continuing globalisation, technological developments, the ageing of the population and the climate change will strongly affect the future development of Finland.

Finland's foreseeable success is dependent on the framework and potentials in its spatial structure and land use arrangements. How a society

functions is largely dependent of how various functions are located, and of the total resulting entity. Production, housing, services and leisure-time all require specific arrangements in settlements of varying sizes, in their mutual traffic connections, and with regard to other technical services. The spatial structure and land use arrangements create prerequisites for economic activities, a basis for the living conditions of the population, and the preconditions for ecological sustainability. For instance, many of the factors influencing the location of enterprises are directly, or at least indirectly, dependent on the spatial structure and land use arrangements, such as traffic connections, safe and pleasant living environments, availability and prices of accommodation, and the range of services available.

The spatial structure and land use are generally slow to change. Thus natural conditions and existing infrastructure form the basis for the development of the spatial structure. The factors influencing the spatial structure are often contradictory and subject to rapid changes, and this makes it difficult to find and maintain a common, sustainable direction. The development of Finland's spatial structure poses particular challenges since Finland, in addition to a vast land area, has a small population, a rather cold climate with long winters, and a peripheral location.

Challenges

2 Spatial structure and land use perspectives

2.1

Threats and challenges in globalisation

The globalisation of production, markets, labour force and capital all make an imprint on future developments in Finland, and have an increasingly direct impact on the spatial structure. Business and industry now place their activities anywhere in the world, taking advantage of whatever is on offer in each area. Production is transferred to countries

where production costs are low. In product development, the most demanding research and development is placed in areas with good know-how. Distribution centres and marketing are placed as close to the consumer as possible. Today, the production factors are mobile and rapidly moveable, which means that the competition for investments, and particularly for the most qualified work force, becomes tighter. The spatial structure may undergo even very rapid changes, caused by the strategic interests and decisions of global actors or interest groups.

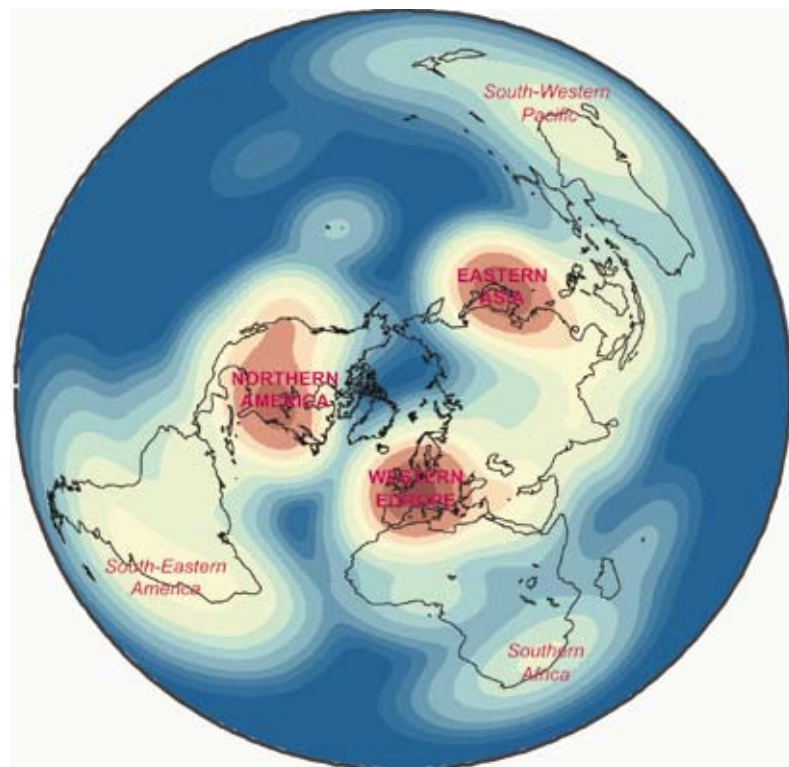
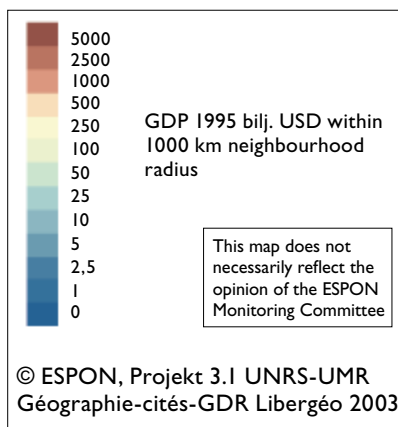


Fig. 1. The world's economic potential. The major economic concentrations are in North America, Western Europe and Eastern Asia. In relation to these, Finland is geographically well placed for a better international position (ESPON 2006).

The ever sharper global division of labour means that traditional production and, henceforth, also high-tech work, are increasingly being transferred to countries in rapid economic development such as China, India and Russia. At the same time, these areas also provide new and growing markets for Finland. In order to globalise, developed countries primarily have to possess regenerative capacity, besides know-how and high productivity, and this is a direction where the Finnish economy has been well headed for some time. In addition, the sustainable use of the permanent production factors ensuing from national circumstances will also come to the fore.

In the European Union, efforts are made both to improve the prerequisites for globalisation and, on the other hand, to manage the ensuing effects. The Union's internal market has removed obstacles to trade between member countries and, largely, to other types of interaction. The Lisbon strategy aims at making Europe the most competitive area in the world, and this requires both deepening internal co-operation and division of labour, utilisation of the potential of different regions in a way which is sustainable in the long term, and inputs into cross-border co-operation, coupled with improved accessibility. A challenge to the EU is to connect member countries and their respective regions in such a way as to provide as equal an access to central markets as possible.

An event which has considerable repercussions on Finland's spatial structure is the enlargement of the European Union. The enlargement has caused an eastward geographical shift in the EU and increased connections between the EU and Russia. Around the Baltic Sea, a new multi-national economic area of nearly a hundred million people is emerging and becoming a growth area for business, trade and industry. Henceforth, the significance of the Baltic Sea Region will increase on account of its position as an area of interaction between the EU and Russia. Additionally, the poor state of the Baltic Sea has increased the need for not only national but also international co-operation in its entire catchment area. In considering the outlook for

the Baltic Sea Region, it should be borne in mind that there are vast differences in the development and spatial structure of the countries surrounding the Baltic Sea.

Seeing that Estonia, Latvia and Lithuania which have become members of the European Union are located nearer the core of Europe, it is also possible that Finland's relative position in competition may weaken. So far, Finland's competitiveness has remained fairly good with regard to the presence of headquarters, industry and research institutions, since we have been able to offer good and reliable working conditions. However, in this respect the Baltic Countries are catching up on us. EU cohesion financing is particularly channelled to improve the infrastructure in new member states, and, depending on the outcome, this may have either favourable or unfavourable effects with regard to the relative accessibility of Finland.

Henceforth, Russia will be an increasingly important global actor. The position that Russia, and especially the parts of Russia touching the Baltic Sea, will occupy in the political and economic development of Europe will have important repercussions for Finland and its spatial structure. The city of St. Petersburg with its surrounding region is the largest metropolitan area on the Baltic coasts, and it is turning into a major global centre. The impact that the growing demand for services in the St. Petersburg region has on spatial structure and land use is also felt across the border, far inside Finland's territory. In addition, the St. Petersburg region is of prime importance to the Russian energy exports infrastructure. The speed with which the ports concentrated on the Gulf of Finland, and the special economic areas supporting those ports, have been developed, is a good indication of the tremendous influence that globalisation and the strategic interests of a number of stakeholders have on spatial structure.

Along the long border between Finland and Russia, bilateral co-operation will continue to deepen. New activities are creating zones, based on the border crossing points. The border between Finland and Russia is also the external border of

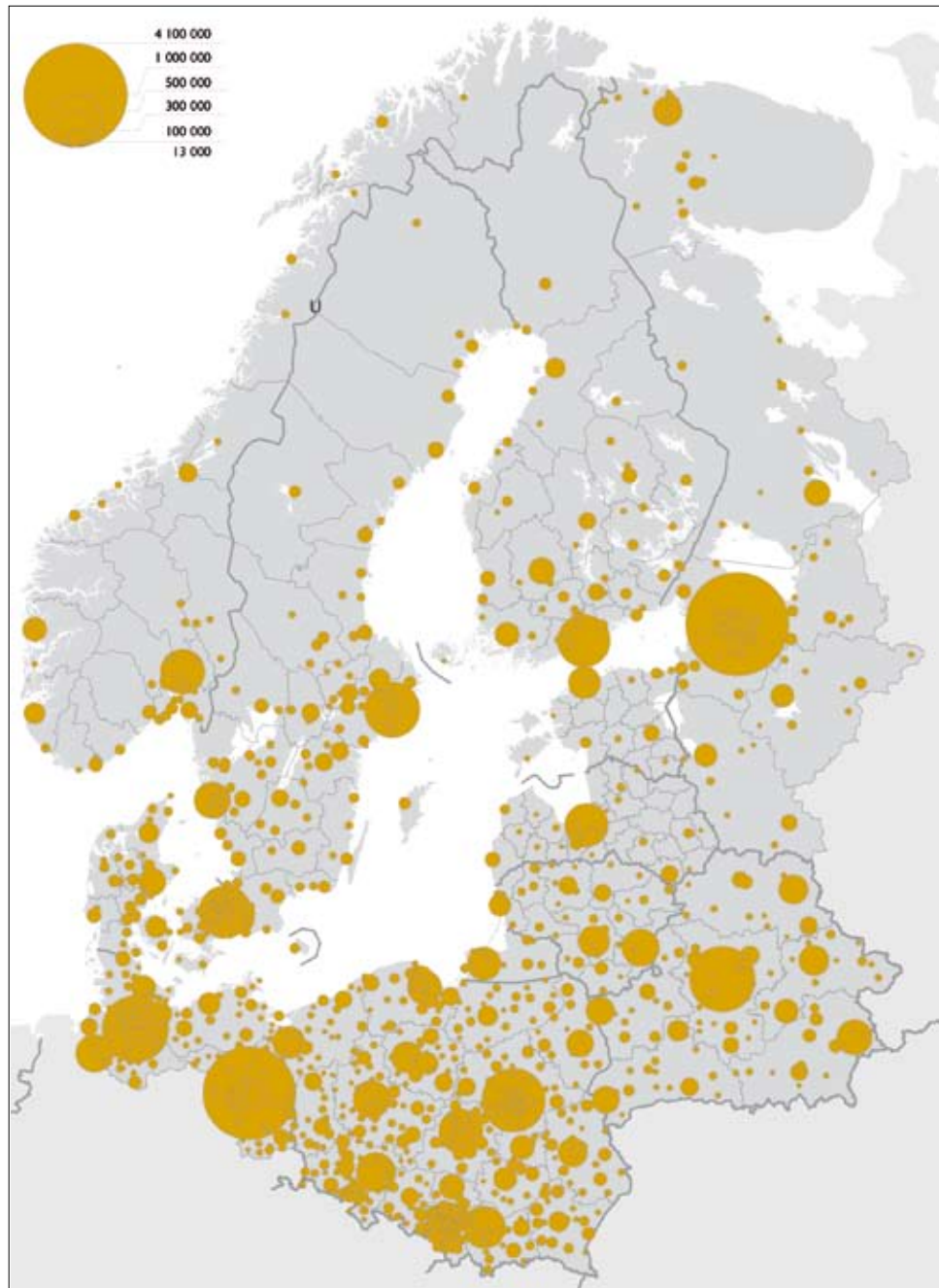


Fig. 2. Populations of the urban centres in the Baltic Sea Region in 2001. The Baltic Sea connects about 100 million people in a polycentric area with a variety of cities of different sizes (Nordregio 2006).

the European Union, and the Community is expected to continue providing financial support for improving the co-operation. On the other hand, another major trend has been that both in Finland and in Russia, the population has tended to move from areas near the border to bigger centres further away from it.

