



**City of Helsinki**

**Environmental Report | Summary 2010**

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The City of Helsinki Environmental Report is a joint report by the departments within the organisation of the city, describing how the environmental objectives of the city are reached and the effects of the operations on the environment. All of the 29 city departments and seven public utility companies have produced information for the report compiled and edited by the Environment Centre. Work for a better environment by the subsidiary organisations within the Helsinki Group (96 subsidiary organisations and 11 foundations) is presented in the report.

The Environmental Report and the material produced by the departments is available on the website (please see the cover for the address). A working group appointed by the City Mayor, consisting of representatives of the most significant departments and public utility companies from the perspective of the management of the environmental effects, coordinates the environmental reporting. The City of Helsinki places a remarkable burden on the environment, but is also an important operator in environmental protection.

- At the end of 2010, the population of Helsinki was 588,695.
- The city covers an area of 716 km<sup>2</sup> (214 km<sup>2</sup> land area, 1 km<sup>2</sup> inland water area, 501 km<sup>2</sup> sea water area).
- Helsinki produces 5 % of the carbon dioxide emissions in Finland.
- The Viikinmäki sewage treatment plant is responsible for purifying the sewage produced by 800,000 people.
- At the end of 2010, the city employed 39,198 people.

**T**he vast amounts of snow seen last winter does not mean that climate change is cancelled. The variation in weather conditions between individual years is not going away, but there will be less and less snow in the winters.

Climate change is not a happy issue, even if it means more hot weather for the coming summers. The related risks, such as decreased crop yields and increased numbers of climate refugees from drying regions, rising sea levels, and increased storms and floods, are significant enough to demand also cities to have responsible climate policies.

Helsinki has become more active in climate-related issues. The ambitious development programme by Helsingin Energia Public Utility is a particularly significant step towards carbon-neutral energy production. We must find the courage to implement it as soon as we possibly can.

The transportation policy and energy efficiency actions of the city are now being strongly directed in order to reach the climate objectives. Expediting the rail traffic projects (the Ring Rail Line, the West Metro, the Drop-let Track) is part of these operations, which requires close cooperation with the government.

The energy-efficiency of buildings owned by the city and located within the city can be improved significantly. Therefore, a plan for sustainable energy use was drafted last year, and it will be supplemented with a plan for implementing the best practices of energy-efficiency. These plans require some investments in the short term, but will create savings in the future through the decreased energy costs, for example.

Climateinfo, a service opened last autumn, has claimed its role as the centre of information regarding energy and the climate, serving the people and SMEs. The operations started out as a project, but are now being established permanently.



Pertti Nisonen

The climate policy is one of the cornerstones of the future of the city, but there are plenty of other challenges related to the environmental policy. According to a new study on environmental attitudes, the people in Helsinki consider questions related to water protection, air quality, and noise reduction to be at least as important as the climate policy.

The draft for the Helsinki environmental policy, drafted under my direction, outlines the definitions of environmental policies in Helsinki in the long and medium term extensively. In addition to the themes noted above, the city must set objectives for the protection of nature and soil, waste management, and increasingly sustainable procurements. Strengthening partnerships and promoting envi-

ronmental awareness are significant means for reaching all of the objectives of the environmental policy. A joint long-term goal of carbon-neutrality must also be set for all sectors.

This Environmental Report and the final evaluation of the implementation of the Sustainability Action Plan prove in many ways that environmental thinking has penetrated the entire city management. The study on the environmental attitudes shows that the people in Helsinki consider environmental protection an essential social objective and rate it as clearly more important than economic growth. This means that an ecologically sustainable Helsinki is reachable.

**Pekka Sauri**  
*Deputy Mayor*

# Environmental management in the City of Helsinki

**R**esident orientation, ecological approach, fairness, economy, safety and enterprise-friendliness are among the values of the City of Helsinki. The ethical principles of the strategy programme (2009–2012) note that “Helsinki is a forerunner in global responsibility issues. This will be expressed in actions to reduce Helsinki’s climate impacts as well as in environmental protection and procurement policies.” The strategy programme includes several definitions of policy on environmental issues, such as the protection of the Baltic Sea, actions to control climate change, saving energy, energy-efficiency, promoting public transport, the environmental aspects of procurements, and nature protection.

In 2010, a working group appointed by the City Mayor prepared the revision of the environmental policy, and a draft for the new environmental policy was presented to the City Mayor in the beginning of 2011. The objectives presented in the draft are set for 2050 in the long term, and approximately 2020 in the medium term. Objectives are defined for climate protection, air protection, noise reduction, water protection, nature and soil protection, procurements, waste management and material-efficiency, environmental aware-

ness and responsibility, environmental management, and partnerships.

The term of the Helsinki Sustainability Action Plan, approved in 2002 by the City Council, ended at the end of 2010. In addition to environmental issues and ecological sustainability, the programme included objectives for the social and economical aspects of sustainable development. The final report of the programme will be completed during 2011.

The focus of the environmental management of the city has been transferred to the departments, whose environmental management and environmental programme work continued to improve in 2010. The city also has several programmes for various areas of environmental protection, which for their part implement the environmental management plan of the city. In 2010, a plan for the development of the environmental management in the subsidiary organisations was drafted, and the organisations were trained to expand their environmental reporting.

Eight objectives related to environmental issues were set in the city budget for 2010, of which four were reached. The objectives that were reached were related to the total concept of the sustainable development

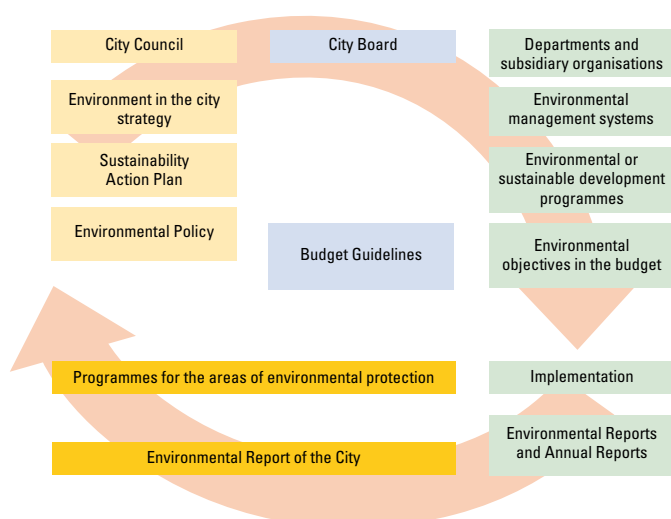
of procurements, street dust concentrations, and the implementation of the energy-efficiency agreement. The other four objectives were related to the reliability of tramline traffic, the share of people using public transport when travelling towards the city centre and in cross-sectional traffic, and the share of pedestrian, bicycle and public transport traffic of all traffic within the city.

The level of environmental management in the departments varies. The Port of Helsinki Public Utility, Palmia Public Utility, and the power plants, heating plants and district heating operations of Helsingin Energia Public Utility use environmental systems in accordance with the ISO 14001 standard. In addition, five departments use uncertified environmental management systems, and nine implement environmental or sustainable development programmes. Seven departments are currently drafting environmental management programmes.

Eco-support activity has been established in the departments. By the end of 2010, 720 eco-supporters were appointed and trained for the working communities of the city. Information on environmental issues spreads quickly through the eco-support network. The eco-support activity creates an environmentally responsible operating culture, and does its part in bringing the environmental strategies and objectives of the city into tangible actions. The eco-support activity is considered a natural part of the implementation of the environmental management systems and programmes in many departments.

The environmental work and reporting by the subsidiary organisations have clearly developed since 2009. Several of the organisations use or are preparing an environmental management system or at least an environmental programme or objectives, and many of them also monitor their consumption data and arrange environmental training for their staff. The environmental management in the subsidiary organisations is in the future supported through trainings and visits, coordinated by the Environmental Centre.

## Environmental management in the City of Helsinki



July 2010 was the hottest recorded month ever measured in Kaisaniemi, Helsinki, but due to the cold winters, the year 2010 was an average of 0.9 degrees cooler than the comparison period (1981–2010), and the coolest year since 1996. Globally speaking, the year was the hottest recorded year, along with 1998 and 2005.

At the end of 2010, the City of Helsinki environmental policy working group proposed that Helsinki strive for a carbon-neutral future by 2050. The environmental policy is discussed by the City Council during 2011.

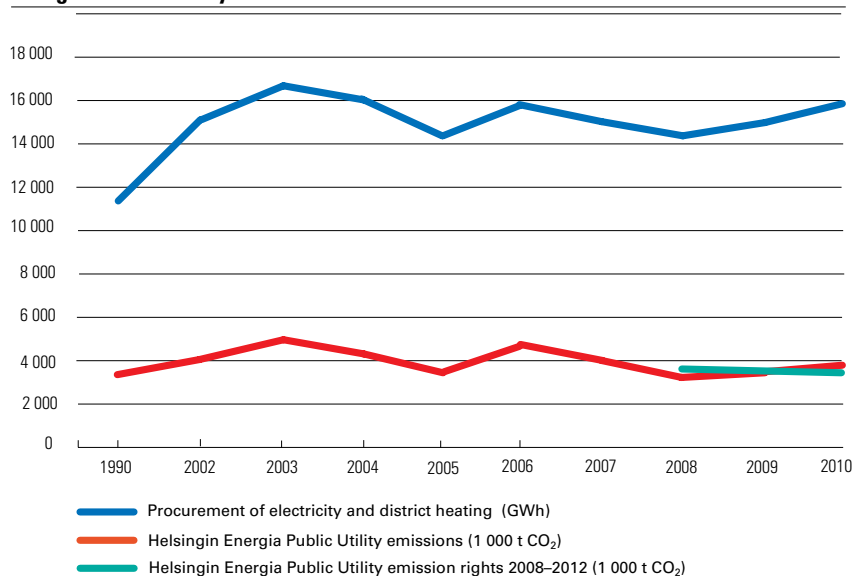
In 2010, the Helsinki City Council accepted the Helsingin Energia Public Utility development programme towards a carbon-neutral future. The programme presents a tangible operating plan for reaching the objectives for 2020, and a draft for the guidelines of the operations until 2050, towards carbon-neutral energy production. During the first phase of the development programme, pellets or other biomass were decided to be introduced as an alternative fuel for coal in the Salmisaari and Hanasaari power plants.