The spatial structure in Finland, and especially northern Finland, is also influenced by what is done

to exploit the rich natural resources in the Barents region. It is estimated that one fourth of the world's oil and gas reserves are to be found in northerly areas, where the difficult arctic conditions and the extremely vulnerable natural environment pose particular challenges for their exploitation. Russia has already begun to build up the infrastructure on the Kola peninsula, with a view to making use of these natural resources.

2.2

Centralised and decentralised development

The spatial structure of Finland is largely a result of economic activities. It still retains traces of a dispersed agricultural society, of workplace centres based on industries, and of urban hierarchies based on services. Today, Finland's economy is characterised by a primary production only corresponding to a few percent, refining industries having a share of about one third, and services having increased to well over 60 percent. Of the industrial clusters, one of the most important is the forest sector, which actually forms the basis of a large part of the other industrial activities. This development is further illustrated in the fact that the turnover of Finland's high-tech electronics industries has now surpassed that of the basic industries, while the workplaces and sites of the basic industries have narrowed down, diminished because of automatic systems, or moved abroad to areas where production costs are lower.

In the future, the Finnish economy will change more and more, from an investment-propelled growth towards innovation-based development. The basic elements in competitiveness and growth are inputs into know-how and human capital, rapid technological development and well-functioning logistics and infrastructure. In Finland, an increasing part of the GDP, and its growth, will be based on immaterial production such as services, education, and product development. The competition for businesses and know-how will tighten, not only globally, but inside the country as well. In a growth based on know-how, the regions have to offer living environments supportive of creativity to such experts as will attract business and industry. The engine pulling this growth is to be found in the largest urban regions, a fact which stems from their know-how density: as cities grow larger, the advantages offered by specialisation, the advantages of scale, and the joint use of resources will create good prerequisites for continued growth.

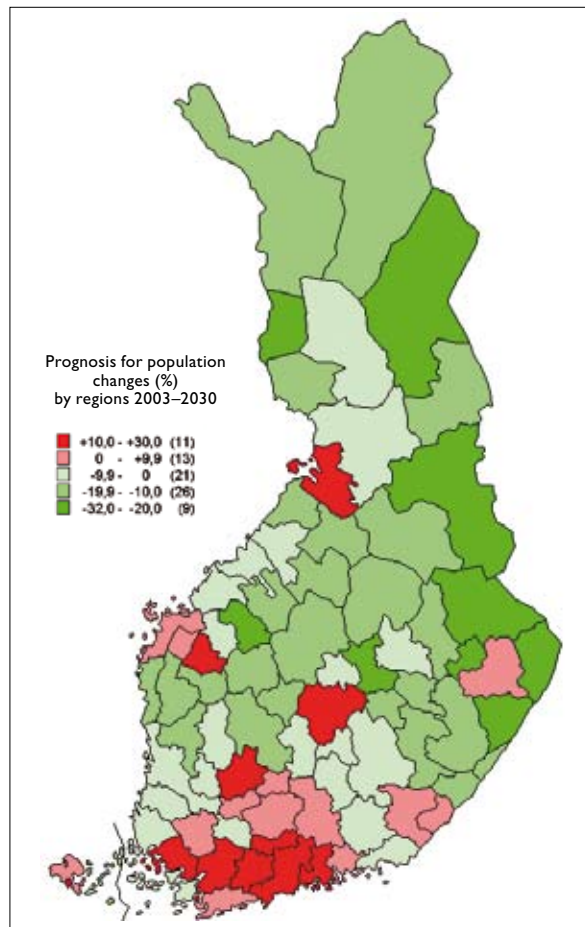


Fig. 3. Prognosis for population changes by regions between 2003 and 2030. According to the prognosis, large urban regions will attract more population. (Statistics Finland 2006)

In economic competition, the stress on advantages of scale will, in practice, lead to areas striving to achieve such advantages by networking and specialising. Cities will increase mutual co-operation and join resources. This change has already become visible in regional development, with various development zones, twinning projects between cities, and improved internal regional connections. Here, the connecting networks play a main role. Businesses need both rapid international connections and good national connections. In transports of people and goods, a key issue is, which of the

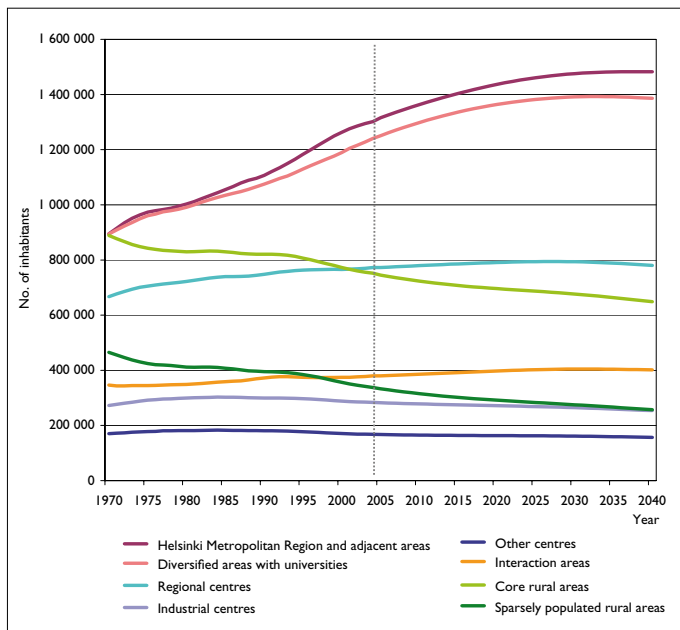


Fig. 4. Population development in Finland from 1970 to 2004 and prognosis for 2005–2040. If the present trend continues, the demographic magnetism of large urban regions will continue. On the other hand, population figures for the core rural areas and for sparsely populated rural areas will go down. (Statistics Finland 2005)

urban regions and areas will lie within the sphere of high-speed trains, highways and good flight connections.

For quite some time now, the concentration of spatial structure has been strong in the whole of Finland. During the last few years, however, internal migration has increasingly been towards regional centres, which shows that there are also centripetal forces at play. The freedom from dependence on time and place, brought about by information and communications technology, makes it possible to create new workplaces even outside the biggest centres, while, on the other hand, this may also contribute to dispersal within urban regions. As far as community patterns are concerned, technological developments and the new flexibility in work may contribute to added separation between homes and jobs, especially in cases where the significance of a good living environment comes to the fore.

In the future, the outlook for different urban regions will vary, and not only on account of size and location. Differences in the production structure, in the capacity for education and research, and in development strategies may lead to a situation where

the new growth centres will not rank together with the other centres by order of magnitude. Also occasional features, such as a industries geared to growing branches, or a favourable public image, may bring out previously unsuspected success stories. The new growth logic seems to favour areas which are capable of taking advantage of their network relations and their regional co-operation.

In the development of rural areas, the present trend is a search for new means of livelihood to compensate for the loss of traditional ones. In the occupations, production based on the availability of raw materials and high-level know-how will be emphasised, such as dispersed production of renewable energy, mining operations, and entrepreneurship based on natural environments. In the rural areas, a flexible way of life and living may become increasingly common as data communications improve.

It seems that in the countryside, developments will become more diverse, reflecting what is happening in the centres. A real problem with regard to maintaining the vitality and livability of rural areas is that the urban network does not sufficiently cover the whole of the country, so that quite obsolete areas will remain between the urban regions. Those rural areas which lie close to cities have the best opportunities of attracting businesses and residents. The core rural areas will probably remain strong in primary production, with good diversification potential. In the sparsely populated rural areas, the outlook is bleak on account of the one-sided economies, the few workplaces and the smallness of the local markets.

Rural area trends that challenge the preservation of biological diversity and valuable landscapes include, on the one hand, new developments and pressures for building in areas of outstanding natural beauty close to urban centres, and on the other hand, the decline of cultural environments due to the decrease in the agricultural population and in agriculture itself. However, the preservation and care of the environment and of cultivated landscapes may become a new source of income when coupled with other local activities.

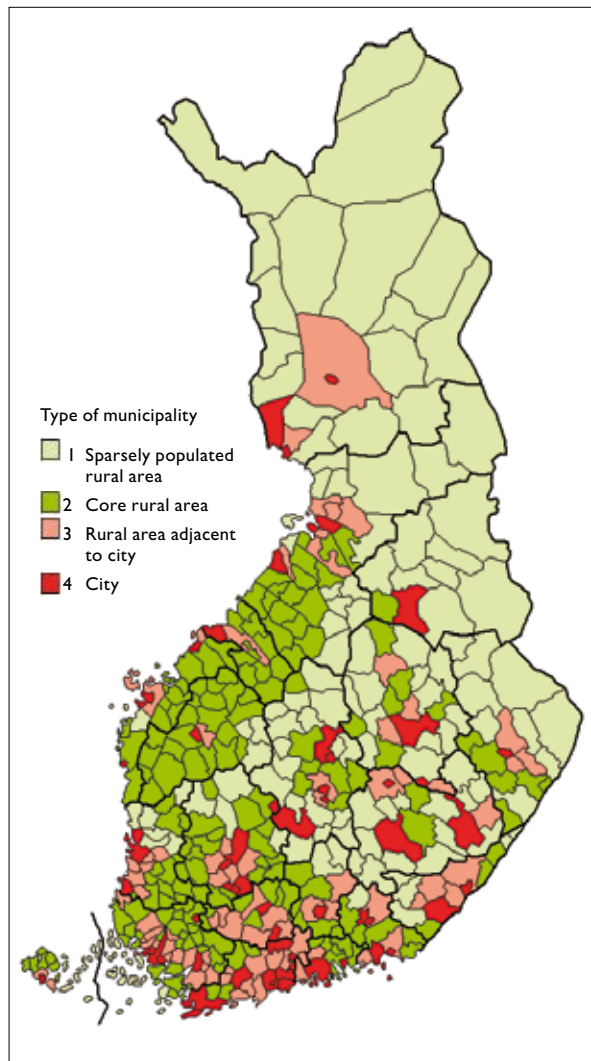


Fig. 5. The division into three types of rural areas, and cities. This division, together with the urban network, shows that in southern Finland and the Ostrobothnian region, rural areas largely concentrate in the vicinity of core rural areas and cities, and the centres lie relatively close together. Again, the eastern and northern parts of the country mainly consist of sparsely populated rural areas spotted with a few urban centres. (Statistics Finland 2006)

2.3

Ageing population

The imminent changes in the age structure of populations will be felt all over Europe, although for Finland, the ageing population will constitute a serious trial. As of the 1970s, Finland has had a favourable age structure, the working-age part of the population being exceptionally high by international comparison. Then again, in the next few decades, this situation will be reversed – the retiring age groups will be considerably bigger than those entering working life. On account of this age structure, it has been forecast that Finland’s population growth will end as early as the 2020s. Immigration is expected to continue, both on account of the demand for labour and because of an increased influx of immigrants. This may, to some extent, alleviate the problems caused by the ageing of the population.

The change in the age structure will affect birth rates and deepen the regional differences in population density. The concentration of the population to relatively few growth areas seems to continue, whereas population figures elsewhere will go down. In the growth areas, the proportion of young people and, consequently, the birth rate will be higher than the average, whereas the natural trend in depopulation areas will in general be negative, and this direction will become more marked. As the regional distribution of the population changes, part of the areas will display remarkable numbers of empty dwellings and other unused building stock, while at the same time, new-building in the growth areas is keen.