At the end of 2010, a sustainable energy action plan (SEAP) was completed. The plan aims to improve the energy-efficiency of the entire city area in order to decrease emissions by 20 per cent by 2020. The plan is related to the Covenant of Mayors signed in 2009 by Helsinki.

It was decided in the Helsinki Strategy Programme for 2009–2012 that binding energy saving objectives be drafted for the various departments of the city. The energy saving advisory board defined a saving objective of two per cent for 2011. The energy saving plans completed in 2010 and during 2011 cover a significant part of the energy consumption of the city (schools, day care centres, health centres, hospitals).

In 2010, Helsinki signed the European Green Digital Charter declaration, in which the city is commit-

**The realised CO<sub>2</sub> emissions of the Helsinki production plants of Helsingin Energia Public Utility in 1990 and 2002–2010 and the CO<sub>2</sub> emission rights granted for the emissions trading period 2008–2012. Sources: Energiateollisuus ry and Helsingin Energia Public Utility.**



ted to form partnerships in the energy-efficiency of information and communication technology until the end of 2011, to develop five extensive information and communication technology pilots by 2015, and to decrease the direct carbon footprint of information and communication technology operations by 30 per cent by 2020.

The total emissions of Helsingin Energia Public Utility were 3.7 million tons CO<sub>2</sub>-equivalent, an increase from the previous year by four per cent due to the coldness of the year. The total emissions were approximately nine per cent higher than 1990, due to the significant increase in energy production (+38 %). However, the specific emissions of the carbon dioxide from the sold energy (electricity, district heating and cooling, 260 g CO<sub>2</sub>/kWh) were significantly lower than in 1990 (400 g CO<sub>2</sub>/kWh). The decrease is caused by the increased efficiency of energy production, i.e. decreased energy losses in production and transfer as well as the changes in fuels, such as the increased use of renewable fuels, particularly natural gas.