As the population ages, residential arrangements, as well as production and services, will have to change. Instead of family housing, more service homes will be needed; and instead of day care centres and schools for children, care centres and hospitals for the aged. This situation is challenging, insofar as the increase in the older age groups takes place in two stages which put different demands on spatial structure and land use. At

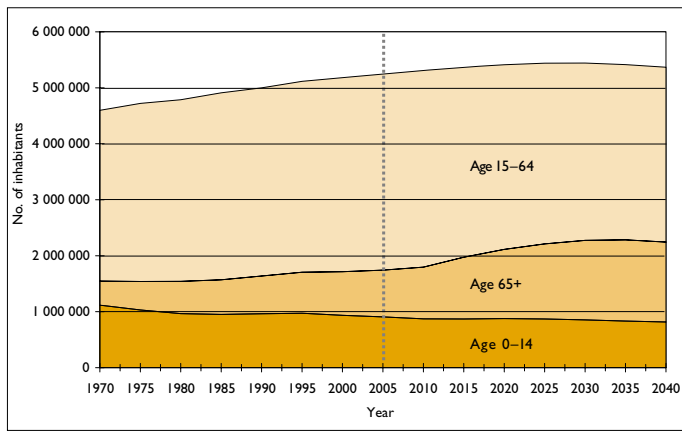


Fig. 6. Population trends in Finland by age groups in 1970–2004 and the prognosticated trend for 2005–2040. According to this, the number of people over 65 will, in 2030, be about 600 000 higher than at present. (Statistics Finland, 2006).

the first stage, those retiring are usually in good health, they have much spare time, and live in easy circumstances; this will increase the demand for leisure-time services. At the second stage, demands will focus particularly on health services and residential services for elderly people whose health condition is deteriorating.

The need for new housing will increasingly depend on the size of households, and this will again reflect the age structure. In 1980 – 2000, only one in four new dwellings was required on account of the increase in population, and three fourths of the additional need for housing was due to the households getting smaller. It can already be seen that in the future, the average size of households will continue to diminish, while people will have more residential space at their disposal. These changes have an essential bearing on future housing, building and land use. The pressure for change is most marked in large growth centres, because previous immigration has brought about a concentration of the large age groups to these areas.

All in all, the very rapid increase in the old age groups, simultaneous with the decline in the younger age groups, will provide serious problems in population development. In depopulation

areas, the problems will largely appear in the form of less use of infrastructure and services, coupled with more difficulties in maintenance. In growth areas, the problems caused by urban dispersal will increase with the ageing of the population. In a dispersed community structure, it will be difficult to provide sufficient and equal services at reasonable cost to those living on the fringes of the centres and in the areas with dispersed population.

The impacts of the population changes are fraught with a number of uncertainties. For instance, part-time homes have become increasingly common during the last few years, but it is difficult to estimate how many of those retiring will, for part of the year, live elsewhere than in their permanent home. We may expect people's ways of life and consumption habits to become increasingly diversified. In their choice of where to live, people will have increasing expectations as to the way of life envisaged, including a pleasant and varied environment, good public and private services, and the accessibility of cultural services, hobbies and social networks.

2.4

Climate change as the most recent environmental challenge

The prerequisites for, and limitations of, human activities are determined by their environment and the natural resources. These may provide new opportunities and, under certain conditions, also offer competition advantages. Economic growth is equally delimited by the environment, and exceeding the limits to the environment may lead to a poorer future. In a risk society, unforeseen developments prevail, and it will become increasingly important to apply the precautionary principle.

The climate change will have extensive consequences for spatial structure and land use. As the climate change progresses, weather conditions become increasingly unpredictable, which will create adaptation problems in the present spatial struc-

ture. The climate change entails major changes in natural conditions, which will affect human conditions all over the globe. As the climate change is rapid, the limited adaptive capacity of the ecosystems will not necessarily be sufficient, and this may mean abrupt changes. The consequences of the climate change will strengthen and accelerate some harmful phenomena, such as floods and the disappearance of original species. If living conditions in other parts of the globe worsen essentially in extensive areas, Finland may have to face bounce-off effects which are difficult to forecast.

Average forecasts dealing with the climate change give Finland a 4–6 degrees (Celsius) higher average temperature by the end of this century, and an average precipitation increased by 15–25 %. Especially winter temperatures and precipitation will rise, and exceptional weather phenomena will become more frequent, although the possible changes with regard to exceptional phenomena are not well known yet. It has been forecast that during this century, temperatures will rise most steeply in the Arctic areas, even by as much as ten degrees.

Northern Finland is an area particularly sensitive to climate change, since a warming will threaten the specific characteristics of the region, such as the reindeer husbandry. Even though it is generally thought that the climate change will have negative consequences, there may be positive effects too, such as a lengthening of the thermal growth period and easier winter navigation. In any case, the climate change is coupled with serious risks that require preparedness.

The increase in precipitation, the stronger winds, the additional downpours and storms, the changes in groundwater tables and freezing conditions, the stronger erosion and more extensive floods all require better preparedness for and adaptation to the climate change, in land use also. Especially, densely built areas will suffer from forceful floods unless sufficient structural erections have been built to stem quick floods. Extensive flooding also increases the land-generated load on surface waters. Changes in the runoff will affect, for instance, the nutrient situation in the Baltic Sea, and, thereby, coastal recreation facilities. The rise of the sea level

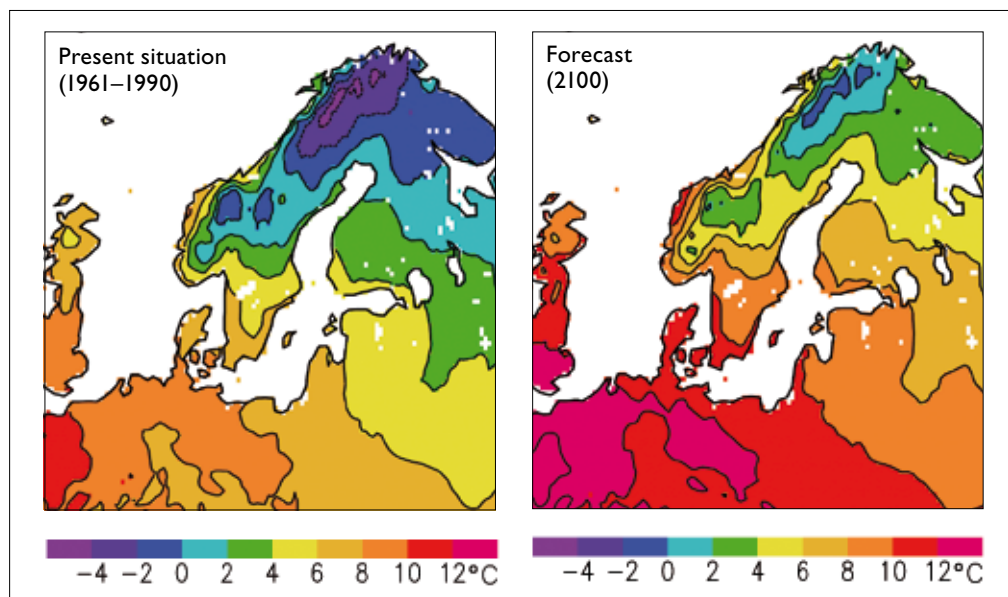


Fig. 7. Present average temperatures in northern Europe, and a forecast for the year 2100. The forecast is based on an increase of 2.6 degrees in the global average temperature, which corresponds to the average increase in various scenarios. According to this, the thermal growth zones in northern Europe will move some 500 km to the north. (SWECLIM/SMHI 2001)

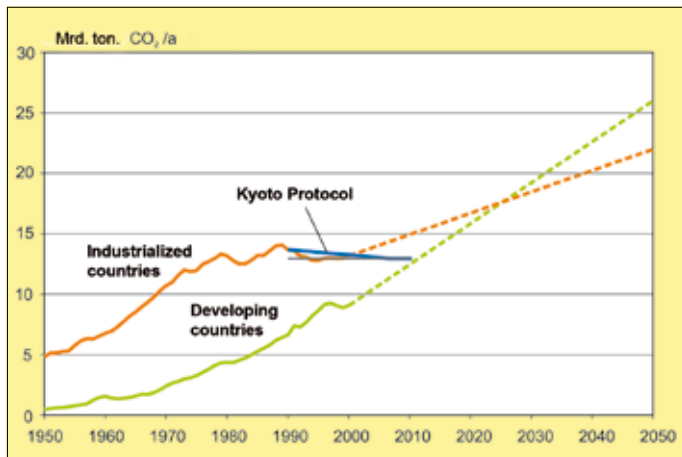


Fig. 8. The share of fossil fuels in the increase of emissions of carbon dioxide. With the implementation of the Kyoto Protocol, emissions from the industrialised countries should level out and stabilise at the level of the early 1990s. (Illustration: State Technical Research Centre).

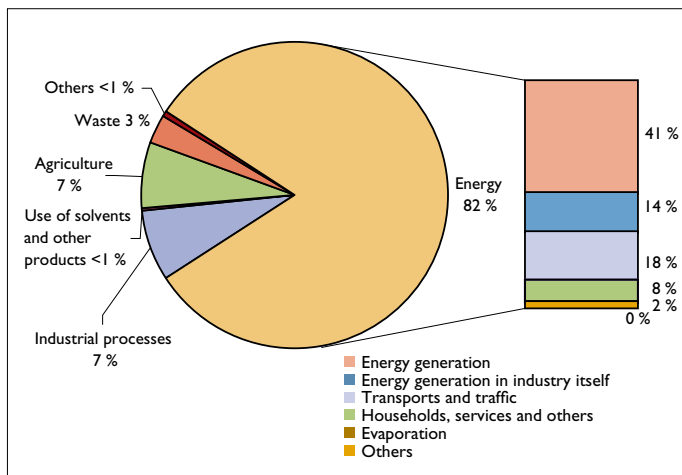


Fig. 9. Finland's emissions of greenhouse gases by sectors in 2004. The energy sector causes most of the emissions; of this, almost one fifth comes from energy use for traffic. (Statistics Finland 2006)

caused by the warming will, to some extent, be levelled out by the land uplift along the Finnish coast. In coastal areas, the risk for floods will be aggravated by stronger winds.

Staving off the climate change is coupled to the obligation to reduce emissions of greenhouse gases and to the local effects of this reduction. The pressures for changes in energy generation will become stronger, since the energy sector is the foremost single generator of greenhouse gases. Efforts are being made to stave off greenhouse gases emissions by greater use of renewable energy sources. Land use in Finland will also be influenced by the efforts towards increased use of bioenergy and wind power.

The spatial structure is important for the amount of emissions of greenhouse gases, mainly on account of energy use for traffic. Dispersed settlements and long distances are the reason for much traffic, which, so far, is entirely dependent on the use of fossil fuels. Transport systems based on cheap fuel will face increasing pressures for change as the availability of oil diminishes and prices consequently go up. Adaptation to the rise in fuel prices, as well as traffic emission volumes, depends on developments in community structure and in technology.

In urban regions, the sphere of daily activities has been broadening for quite some time, and in Finland, settlements are often unfavourably placed with regard to the organisation of public transport and services. A community infrastructure based on the use of private cars is not flexible enough to respond to the change in the age structure of the population, nor to the poorer availability of energy. If urban sprawls continue, the emissions of greenhouse gases will consequently continue to increase, on account of increased dependence on private transport and lesser utilisation of district heating. In transports, a more general use of bioenergy may contribute to reducing emissions. The change towards environmentally more beneficial modes of transport may quicken, if taxation is focussed on the consumption of natural resources, wastes and emissions.

3 Towards competitiveness, well-being and eco-efficiency

3.1

Better international competitiveness

With a view to better economic competitiveness, Finland's spatial structure and land use should build up the prerequisites for national and regional success in an open economy as a part of the European Union. Economic growth is largely based on know-how, and this sharpens the international competition for expertise and enterprises. Finland needs to offer an attractive environment and a well-functioning spatial structure which will attract experts and businesses, and create preconditions for regional specialisation and division of labour.

For Finland's international competitiveness, it is essential that:

- Finland remains a strong actor in Europe, and the overall preconditions are supported by close contacts especially with the Baltic Sea and Barents regions;
- Europe heads towards a polycentric spatial structure based on division of labour, specialisation, and the utilisation of the potential in different regions;
- Finland builds up an internationally attractive and dynamic network of cities and links to the European network;
- Finland's international and national accessibility is improved, and logistics costs are competitive;
- The economic importance of regional natural and cultural environments is enhanced.

3.2

Increased well-being of the population

In order to guarantee the future well-being of people in Finland, it will be necessary to care for a better standard and quality of life everywhere in the country. A major challenge will be to improve the preconditions for earning a livelihood in all parts of the country, while preparing for the ageing of the population and securing the good functioning and livability of communities both in growth centres and areas of depopulation.

For the well-being of the population, it is essential that:

- Communities function well, services are easily accessible, and good and safe living environments preserved both in growth areas and depopulation areas;
- Communications are easy, and especially the basic service level of public transport safeguarded;
- Our unique natural and cultural environments are maintained so as to retain their attractiveness for use in creating high-quality living environments;
- Finland has a polycentric spatial structure based on the potential and strengths in all regions, and on mutual co-operation.

Improved eco-efficiency

In the promotion of ecological sustainability, sustainable use of natural resources is of primary importance, together with the maintenance of a good state of the environment and the preservation of biological diversity. In future, action will be needed to stave off the climate change and to prepare for it. Taken together, the climate change and the rise in oil prices will require better energy performance and improved ecological efficiency, as well as a well-developed capacity for risk management. We should prepare for the climate change by seeing to it that people, natural environments, spatial structure and various functions will be as little disturbed as possible, and that the eventual favourable impacts of the climate change can be used to advantage.

For ecological sustainability, it is essential that:

- The existing built environment and infra-structures are used extensively;
- Regional and community structures are geared to decrease transport need;
- Energy consumption for transports is reduced by means of environmentally less harmful modes of transport and through technological development;
- Good preconditions are created for the utilisation of renewable energy sources;
- The loss of biological diversity is stopped and a favourable environmental state is created in co-operation with adjacent areas.

4 A strong position in Europe

4.1

Taking advantage of the potentials of the Baltic Sea Region

A successful development in Finland is closely related to Europe's growth as a competitive economic area. Potential economic opportunities should be utilised by taking advantage of existing resources in the different regions and by increasing pan-European co-operation, specialisation and division of labour. To achieve this, co-operation areas of significance to the global economy should be built up in different parts of Europe so as to supplement the continental core areas.

With regard to increasing the competitiveness of Europe and of Finland, the Baltic Sea Region has great potential as an area of co-operation. We should build up economic and social strength in the Baltic Sea Region, so that it offers an attractive environment for European growth. At the same time, the northern dimension of Europe, including north-western Russia and the Barents region, should also come into focus.

The Baltic Sea Region should maintain such global functions and services as make it possible to build up and maintain a high standard of living and a well-developed infrastructure. The future of the Baltic Sea Region should be based on networking urban regions with good international connections and which engage the surrounding areas into the division of labour. Baltic co-operation should be strengthened, not only as regards economic activities and traffic, but also with regard to environmental protection, culture and know-how.

In Europe, the Baltic Sea Region plays a special role for St. Petersburg, the whole of north-western Russia and the Barents region, and for all of Europe

with regard to co-operation and the need for an intermediary towards Asia. In developing the Baltic Sea Region, it is essential to actively participate in the utilisation of the economic potential in north-western Russia, according to Russia's growth as a global actor. Special attention should be paid to the emergence of St. Petersburg as a global metropolitan region, with an enormous potential as the centre of a very significant economic area, and to the sustainable utilisation of the strategically important natural resources and transport potential to be found in the Barents area.

Finland's spatial structure should be strongly integrated with the Baltic Sea Region and other adjacent areas. Our location is of central importance for the northern dimension, which opens up new vistas, including an important role for Finland as regards the co-operation both within the Baltic Sea Region and with north-western Russia. Our stable social pattern and well-functioning infrastructure, our high-level know-how, and our extensive and pure natural areas create an internationally highly competitive environment for various functions and activities.

From Finland's point of view, our potential market area will be enlarged by a cohesive spatial structure which, together with our co-operation within the Baltic Sea Region and with adjacent countries, provides new opportunities for our different regions. This will also reduce the disadvantages of our peripheral location and will help us participate in the implementation of environmentally sustainable solutions. Working in the Baltic Sea Region, and in the whole field of the northern dimension, improves Finland's international connections and strengthens our integration into the rest of Europe and, in a broader perspective, the global economy.

4.2

Cross-border development zones

In developing the Finnish spatial structure, particular importance should be given to the co-operation between the cities in the northernmost part of the Baltic Sea. There are great inherent possibilities, especially in networks between Helsinki, Stockholm, Tallinn and St. Petersburg, and in good connections to the whole of the Baltic Sea Region and to Russia. The location of Helsinki in the influence area of St. Petersburg, and the opening of Russia westwards via St. Petersburg, provide Helsinki with the chance of growing into a strong centre on the northern Baltic Sea, and as a European metropolis. To make the best use of this position, the whole of southern Finland should engage in more intense internal co-operation, and the potential of closer co-operation between Helsinki and Tallinn should be fully utilised.

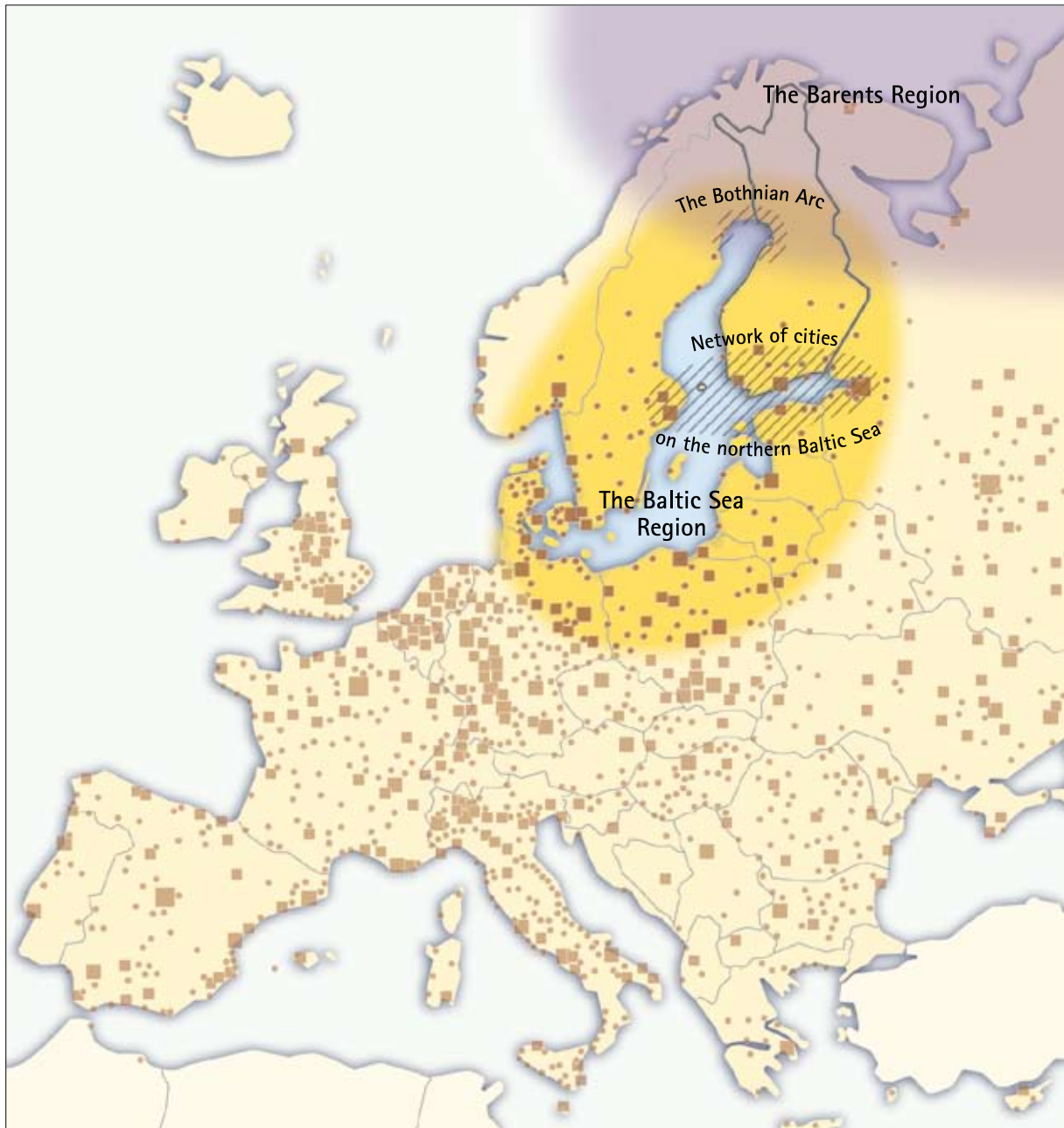
The Karelian Isthmus and the Gulf of Finland are important corridors between Finland and Russia, and they also transmit impacts to and from the St. Petersburg economic area. In this neighbourhood, it is important to build up prerequisites for strengthened economic and other co-operation, on the basis of improved traffic connections. In Finland's internal spatial structure, the east-west direction requires more emphasis to supplement the north-south axis. Our spatial structure should take into account St. Petersburg's status as a metropolis, and its improved accessibility. This specifically concerns the whole of south-eastern Finland, but in addition, the whole of southern and eastern Finland as well. We should be prepared for all those impacts on our spatial structure and our environment which are caused by the Russian's rapid building of land transport facilities and ports infrastructure, also including community-building, for the quickly increasing oil and gas exports.

Eastern Finland and Russian Karelia have good opportunities for economic co-operation, especially in the management and use of forest resources

and in tourism, but also in the preservation and development of natural environments and the cultural heritage. With regard to this co-operation, the significance that the border crossing points have for Finland's regional development should be emphasised and activities diversified, in accordance with the salient features of each region. For Finland, it is important that the border-crossing points grow into more extensive zones, linking together the urban regions and population centres on both sides of the border.

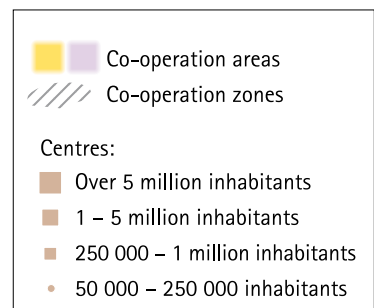
In the co-operation focussing on the Barents region, northern Finland particularly needs to enhance its intermediary role between the Barents region and the Baltic Sea, and further southwards to the main European continent. The aim is for transports across Finland and the Gulf of Bothnia to flow well, be cost-effective, reliable and environmentally safe. Moreover, it will be important to promote tourism, trade and other activities by means of co-operation between the Barents region and northern Finland. Also, the preservation of specific cultural features, the safeguarding of the indigenous peoples, and the management of the vulnerable and poorly regenerative natural environment in the north all require extensive co-operation in the entire region.

On the west coast Finland needs even closer contacts with Sweden and the rest of Scandinavia. As Sweden strengthens its northern coastal network of cities by better rail connections and other activities, it will be possible to form an extensive Bothnian Arc, extending along the coasts on both sides and the northern tip of the Gulf of Bothnia. Internal connections between the Finnish coastal cities also need to be improved. In this entity, the role of the Bothnian Arc, from the Oulu region to Luleå in Sweden, will be strategically crucial, seeing that it functions as the biggest concentration of industry, high-tech know-how and logistics in northernmost Europe. Meanwhile, co-operation between the central parts of Norway, Sweden and Finland should be improved, and this will open up and strengthen connections from the Atlantic coast to Russia, with attending development potentials.