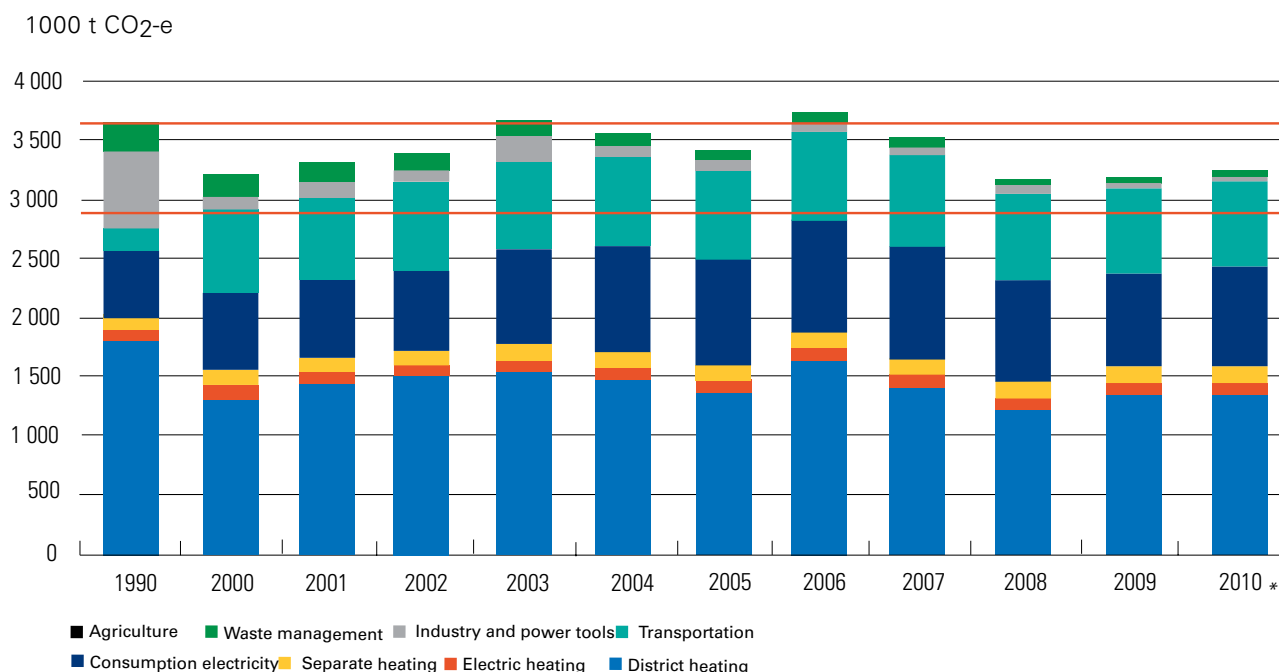
Due to the cold year, Helsingin En-

ergia Public Utility overran the amount of annual CO<sub>2</sub> emission rights granted for the emissions trading period 2008–2012 by approximately 231,000 tons of carbon dioxide. The amount of emissions increased by 137,000 tons from the previous year. During the first year of the emissions trading period, 2008, the total emissions were 271,000 less than the emission rights granted.

The objective of the operating plan related to the bilateral municipal energy efficiency agreement (KETS) between municipalities, such as the City of Helsinki, and the Ministry of Employment and the Economy (TEM) is to achieve calculatory energy savings of nine per cent by 2016 in service and residential buildings owned by the city. The meteorologically corrected specific consumption of heat in buildings owned by the city decreased by 4.0 per cent in 2010, while the specific consumption of electricity increased by 0.2 per cent.

The Real Estate Department, Palmia Public Utility, Public Works Department, and the user corporations of 21 pilot buildings participated in the Eko-

## The greenhouse gas emissions according to consumption from 1990 to 2010.



teko project, launched in 2010. The intention of the project is to search for operating methods for saving energy in the maintenance and use of the buildings through monitoring the temperatures, adjusting the heating and ventilation systems, and instructing the users. The preliminary results show a saving potential of over 20 per cent in some of the buildings. The operations are expanded during 2011.

Helsinki has replaced approximately 4,500 outdoor lights in 2010, in accordance with the energy-efficiency requirements for outdoor lighting equipment defined by the Commission Regulation (EC) No 245/2009. A total of 48,000 lights are replaced in 2010–2014. The operation reduces the energy costs of outdoor lighting by approximately one million euros annually after all lights have been replaced, reducing the total energy consumption by approximately 20 per cent.

Due to the cold beginning and end of the year, more district heating was produced in Helsinki than ever before: the total district heating consumption in Helsinki was almost nine per cent

higher than the previous year. The sales of district cooling increased by 47 per cent. Energy consumption per capita in 2010 was 7,802 kWh, an increase of 0.6 per cent.

The total greenhouse gas emissions in Helsinki increased by two per cent from the previous year. The emissions in 2010 were ten per cent lower than in 1990. This can be explained particularly by the increased use of natural gas instead of coal, which also explains the reasonable level of specific emissions from energy production, regardless of the coldness of the year.

The renewable energy objective of the Helsinki energy policies is to increase the share of renewable energy to 20 per cent by 2020. The share of renewable energy from the electricity, district heating, and district cooling procurements of Helsingin Energia Public Utility decreased from 5 per cent in 2009 to 4.3 per cent in 2010. This was due to the fact that the amount of renewable energy stayed the same while the total consumption of fuels increased because of the coldness of the year.

*\*Traffic data is from the year 2009. The figure presents the emission objective for 2010 from the Helsinki Action Plan for Sustainability. The objective was reached as the total emissions in 2010 were clearly under the 1990 level. In addition, the emission objective in the Helsinki Strategy Programme for 2009–2012 is presented, i.e. decreasing the amount of emissions by 20 per cent from the 1990 level by 2020. Source: Helsinki Region Environmental Services Authority (HSY). The figures in the table are calculated using the benefit distribution method of the climate strategy of the metropolitan area.*

The HEKO tool is developed in cooperation with VTT Technical Research Centre of Finland for the use of the Helsinki City Planning Department, to make the land use planning more ecologically efficient and to produce information on the ecological efficiency of plans to support decision-making processes. The programme is intended primarily for the evaluation of drafts of the plans for master plans, component master plans and zoning plans. It was tested in the western Meri-Rastila, Koivusaari, and Saukonlaituri areas.

The working group for the energy-efficiency of living of the City of Helsinki drafted a proposal for the energy-efficiency requirements in giving out residential plots and another for the energy-efficiency operating plan for the apartments owned and built by the city. According to the decision made in spring 2011 by Real Estate Committee, a binding requirement in all reservations of residential plots has been that the building must fulfil the requirements of energy efficiency class A. When looking at the building permits granted in 2009 and 2010, it is obvious that the energy-efficiency of new buildings in Helsinki improved. In 2010, approximately 23 per cent of the gross floor area in new buildings for which the Building Regulation Department issued building permits met the requirements of energy-efficiency class A, while in 2009, the share was approximately five per cent.