Map I. Main international co-operation areas for Finland's spatial structure.

Finland's main co-operation areas are the Baltic Sea Region, with a remarkable potential for the global economy, and the Barents region, particularly on account of its natural resources. With regard to Finland's spatial structure and the role as an intermediary, the foremost fields of co-operation cover the network of cities on the northern shores of the Baltic Sea and the Bothnian Arc. The Helsinki Metropolitan Region plays a central role in the network of cities in the northern part of the Baltic Sea. The Bothnian Arc will be developed as a central area of the northernmost parts of Europe.



5 A polycentric and networking spatial structure

5.1

A strong network of urban regions and zones

For better competitiveness, Finland's spatial structure, including the network of cities, should be directed towards increasing international attractiveness and smooth functioning, so that preconditions are created for development based particularly on know-how. On the other hand, the well-being of the people requires safeguarding of the preconditions for livability in all parts of Finland. It is also necessary to promote ecological sustainability, and in the first instance, existing infrastructure and facilities should be utilised and spatial structure improved so that they are efficient with regard to energy consumption.

The prevailing trend in the spatial structure and land use is continuing urbanisation, concentrating on the biggest urban conglomerations, and this should be continuously taken into account. The trend has continued for quite some time, and in certain respects responds to the demand for strong urban regions inherent in the tightening international competition, especially in the Helsinki Metropolitan Region. Thus a slow-down in economic growth can be forestalled, and an exodus of activities from Finland prevented. Again, both in growth areas and depopulation areas, concentration also brings out a number of problems related to well-being and ecological sustainability, and these may have a bearing on competitiveness. In order for spatial structure to be sustainable, the deciding issue is not concentration as such, but its direction, and the speed and management of its consequences.

In the long run, Finland's spatial structure should become polycentric, which will contribute to a strong cohesive urban network with internal labour division, so that the centres and regions are mutually supportive. By means of a polycentric spatial structure it will be possible to guarantee access to urban services and functions in all parts of the country, and this will also make it possible to utilise effectively the strengths and existing infrastructure and facilities in each region. A polycentric structure fortifies the economic advantages of scale, all over the country. At the same time, it may also build up the potential of the Helsinki Metropolitan Region so that it grows into a strong European metropolitan area.

Finland's varied spearhead centres for know-how and economic activities are located in different parts of the country and are, together with their influence areas, of primary importance. With regard to spatial structure, these urban centres should be developed as international, national and regional meeting points. In the urban regions, the community structure should be well-functioning, and living environments attractive and easily accessible. An improved polycentric spatial structure will require networking between cities, as well as improved division of labour and specialisation between them on the basis of regional and local factors, strengths and circumstances. Additionally, these urban regions should initiate co-operation and organise a division of labour with other centres and rural areas in their influence area. From a European viewpoint, Finland is sparsely populated indeed, and the mutual interaction between cities and rural areas especially needs strengthened and mutually supportive development efforts.

A promotion of the polycentric spatial structure and the networking will call for development zones with well-established traffic connections. These will serve as links between main urban regions and promote co-operation, while indicating the direction to take. By developing these zones, it is possible to create functionally better market conditions and co-operation areas and, in the long run, a network of zones supporting a polycentric spatial structure in the whole country. Co-operation based on these zones should, by means of comprehensive planning, improve the preconditions and attractiveness of these areas with regard to the placing of activities, more effective transport systems or, for instance, building up tourism. The possibilities of creating functionally diverse zones differ in different parts of the country.

5.2

Entities of diversified regions as a strength

The promotion of a polycentric spatial structure should be based on regional strengths and existing infrastructure. In Finland, there are good chances for polycentricity, since the country has a relatively well-covering network of cities with a balanced distribution of know-how. In addition, the potential for international co-operation varies in different parts of the country, and this makes for different roles for centres and areas. In the same way, the prerequisites for and opportunities of utilising natural resources and natural conditions vary according to geographical characteristics in different parts of the country.

Southern Finland, and especially the Helsinki Metropolitan Region, should become a major actor in the co-operation zone on the northern shores of the Baltic Sea, and in the urban network which embraces St. Petersburg, Stockholm and Tallinn. Southern Finland is the country's main corridor for exports and imports. The eastern parts of the

region are to be built up as gateways to Russia, the western parts as gateways to Scandinavia. The Helsinki Metropolitan Region is the most important logistics centre, both for international flights and other connections, and it should be easily accessible from all parts of the country. Southern Finland is where most internationally and nationally important activities are located. Although southern Finland is a strong growth area by European standards, it still holds extensive forest and water areas which are in an almost pristine state.

With good traffic connections, Helsinki will continue to be the hub of the main development zones in the country, both in the coastal directions and towards the inland. In southern Finland, where the centre network is fairly dense, the zones provide an excellent opportunity for many-sided co-operation and division of labour. The zones are also needed insofar as they make it possible to guide the too rapid concentration from the Helsinki Region to smaller urban centres with rapid rail connections. The building of the short-cut railway from Kerava to Lahti has provided new options for spatial structure and land use in southern Finland. Closer co-operation and improved division of labour in southern Finland also helps develop the Helsinki Region into a European metropolitan area serving the whole country, while making it possible for the other urban regions to develop according to their own strengths.

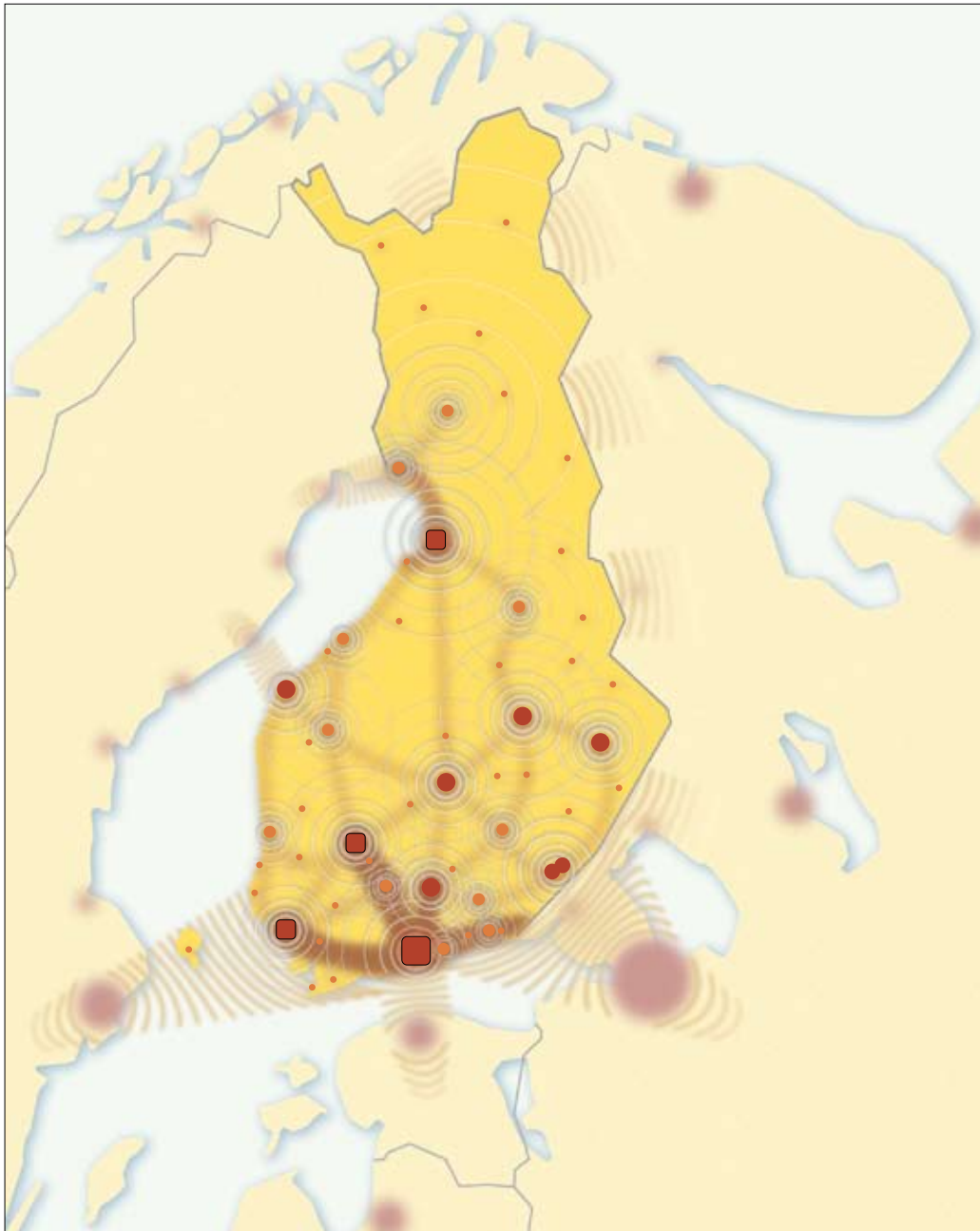
Western Finland is a thoroughfare for functions all over the country. The coast is important to Finland in the development of the Baltic Sea Region, particularly with a view to marine connections, the extensive network of cities, and tourism. The significance and intermediary role of the central parts of the country will increase in a polycentric and networking spatial structure. The development of Western Finland should be based on economic areas surrounding strong centres and located near zones of national importance, with good connections especially to the Helsinki Region. Western Finland plays an important role in Finnish agricultural production. The strengths of the urban re-

gions in the area lie in basic and refining industries and a strong entrepreneurial tradition. Some of the urban regions can boast pockets of internationally important technological expertise.

For the main part, eastern Finland is sparsely populated, and its most outstanding features are scenic natural environments and considerable natural resources, particularly forests. However, the sparsely settled areas are dotted with urban regions of national and even international renown. In addition to services and basic industries, these regions are centres of know-how, specialising, for instance, in welfare technology, expertise on forests and natural resources, or knowledge about Russia. The spatial structure in eastern Finland needs to be built up on the basis of the strong regional centres and their influence areas, and functional co-operation between these should be intensified, as should connections with the capital region and other parts of the country. Additionally, cross-border co-operation should be strengthened and the closeness of the St. Petersburg metropolitan area utilised so as to provide a bridge to other parts of Finland.

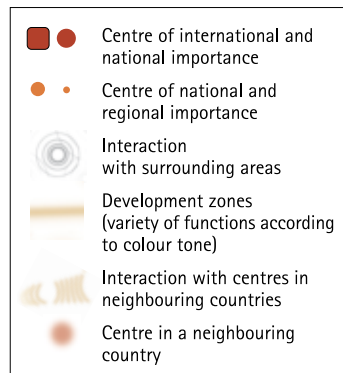
The strength of northern Finland lies in its location as part of both the Barents region and the Baltic Sea Region. This extensive area needs improved co-operation and enhanced intermediary functions. Although northern Finland, especially Lapland covers a vast area and is one of the most sparsely populated regions in the whole of Europe, functions and conditions are extremely varied, so that the scope encompasses, for instance, high-level know-how, strong basic industries and good natural resources, international tourism and logistics centres. In the conditions prevailing in northern Finland, the significance of centres of different sizes and types, including tourist centres, becomes important for the safeguarding of services, but there is also a need for networking and division of labour. The spatial structure is also influenced by the long distance to the capital region and to other European metropolises. Oulu, supported by other centres on the Bothnian Arc, the northern coast of the Gulf of

Bothnia and in northern Finland, should be developed as the main centre for high-level know-how and industry in northern Europe.



Map 2. A polycentric and networking spatial structure.

The development of Finland's spatial structure is based on a polycentric urban network. The polycentric structure should be based on the strengths of different parts of the country, bearing in mind the advantages of location and existing infrastructure. Diversified centres of know-how and economic activities should be built up as focal points in the spatial structure, and mutual interaction and networking with surrounding influence areas, other regions and neighbouring areas should be promoted.