In 2010, the city promoted the transfer from private cars to public transport through various means of land use control and transportation planning. The excavations for the Western metro were continued, the Kruunuvuori public transport project was launched as the EIA evaluation programme was completed, feeder parking was developed, commutation-related parking in the city centre was regulated by adjusting the pricing, bus and rail traffic was accelerated by increasing the advantages in traffic lights and changing the bus lanes on the most important streets for pub-

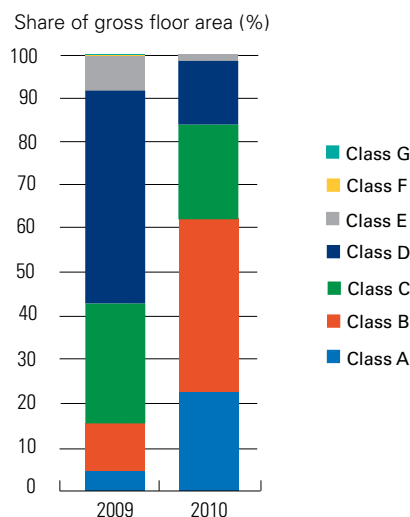
lic transportation to apply always, and a project was launched between the various departments to promote cycling.

2010 was The International Theme Year of Biodiversity. During the year, one new nature conservation area, Arboretum Saario, was founded in Ulltuna, Östersundom. In 2010, the biotope mapping started in 2009 was continued. The objective was to cover the entire Helsinki area. Biotopes were mapped in the field mostly in the eastern parts of Helsinki.

The planning field-specific instructions for the low-energy construction of service buildings for the city of Helsinki were completed in 2010. The instructions apply for new building as well as renovation projects. All new building projects will be implemented as low-energy construction. In renovations, the instructions are applied to the appropriate extent, considering the special features of each building.

Helsingin Energia Public Utility began to develop a new district heating

**The distribution of energy-efficiency classes of the building permits granted in 2009 and 2010 by the City of Helsinki Building Regulation Department, as shares of gross floor area. The energy consumption limits of the classes depend on the type of building: for instance, the limit for a class A high-rise building is 100 kWh/m<sup>2</sup>/a. Source: City of Helsinki Building Regulation Department.**



Seppo Laakso

product for the energy-efficient construction of areas on the outer rims of the city. The so-called light district heating is particularly suitable for heating energy-efficient properties. In the future, this solution could be used to expand the eco-efficient district heating network to the fringe areas of the city.

More than 315,000 tons of contaminated soil were transferred for treatment or disposal in 2010. The current legislation emphasises risk assessment-based renovation solutions, and contaminated soil from the region has been used in the Hyväntoivonpuisto park in Jätkäsaari, for example, according to the terms of the environmental permit. The most significant renovation targets included the old gas plant region in Suvilahti, the areas in Jätkäsaari and Sörnäinen that were previously used as harbour areas, and the area in Laajasalo previously used as an oil terminal. Only a few areas of Laajasalo remain to be cleaned during 2011.

The wastewater cleaning result in Viikinmäki wastewater treatment plant did not reach the top result of 2009. Due to the plant bypasses caused by unusually large amounts of water, not all of the terms of the permit were met. However, the total cleaning result remained on a high level, and no eutrophication effect of the waste water was observed in water monitoring. The nutrient emissions to the sea increased from the previous year with 32 per cent for phosphorus, and with 57 per cent for nitrogen.

The ecological quality grading of the sea area in front of Helsinki was completed. The grading was performed according to the instructions by Finland's Environmental Administration, and it was based on the amount of algae in the water, the visibility, the total phosphorus content in the winter, and the fauna in the bottom of the sea area. Most of the Helsinki sea area was deemed to be in fair condition. The bays in which water changes slowly were in satisfactory condition.

The Ämmässuo waste treatment centre received a total of 612,900 tons of waste and land. A total of 257 300 tons of mixed waste was received, which was 4 400 tons more than the previous year. The slight increase in the amount of waste is most likely to be caused by the upturn in economy. A total of 56,700 tons of

organic waste was received. The numbers of visitors to the Sortti stations, which receive small loads of waste from households, continued to increase, totalling at 297 710, which is nine per cent more than the previous year.

The renewal of the collection sites of recyclable wastes was continued. The regional collection sites collect small metal objects, glass, carton, paper, clothes, and batteries. At the end of 2010, 23 large, renewed regional collection sites were available in Helsinki. The intention is to build a total of approximately 140 large regional collection sites in the metropolitan area by the end of 2013.

In 2010, the Real Estate Department launched a waste management development project that has since streamlined the waste management processes for various types of properties, mapped the cost-efficiency of waste management agreements and the need to rationalise them, and created a tool for the development of waste management. A waste management section was drafted for the electronic maintenance manual programme Pakki. The section can be used as a tool by the users and maintenance personnel of properties and as a monitoring and reporting system by waste management personnel. The waste management development project continues in 2011.

Car and tramline traffic within the Helsinki main street network decreased on the border of the city centre (-1 %) and on the border of the inner city area (-1 %). At the same time, traffic increased on the border of the city (+2 %) and on the cross-section line (+2%).

In 2010, the City Government accepted the new criteria for low-emission vehicles (<100 g CO<sub>2</sub>/km and the Euro 5 emission level), which aim to promote the procurement of low-emission vehicles in the city. The lower than usual parking fees for low-emission passenger cars took effect in 2011. The City of Helsinki will in the future apply the low-emission requirements in its procurements of passenger cars. Higher emission levels (<150 g CO<sub>2</sub>/km) are only permitted for transporters.

Along with several other European cities, Helsinki has participated in the BEST research project since 2000. The cities compete for the title of the best public transportation city, and aim to improve the quality level of public transportation. When measured through the total satisfaction of the citizens, Helsinki (or the Helsinki metropolitan area) was the best city in the 2010 survey, with 80 % of its population happy with the services. In 2010, 232,2 million public transportation trips were made within the city, which is four million trips more than in 2009.

Helsinki Region Transport combined a carbon dioxide emission calculator to the public transportation journey planner. The calculator will automatically show the CO<sub>2</sub> emissions of the trip compared to a passenger car. Helsinki Region Transport has also developed an everyday emission calculator that allows the user to compare the emissions from their everyday travels to a control person created based on research, and sets an individual objective for decreasing traffic emissions.

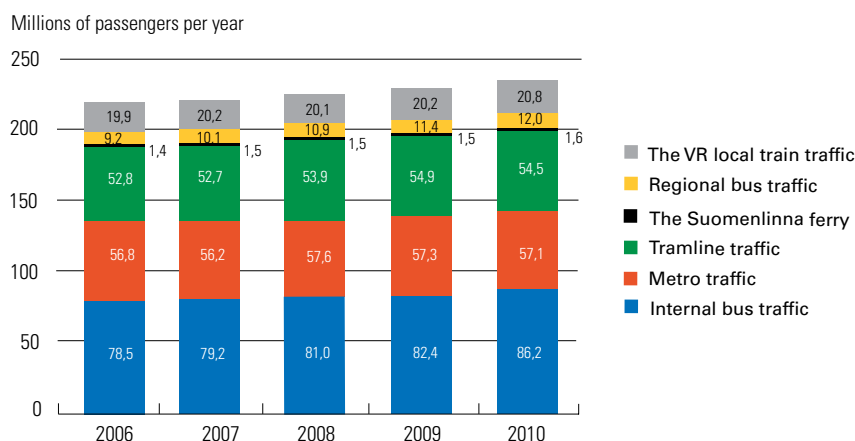
Helsinki Region Transport participated in the three-year OPTIBIO trial project for bio fuels. According to the results, the effects of bio fuels



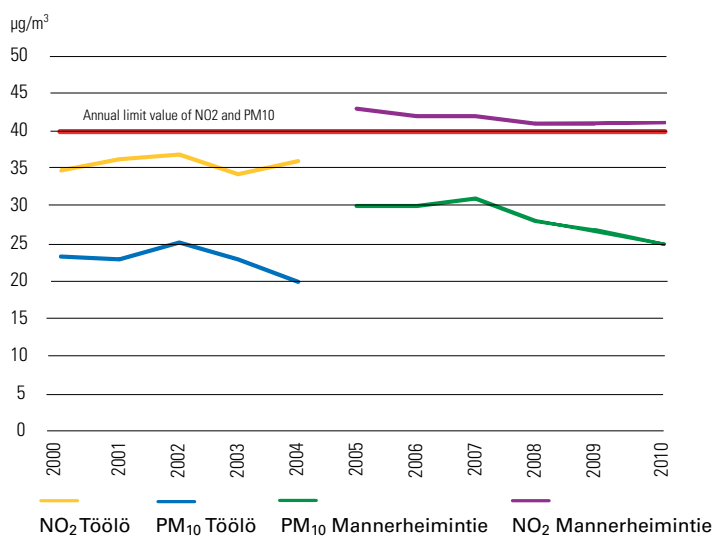
Boy Huidén



## Numbers of passengers in the public transportation services within Helsinki per mode of transport from 2005 to 2010. Source: Helsinki Region Transport.