5.3

Coherent and attractive urban regions

In a polycentric structure, a critical factor from the viewpoint of competitiveness, well-being and ecological sustainability is how the centres develop into regions and form links with their influence areas. Regional development should be guided to create attractive regional entities with a coherent community structure which satisfies the needs of the environment, business and industry.

Developing a coherent community structure is of central importance, not only for staving off the climate change effects, but also to create preparedness for the ageing of the population. All unregulated urban sprawl and other reasons to unnecessary increase traffic should be stopped. A coherent community structure makes it possible to use a wide palette of environmentally sound policies and means: emissions from transport can be decreased, district heating is feasible alternative, the need for very extensive municipal engineering networks diminishes. Generally speaking, community infrastructure should be based on already existing facilities as much as possible. The locating of services and other functions should be directed so as to make them accessible to different population groups by walking, light traffic and public transport.

The quality of the living environment and the good functioning of community structure are increasingly decisive as competition factors, both in Finland and elsewhere. For this reason it is important, when developing communities, to pay attention to the quality of housing, including alternatives, to the output of residential arrangements at reasonable prices, to the accessibility of services, the functioning of traffic, and to healthy and attractive environments. These are important attraction factors for people when they choose where to live and how they run daily life. A human scale, closeness to nature and overall safety are issues which are important not only to Finns but which also con-

stitute internationally distinguishable advantages in competition. These advantages should be fully utilized.

The urban regions need to be supported by more extensive economic areas with a view to the labour market and the distribution of specialised services. The community structure arrangements should fortify regional co-operation covering more extensive areas. People must be able to fulfil their wishes with regard to residential services without the creation of dispersed community patterns with subsequently ensuing ecological, social and economic problems. The issue here is the building-up of a polycentric structure within each region and, more extensively, in its influence area. This calls for stronger networking between urban regions and centres within their spheres of influence, for logistics centres and other hubs of activity, and the creation of corridors of growth and good public transport facilities.

The transport network is a main factor in facilitating interaction between rural and urban areas. It is important to provide well-functioning traffic connections of good quality, easily available public transport, and improved preconditions for such. The maintenance of scenic beauty and of the cultural heritage in rural areas near cities will also contribute to making urban regions attractive and businesses competitive. Housing located in rural areas near cities should be developed towards ecological efficiency and high social quality, and existing village patterns, which are often of cultural significance, should be fortified.

6 Improved accessibility in an environmentally sound way

6.1

More effective and environmentally friendly transport systems

In building up a polycentric networking spatial structure in Finland, and in improving Finland's international position, efficient transport and communication connections will be of vital importance. Similarly, in each region, traffic and data communications and services are focal in increasing economic attractiveness, together with the well-being of the population. Urban conglomerations should be effectively connected to the global economy, to one another, and to the rural areas. The transport systems should also contribute to our sustainable development. Both with a view to the environment and with a view to public finance, there are excellent justifications for making the present transport systems more effective and for improving existing connections, instead of devoting resources to new connections. Both in developing the entire transport system and in improving infrastructure, we should be prepared for decreasing availability of oil and for increasing fuel prices.

The transport system will face increasing demands resulting from changes in the composition of business as well as industrial processes and production. In addition to speed, factors such as security, accuracy, cost-effectiveness and safety will come to the fore. Logistics costs need to be curbed, while services should be kept competitive in relation to costs in other countries. Travel chains and logistics chains especially, including junctions and transfer points, need to function well.

In order to stave off the climate change and reduce environmental damages, environmentally friendly modes should be developed. Within the framework of traffic policy, the planning of both spatial structure and community structure should be geared to stemming the growth of traffic and promoting safe modes of transport which have as low environmental impact as possible. This requires additional inputs into public transport and lanes for light traffic, and it is also justified on account of the strong increase in the old-age population group. Increasing attention should also be directed to removing risk-causing obstacles from traffic areas.

In the future, various adaptations of information and communication technology will facilitate overall mobility and will also contribute to a more effective use of the capacity of transport networks. Rapid and user-friendly data communications with a good regional coverage should be available to all citizens and businesses, as they support the goals of competitiveness, the well-being of the population, and ecological sustainability.

6.2

Stronger international connections

In order to be competitive in the global economy, Finland must overcome the problems caused by peripheral location but must also take advantage of strengths. Seen from the central continental European market, Finland lies far across the sea. However, for example our traffic connections to rapidly

developing Russia are good. Our skies are not congested, which is an evident strength in northern intercontinental flight connections. It will become increasingly important to improve passenger and goods traffic connections to continental Europe, to Russia and to Asia.

International connections are primarily served by the Trans-European Traffic Networks (TEN tr), which cover practically the entire European continent. One of the TEN priority road projects, the Nordic Triangle and the Baltic motorway (Via Baltica), the maritime Motorway of the Baltic Sea linked with short sea shipping logistics, will particularly improve Finland's accessibility.

In international air traffic, fluent travel chains and good connecting traffic are a must. The concentration of Finland's air traffic to the Helsinki-Vantaa airport requires improved land connections, such as a rail link to the airport. Other heavily used airports should also be able to offer options for direct international connections.

The maritime connection across the Baltic Sea should still be improved as the most important route Finland's foreign trade. The significance of quicker, well-flowing transports across water will increase, one reason for this being the need to stave off the climate change. Special attention should be paid to the development, in the Baltic Sea Region, of transport chains based on maritime transports. Even during cold winters, navigation should be kept possible to all main harbours, and the main roads and rail connections the harbours should correspond to need. As maritime traffic increases, the prevention of environmental risks should be made more effective, and overall preparedness to combat environmental damages improved.

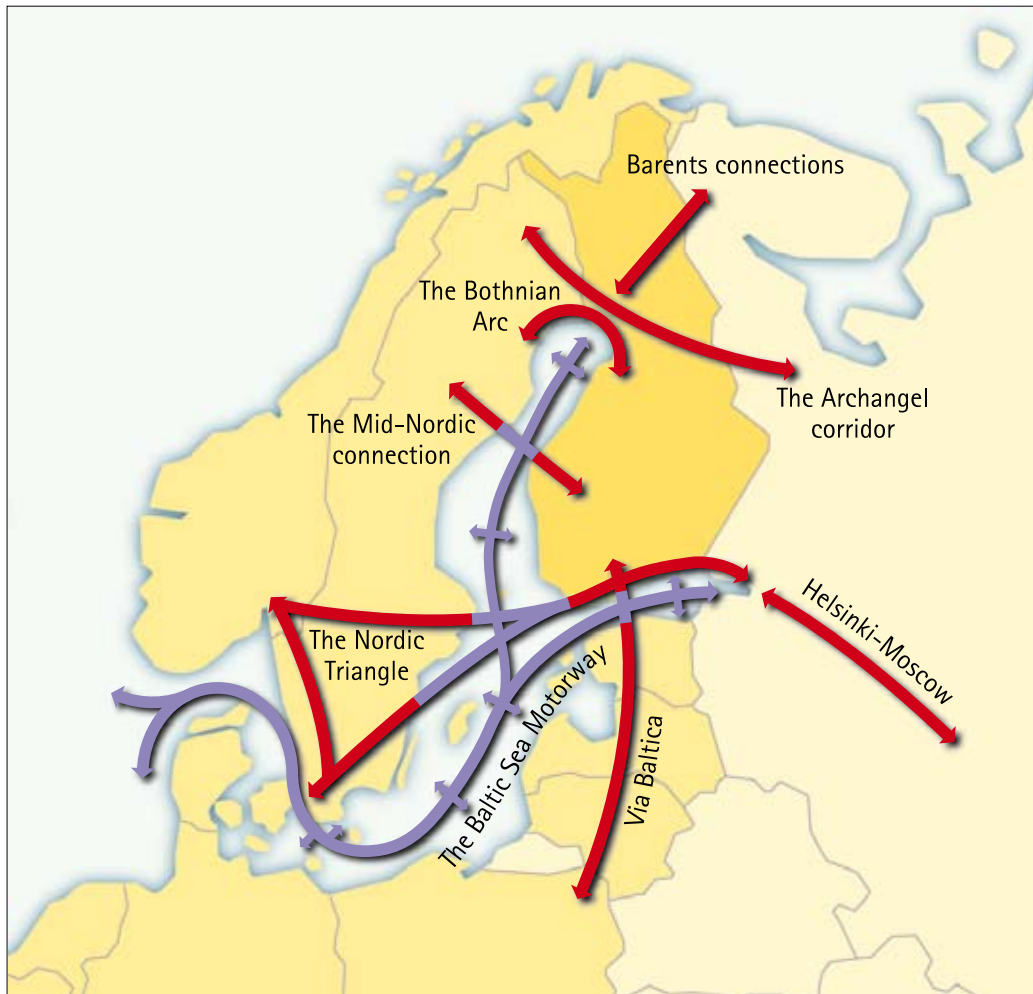
In the Lake Saimaa district, it is important to safeguard waterway transports with a view to the competitiveness of Finland's easterly heavy industry, especially wood refining. Unless we can secure a sufficiently long-term contract to lease the Russian part of the Saimaa Canal, we should be prepared to build an alternative waterway from the Lake Saimaa district southward to the Gulf of Finland.

The competitiveness of rail transport with road transport should be improved in international passenger and goods traffic, and especially between Russia and Finland. Of Finland's international rail connections, the most important part is the stretch between Helsinki and St. Petersburg. The improvement and shortening of this link will shorten travelling time between Helsinki and St. Petersburg from the present 5.5 hours to three hours. These developments as well as making border crossing customs routines more effective and rapid, are important especially for business and industry in eastern Finland, and therefore for the enhance spatial structure and land use in these regions.

Finland's main international road connection to Russia is the E18 road between Turku and the border crossing point of Vaalimaa. It is part of the Nordic Triangle, connecting the Nordic capitals and St. Petersburg. For Finland, to improve the this connection to motorway standard all the way from Turku to Vaalimaa is of great importance because the E18 is a main road connection to Russia and to Sweden, Finland's most important trade partners. Likewise, the development of the Via Baltica, the main link from Finland across the Baltic countries to Poland and further into Continental Europe, is essential to Finland.

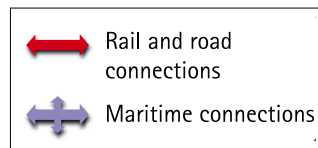
A rail connection between the Finnish and Russian Karelia would enhance the Archangel corridor, which is of great interest to northern and eastern Finland, and would at the same time provide an alternative route of transport via the more southern crossing points for both Finnish and Russian industry. In Finland's northerly areas, the Barents connection between the northern areas of Norway, Sweden and Finland and north-eastern Russia is important. The utilisation of the oil and gas resources of the Barents region will increase pressures for better traffic connections in this region. Barents connections could be improved with a possible restoration of most northern rail connection with a continuation further to the Russian side.

The Archangel corridor and the Barents connections meet in the region of the Bothnian Arc and are thereby also linked to the Motorway of the



Map 3. International land and sea connections of importance to Finland

International traffic connections will be further developed especially to continental Europe and to Russia and Asia. The maritime connections across the Baltic Sea will be maintained and improved as the most important channel for Finland's international trade. The Northern Triangle and the Via Baltica motorway connect the main cities of the Baltic Sea Region with one another. In the utmost northern areas of Europe, the Barents connections, the Archangel corridor and the Mid-Nordic connection will serve increasing co-operation and also long-range transports.



Baltic Sea. The Bothnian Arc will become a major co-operation area and the site of the main logistics centre in the northerly areas of Finland and Sweden. Traffic networks in this zone, and around the Mid-Nordic connection over the Gulf of Bothnia, should be improved both in Finland and in Sweden so as to serve both the increasing co-operation and the increasing long-range transports.

6.3

National networks to support polycentricity

With increasing networking in industry and simultaneous concentration of production, the equal development of Finland's different regions requires improved national connections, according to traffic needs. Finland's National Land Use Guidelines, issued by the Council of State, define the traffic networks of national importance. Land use should be such as to safeguard the development of these networks, emphasising good accessibility, safety, and service levels according to real need. Well-functioning main traffic connections also support the vitality and livability of rural areas and provide them with good preconditions for development. Good and well-functioning main traffic connections to nationally and regionally important centres, and especially the Helsinki Metropolitan Region, are of the utmost importance.

The long-term goal is to develop parts of the traffic networks as high standard trunk roads linking the Helsinki Metropolitan Region to the regional centres, and most of the major urban regions to one another. The trunk networks should support a polycentric spatial structure and serve important international connections. The trunk rail network consists of trunk lines for rapid passenger traffic and for heavy goods traffic. The trunk roads represent the highest quality of nationally important roads. These roads are designed particularly with a view to the smooth flow and safety of long-range traffic.

Improved competitiveness with regard to passenger traffic requires an extension of the network of rapid rail connections from Helsinki to the biggest cities in the country. Rapid rail connections will effectively link centres together, the centres then forming a string of development zones where spatial structure and land use should be planned as one entity. Examples of this are provided by the Helsinki-Tampere and the Helsinki-Lahti zones.

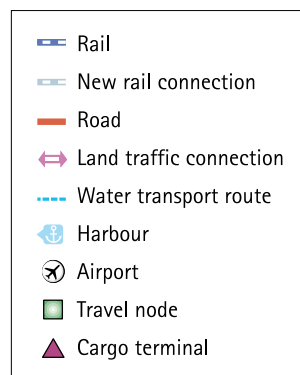
In the long run, it will also be necessary to be prepared for the building of new rail connections.

Heavy goods traffic should, to the extent possible, be transferred from the roads to rail lines. The rail connections for heavy goods traffic should collect the main goods flows required by business and industry and lead them to harbours and border stations. Especially with a view to the cost-effectiveness and environmental sustainability of basic industry transports, it is important to be able to increase axle weights on the most heavily used lines for heavy goods transports.



Map 4. Traffic networks of national importance.

The nationally important traffic networks are the main routes for rail, road and water traffic, as well as the biggest airports, harbours, travel centres and cargo terminals. The development of these networks should be safeguarded while stressing good accessibility and safety. The goal is to build up, in the long run, some of the traffic networks as high-quality trunk networks. In the long run, it will also be necessary to build new rail connections.



Secured regional and local connections

As Finland's traffic networks are developed, it is important to see to it that regional and local traffic connections remain well-functioning. The basic needs of the population in areas with dispersed settlements, and the transport needs of business related to agriculture and forestry, should be satisfied. This is why roads of even a lower standard should be in a condition which ensures that transport is possible under all conditions and at all times round the year.

The availability of public transport is a key issue with regard to the vitality and livability of rural areas. The depopulation of the rural areas is leading to a situation where only a minor portion of public transport services can be maintained with ticket income. However, it is necessary to guarantee mobility in all rural areas by rearranging public transport systems into well-functioning entities. In the organisation of public transport services, it is important to increase regional and interregional cooperation and to improve publicly financed transports by, for instance, combining transports. In the management of public transports, it is necessary to utilise smaller equipment suitable for areas with dispersed settlement, and the new opportunities provided by the communication technology, such as call services, should also be utilised.

The smooth flow of internal traffic in urban regions should be seen to, and environments should be kept healthy and attractive, primarily by means of improved public transport. The attractiveness of public transports should be increased in urban regions by making such transports more efficient and safe, raising their quality, and increasing their accessibility. New land use solutions should be geared to effective utilisation of existing public transport connections. Moreover, arrangements should be made for smooth and safe light traffic.

7 The high-quality environment as Finland's strength

7.1

Good living conditions in rural areas

Besides strong centres and good accessibility, Finland's international competitive capacity and the well-being of the population are also dependent on the high-quality environment and the natural resources. A good quality of life is increasingly built upon healthy, secure, peaceful and natural surroundings. All this can be counted among Finland's strengths, both in rural and in urban areas. This is because Finland's spatial structure differs from the continental core areas, insofar as we have an extensive and pure natural environment, whereas population concentrations are small. The diversity of the natural and cultural environments provides excellent opportunities for the enjoyment of leisure time and for tourism. Moreover, the rich natural resources also have site-dependent attractions, which will have increasing weight in the future. The use of these should be organised according to the principles of sustainable development. A high-quality environment as one of Finland's strengths requires well-considered integrated land use.

In the development of land use in rural areas, the aim is to preserve the preconditions for agriculture and forestry, to diversify business and industry, and to provide residential services with due consideration of the specific features of the region. In southern and western Finland, good agricultural land should continue to be used for agriculture with a view to both national food safety and the maintenance of rural landscapes. In the core rural areas, there should be good preconditions for continued agriculture. In agriculture, specialisation

on ecological production, clean foods and renewable energy generation will become increasingly important.

The maintenance and strengthening of biological diversity and the variety of natural values calls for the creation of openings for various businesses. Productive activities should spread out from agriculture, especially in rural areas in the vicinity of cities. Again, in sparsely populated rural areas, the required sources of better income include enterprises capable of utilising and combining in various ways the possibilities inherent in the natural surroundings.

In agriculture and forestry, it is increasingly important to take effective action to reduce the diffuse load on the waters and to stave off the climate change. The longer thermal growth period, resulting from the climate change, will improve Finland's position as a producer of foodstuff, but the climate change will also have negative impacts on agriculture. The variations in production circumstances, caused by the climate change, create a need for greater flexibility and variability in production patterns. If production patterns in large agricultural units are too narrow, this causes major risks in a rapidly changing environment. Additionally, such modes of production weaken biological diversity and increase transport needs. We should prepare for the forthcoming changes by developing small-scale local food production, diversifying and obtaining better coverage, and creating preconditions for small-scale logistics suitable for local distribution.

Developments in different rural areas vary, and the landscape will also change in the vicinity of settlements, with the increasing size of farms, or with inputs for tourism. Such developments may

affect the attractiveness of areas as living environments. Land use solutions will influence the type of entities to be found in the landscape. In planning and locating activities, it is important to look for solutions which support the utilisation of a varied landscape as an attraction factor. A well-tended cultural environment may provide the basis for local and regional specialisation. The utilisation of the cultural and natural environment should be combined so as to serve both the local settlement and the tourist industry.

In rural areas close to cities, urban decentralisation may be the reason for new land use conflicts, especially bearing in mind the needs of increasing traffic on the one hand and effective agriculture on the other. Such conflicts may be alleviated by well-considered planning of activities, also bearing in mind the increasingly diversified industries in rural areas, such as landscape and conservation work, the management of small surface waters, day tourism to farms, and the production of other services.

7.2

Sustainable use of natural resources

Both from an economic viewpoint and with a view to biological diversity, Finland's forests will remain an important strength. Forests are important for the regional economy, including the utilisation of renewable natural resources. The increased forest growth resulting from the global warming, together with changes in the species composition, require fresh consideration of how to combine the economic utilisation of forests with conservation interests. The aim is to maintain the full scope of natural habitats in all forest areas, so that species now occurring in conservation areas only can eventually spread to new areas because of changing climate conditions.

The clean waters are one of Finland's special strengths. Nevertheless, the quality of our surface waters and groundwater can and should still be improved, and therefore, it is important to plan land use bearing in mind the impacts on natural catchment areas. This will also facilitate the organisation of adaptation to foreseeable changes in precipitation and evaporation, and will particularly restrict the risk for floods. To stop the worsening of the state of the Baltic Sea, effective action is necessary in the whole catchment area. Esker areas, and especially the Salpausselkä esker ridges, require particular attention on account of the conflicting interests as to their use. The Salpausselkä ridges are an important area of groundwater formation and filtration, quite close to the most densely populated areas of the country, so that it is important to minimise, in all types of land use, any risks for affecting groundwater quality.

There should be a significant increase in the use of renewable energy sources, especially bioenergy. In the future, the production of bioenergy will offer a broad scope of action. Locally, in particular, it will be possible to guarantee energy generation, for example by utilising manure from animal farms. Cultivation can be continued and the productivity of agricultural fields promoted by means of plants suitable for producing bioenergy. Bioenergy is important especially with regard to maintaining settlements in rural areas and their vitality, and to small rural centres, since it can be produced in dispersed small areas. Likewise, in energy generation, the significance of windpower will increase as more effective technical solutions become available. Along the coasts of the Baltic Sea, especially on small carefully selected sites in the Quark and the northern part of the Gulf of Bothnia, several major windpower parks should be set up.

Mires are an essential part of Finland's natural surroundings, and from an international viewpoint, they are extremely representative and biologically diverse, so that attention should be paid to the preservation of their natural values.

Emission trading weakens the position of peat in energy generation, but for regional policy reasons, its competitiveness in relation to non-renewable import fuels should be maintained. In the final treatment of areas where peat extraction has come to an end, one conceivable alternative is to use energy-producing plants for landscaping.

The extraction of ore and minerals has importance for the regional economy, particularly in northern and eastern Finland. This will often require major investments in infrastructure. In the utilisation of mineral resources, the protection of the landscape and the groundwater should be taken into account according to the principles of sustainable development.

The non-renewable domestic natural resources which are most extensively used in Finland are gravel, sand and stone materials. Today, usable gravel resources are getting scarce, especially in the vicinity of larger population centres. The use of natural gravel is delimited by the consideration of the protection of groundwaters, community building, the landscape, and nature conservation. Nowadays it is possible to substitute natural gravel with stone materials. The extraction and use of soil substances should be centralised so as to reduce negative environmental impacts. As technology develops, gravel extraction from the sea areas and, possibly, from below the groundwater table, will become an economically and environmentally feasible alternative. Nevertheless, gravel extraction should only be permitted outside groundwater areas. In order to reduce the extraction of soil substances, they should be used more effectively both as regards amounts and quality, and the use of substituting substances should be encouraged.

7.3

Regional characteristics attracting leisure-time activity and tourism

The diversity of Finland's natural and cultural environments, and biological diversity, form the basis for expanding tourism and recreational services. Cultural sites and nature conservation areas are resources to be taken into account in rural development and also in maintaining ecological diversity. These strengths should be used according to region, bearing in mind the particular features in various locations. In expanding recreational and tourist services, it is important to engage the local inhabitants and groups so as to initiate a favourable development.

In Finland, everyman's rights, or the right of public access to nature, together with the relatively sparse settlements provide good overall possibilities for outdoor recreation of various kinds. Outdoor recreation should particularly be developed in the more densely populated areas, where the demand for such is biggest. In order to guarantee good accessibility to outdoor recreation facilities and services, and to reduce the need for traffic, recreation areas and services for daily use should form part of settlement patterns, but such should also be available in remoter wilderness-like areas in the vicinity of major centres, and particularly the Helsinki Metropolitan Region. The quality and maintenance of regional recreation areas and routes need improving.