## Annual averages of particulate matter (PM<sub>10</sub>) and nitrogen dioxide (NO<sub>2</sub>) in the Töölä and Mannerheimintie measurement stations, compared to the annual limit value (40 µg/m<sup>3</sup>). Source: Helsinki Region Environmental Services Authority (HSY).



on local air pollution are significant. The particulate matter emissions decreased by an average of 30 per cent, and the nitrogen oxide emissions by 10 per cent. From August 2011, 19 new buses will use renewable diesel fuel made from the fat waste from the Finnish food industry.

Helsinki aims to increase the share of cycling of all travelling to 15 per cent by 2020. A cycling project was launched to achieve this. Its main assignments include drafting planning

instructions for cycling, building a cycling network and promoting its maintenance, improving the possibility to park bikes, and promoting a cycling centre to offer storage and renting services. A new policy has been sought in planning cycling. One essential change is that cycling is no longer equated to pedestrian traffic but increasingly to vehicle traffic.

The annual nitrogen dioxide limit value (40 µg/m<sup>3</sup>) introduced in 2010 was exceeded in the centre of Helsin-

ki, just as it was in the previous years. This was caused by the traffic exhaust gases, whose dilution is decreased by the dense structure of the city. The nitrogen dioxide contents were expected to decrease as the purification technologies in vehicles develop, but this has not happened. The fact that diesel cars have become more common has added to the problem, as the direct nitrogen dioxide emissions are greater in diesel cars than in petrol-driven cars.

The large amount of snow and long periods of below zero temperatures decreased the need for salting the streets, but in some places, the streets were sanded more than usual. The street dust period of the spring began somewhat later than usual, but the melting snow maintained humidity on the streets, and the limit values were not exceeded. During spring 2010, the Public Works Department improved the street dust control by organising cooperation meetings for representatives of the properties on Mannerheimintie and Helsinki City Transport. Particular attention was paid to washing the street in the spring and removing any antiskid treatment materials. Generally speaking, the street dust contents in Helsinki have decreased, which proves that the investments in controlling street dust within the past years have been successful.

The use of antinoise coating, with finer grains than usual coating, was continued, and it was used in four places in 2010. 20 new speed display boards were installed by streets. The boards have been proven to lower the speeds, and therefore, to decrease the noise emissions from street traffic.

In 2010, a report on the results of the survey on the quiet areas of Helsinki was completed. The residents considered the quiet or calm soundscape to be very important in a residential area, and saw that Helsinki offers many such areas. Based on the results of the survey and the noise data, the compilation of a database of the quiet areas in Helsinki was started.

Together with the Environmental Centre, the Procurement Centre developed an operating plan for the sustainable development of procurements, used to encourage the departments to consider issues related to sustainable development in their procurements. CO<sub>2</sub> calculators for the product groups of office papers, soft papers, laptop computers, toiletries, and office chairs were also developed in the JULLIA2030 project managed by Helsinki Region Environmental Services Authority (HSY). In 2010, 39 per cent of the total bidding volume of the Procurement Centre included environmental criteria. This is a significant increase from 2009.

The paper consumption of the City of Helsinki continued to decrease in 2010: the consumption per employee was 2,615 sheets, showing a decrease of over five per cent from 2009. Several electronic information systems that save paper have been introduced in the past years.

Events related to environmental education and organised by the city drew a total of 27,567 visitors during the year, which is 4.7 per cent of the population of Helsinki. This is slightly less than in 2009. The largest crowds were drawn to the Easter Island event in Helsinki Zoo, the Uncle Blue operations by the City of Helsinki Transport Public Utility, and the nature schools and courses organised by the Harakka Island nature centre and Gardenia.

The operations of the Climateinfo service ([www.ilmastoinfo.fi](http://www.ilmastoinfo.fi)) for the entire Helsinki metropolitan area were launched in 2010. The Climateinfo service helps the city residents to reduce their carbon footprint by offering practical instructions to the people and SMEs and organising events in cooperation with corporations, companies, and local associations.

The website on sustainable living in Helsinki was opened in 2010. The website offers tips for promoting climate friendliness, clean air, and silence at home and at work.



Seppo Laakso / Kaisa Salminen teos Kampissa 1.6.2010

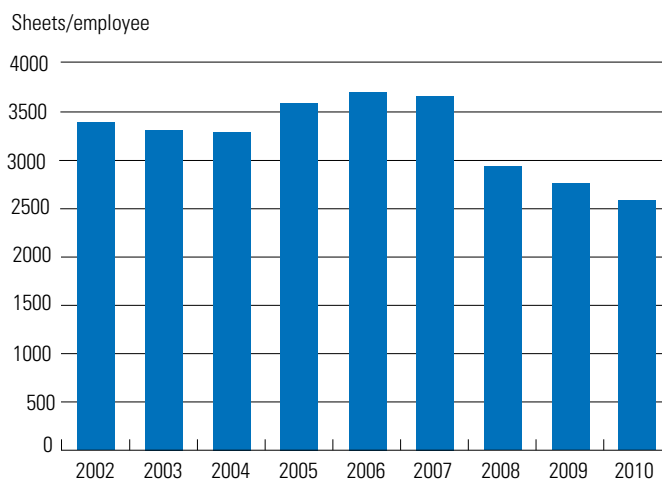
<http://www.hel2.fi/ympk/elamantapa/> (only in Finnish)

All 25 properties where known production or storage of hazardous materials and chemicals takes place in Helsinki are mapped. Furthermore, there are three locations where the rescue authorities have drafted an external safety plan in cooperation with the operator. There are still many (400–500) places in Helsinki that are required to present a report on the storage of hazardous materials and chemicals. The

number of these locations is still being studied.