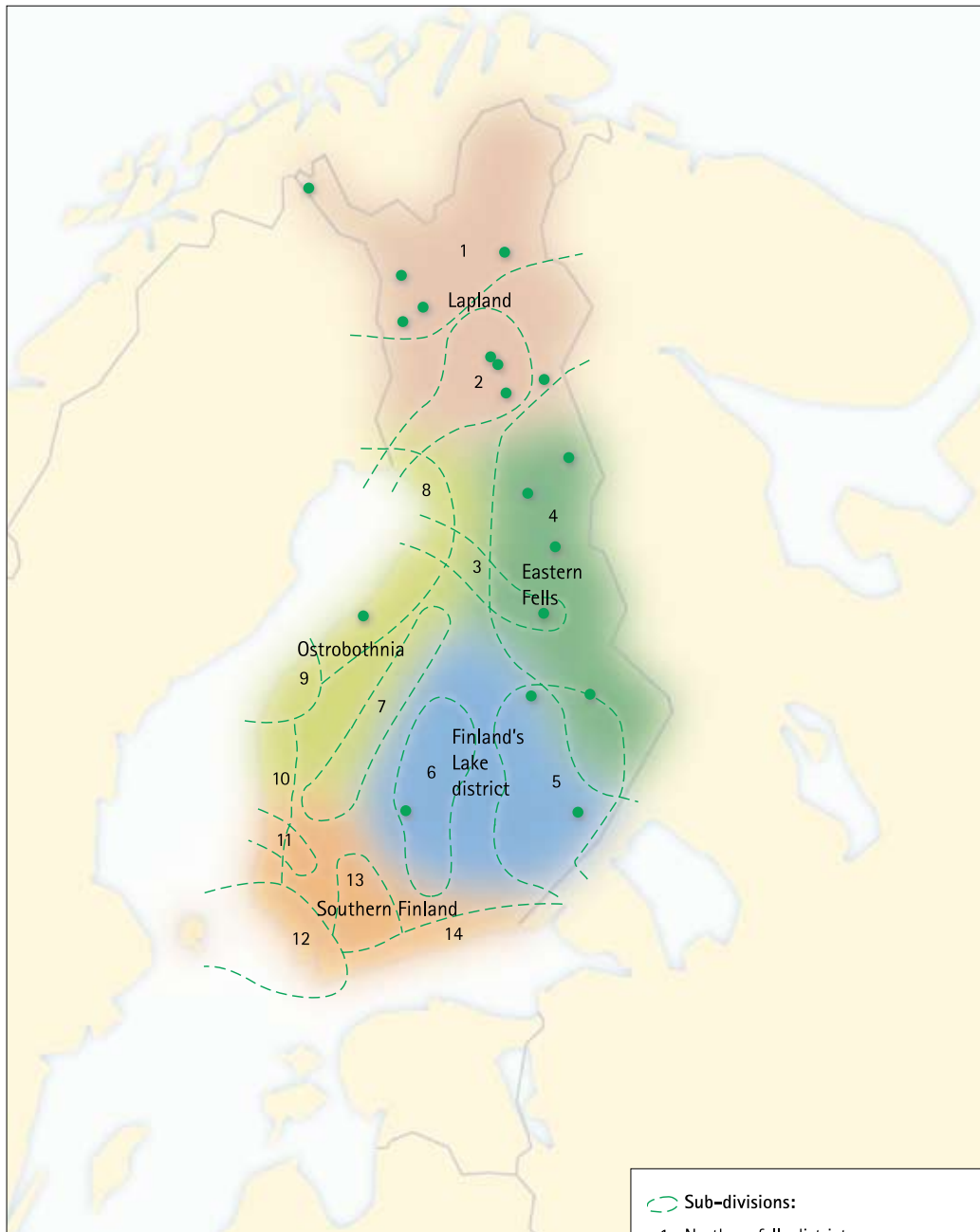
As leisure time increases and part-time living in holiday houses becomes more common, holiday housing is getting to have significance with regard to spatial structure. In rural areas, shore areas will remain an important resource, even in the future. The local population should have different opportunities to benefit financially from holiday-house dwellers. Holiday housing should be placed so as to support existing village patterns and services.

At the same time, care should be taken that the peace and quiet and natural values so essential for recreation are not jeopardised. Guidelines should make sure that there will also remain free stretches of shore for the general public to use.

The best chances of promoting tourism lie in utilising the peace and quiet of our northern natural environment, the variation between the four seasons, the inland lake systems, and the archipelagos off the coast. Finland should be presented as an object for nature tourism on the basis of its natural riches and the broad variety of its regions with their special features. In developing tourism, we also need more co-operation with the neighbouring countries, especially in the north and in the east.

The broadening of tourism services should be based on the utilisation of the strengths of each region. Tourism needs to be built up and diversified particularly in those areas where it has a marked effect on the regional economy. In northern and eastern Finland especially, nature tourism centres of importance to spatial structure and with varied services should be strengthened in accordance with the principles for sustainable development. In this respect, it is vital to safeguard landscape values and to provide high-quality tourist services which are dimensioned according to the carrying capacity of the environment. The attractiveness of the surroundings of tourism areas should be heightened, sustainable nature tourism promoted, and the pre-conditions for such activities safeguarded.

Winter tourism in Finland has its major attractions in our snow conditions, which are now being threatened by the climate change and may worsen as the change continues. At the international level, northern and eastern Finland still retain the possibility of taking advantage of winter tourism, especially if the attractiveness of the traditional alpine resorts in central Europe lessens with the climate warming. Winter tourism should particularly be promoted in existing tourist centres. The silence and the long dark "kaamos" period may prove to be specially attractive to foreign tourists.



Map 5. Regional entities important for their natural environments and landscapes.

Finland's diverse geographical regions have their particular strengths in the specific regional features of the natural and cultural environments. They form extensive entities, namely: Lapland, the eastern fells, the inland lake district, Ostrobothnia, and southern Finland. These entities may be subdivided, and spatial planning should be careful to preserve those characteristics which are attractive with a view to recreation and tourism. Nature tourism centres of importance to spatial structure should be strengthened according to the principles of sustainable development.

Regional entities important for their natural environments and landscapes

Lapland

In Lapland, land use is determined by the almost untouched wilderness-like environment, which is extremely vulnerable and sensitive to change: the fells, forests, mires, rivers and brooks. In our adaptation to the climate change, it is of particular importance that the characteristic features of the fell areas are preserved, and in this respect, we need to co-operate with the neighbouring countries. The Kemijoki water system, where the course of the river displays the sparse settlement pattern, should be considered as one entity. In Lapland, the tourist centres play an important part, both as sources of income and as safeguards for the preservation of local services. In a warming climate, Finland's chances of winter tourism activities will prevail in Lapland for the longest time. The Sami homeland will be planned so that the most important industries of the Sami culture are preserved, and this should take pride of place while interacting with other land use needs.

Eastern fells

The eastern fells district displays configurations of lakes and fells covered by forests, a wilderness-like area suitable for nature tourism and other nature-based enterprises. Winter tourism in the area is being developed as an industry. The development goal for the wilderness areas in the eastern fells district is to improve the prerequisites for nature tourism, based on the existing tourist and conservation areas. For tourism, there are exciting prospects along the untouched shores of small lakes in the wilderness areas.

Co-operation across the eastern border is important in the Karelian district, and on both sides of the border. Joint efforts will make it possible to manage the state of the environment better, and to increase tourism. From the tourism point of view, attention should be paid to the regional entity from northern Karelia to Salla, which extends to the Russian side of the border. This

area has several attractive tourism centres, and there is much potential for expansion. Cross-border co-operation may become a particular asset, especially in promoting wilderness tours and culture tourism. Lake Oulujärvi, which is part of the huge Lake Oulujärvi-River Oulujoki water system, displays a unique combination of different landscape elements and is an attractive tourism area, and this should be borne in mind in regional development planning.

The Inland Lake District

The characteristics of the lake systems in Finland's lake district are internationally unique in their small scale: the shallow meandering waterways are dotted with small islets. The only exception is the broad expanse of Lake Saimaa, and the extensive open areas of Lake Päijänne, bordered by mountainous wilderness. The district is extremely popular for holiday-housing, as it is easy to reach both from the Helsinki region and from other major centres. In land use planning in the inland lake district, holiday housing requires continued and increased attention. The existing infrastructure and facilities and the tourist attractions in the district can still be improved, with support from minor urban conglomerations and the services offered there. Recreational activities, tourism dependent on the lake systems, and the inland waterways should be developed while protecting the special features of the district. In planning, the Lake Päijänne-Lake Keitele area on the one hand, and the Vuoksi water system running into Russia on the other should be treated as separate entities. The Vuoksi River area opens up new ways of co-operating with Russia.

Ostrobothnia

Land use planning on the vast Ostrobothnian plain requires consideration of the special coastal features. The Quark archipelago is internationally unique on account of the land uplift phenomenon. Moreover, the old wood-

en towns and villages with their harbours, interspersed along the coastline from north to south, are potential major attractions. In addition to the land uplift, the level agricultural land traversed by broad river valleys, forests and mires characterise the area and determine land use. It is important to develop the river valleys as entities, bearing in mind the need to forestall serious flooding. The northern part of the Gulf of Bothnia needs special attention since it is the cleanest part of the Baltic Sea, and this includes continued curbing of land-generated pollution loads. The Suomenselkä watershed area is within easy reach of the major centres and has a number of extensive wilderness-like areas. This is where wintry silence can well be exploited for tourism and recreation.

Southern Finland

By international comparison, southern Finland can boast quite extensive and coherent green areas that surround the capital region. However, these are subject to many land use pressures and their preservation requires much work. The large portion of built and cultivated land in southern Finland has already resulted in many green areas being split up into mosaics. The most extensive and valuable remaining natural green area is the Häme-Uusimaa lake plateau, which requires special consideration when developments are planned. Similarly, the built cultural environment should be looked after as part of the attractions of the living environments and other milieus, and the built heritage is also interesting for tourists. The specific features of valuable landscapes should be preserved intact, such as the Kokemäenjoki river valley with its cultural and historical heritage forming part of the landscape.

In developing the coastal areas in southern Finland, emphasis should be placed on diversified uses for recreation and tourism, while bearing in mind both conservation needs and the interests of local people with their businesses and industries. The environmental risks

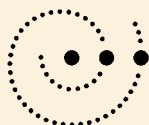
caused by increasing maritime transports on the Gulf of Finland require improved preparedness to combat pollution, and also preventive work in the planning of transport chains together with the other countries bordering the Baltic Sea. In tourism too, international co-operation, especially across the Gulf of Finland, will help build up co-ordinated activities. Another main prerequisite for more extensive tourism along the coast and in the archipelago is the provision of good connections along the waterways. The Archipelago Sea requires special attention as a main attraction for future international tourism.

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<i>Abstract</i>	<p>This document presents the Ministry of the Environment's views on the long-range sustainable development of Finland's spatial structure and land use. It is based both on an interactive work process with stakeholders and on international and national studies and plans. These perspectives should provide support to the Finnish Regional Councils and the government authorities in developing spatial structure and land use. It is also an invitation to an international dialogue based on the presentation of Finland's views and our need of co-operation.</p> <p>In the future, especially globalisation and economic development based on know-how, but increasingly also the ageing of the population and the climate change will have an impact on the location of functions and activities, and all this constitutes remarkable challenges for planning spatial structure and land use. Since decisions on land use and spatial structure have long-time effects, they should be given a sustainable direction so as to support Finnish competitiveness, ecological sustainability, and the well-being of the citizens.</p> <p>For Finland to be able to act and be successful in the global economy, the spatial structures should be linked to developments in Europe and the neighbouring countries and regions. Advantage should be taken of the opportunities offered by the Baltic Sea, and the emergence of cross-border development zones should be promoted. A polycentric and networking spatial structure support the strengths of each region as well as the advantages of the optimal utilisation of already existing infrastructures and built environment. Accessibility should be improved, but this should be done in an environmentally friendly way. The quality and variety of Finland's environment is a strength indeed. It provides excellent conditions for high-quality living environments, tourism and the utilisation of natural resources.</p>			
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For Finland to be successful in the global economy, the spatial structures should be linked to developments in Europe and the adjacent areas. Advantage should be taken of the opportunities offered by the Baltic Sea, and the emergence of cross-border development zones should be promoted. A polycentric spatial structure will support the strengths of each region and the utilisation of advantages in location and existing structures. Improved accessibility requires inputs, but these should be environmentally safe. Finnish regions have a particular strength in their varied environments, which provide an excellent framework for high-quality living environments, more extensive tourism, and the utilisation of natural resources.



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