A joint emergency plan for the sudden weakening of air quality was accepted for the cities in the Helsinki metropolitan area in 2010, covering steps to be taken in case of acute air pollution events. The plan aims to react quickly in the case of lowered air quality, and to decrease the exposure of the population to impurities, and thereby, to decrease any negative health effects.

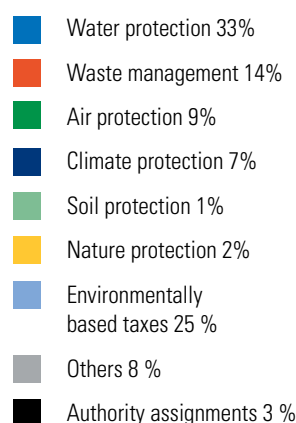
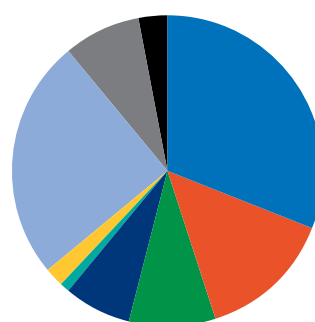
**Paper consumption per city employee from 2002 to 2010.**  
Source: the Procurement Centre.



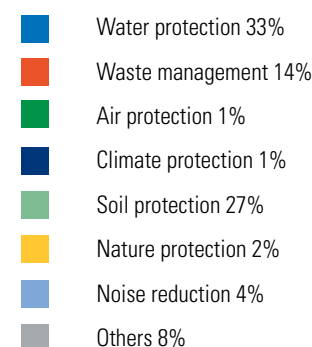
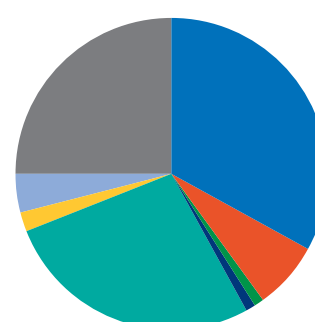
## Environmental economy indicators (1000 euros)

|   | 2009           | 2010           | 2010<br>(excl.<br>HSY) |
|---|----------------|----------------|------------------------|
| <b>Environmental income tot.</b>                          | <b>63 414</b>  | <b>62 210</b>  | <b>6 621</b>           |
| Climate protection  | 810            | 577            | 577                    |
| Water protection  | 53 023         | 52 933         | 300                    |
| Waste management  | 6 169          | 3 644          | 688                    |
| Soil protection   | 84             | 761            | 761                    |
| Nature protection   | 31             | 68             | 68                     |
| Environmental administration                              | 392            | 339            | 339                    |
| Environmental management                                  | 239            | 363            | 363                    |
| Environmental training and education                      | 2 414          | 2 769          | 2 769                  |
| Actions that improve eco-efficiency                       | 252            | 755            | 755                    |
| <b>Environmental costs tot.</b>                           | <b>122 132</b> | <b>135 784</b> | <b>95 902</b>          |
| Air protection  | 11 828         | 12 298         | 12 298                 |
| Climate protection  | 4 390          | 9 231          | 9 231                  |
| Water protection  | 38 667         | 42 496         | 2 979                  |
| Waste management  | 19 052         | 18 686         | 18 686                 |
| Soil protection   | 1 539          | 1 408          | 1 408                  |
| Noise reduction   | 363            | 304            | 304                    |
| Nature protection   | 2 886          | 2 754          | 2 754                  |
| Environmentally based taxes                               | 31 072         | 34 426         | 34 426                 |
| Authority assignments related to environmental protection | 3 933          | 3 707          | 3 707                  |
| Environmental management                                  | 4 797          | 5 592          | 5 592                  |
| Environmental training and education                      | 2 096          | 2 701          | 2 701                  |
| Actions that improve eco-efficiency                       | 1 509          | 2 182          | 1 817                  |
| <b>Environmental investments tot.</b>                     | <b>46 948</b>  | <b>55 101</b>  | <b>36 085</b>          |
| Air protection  | 231            | 466            | 466                    |
| Climate protection  | 0              | 687            | 687                    |
| Water protection  | 22 858         | 17 915         | 3 604                  |
| Waste management  | 1 082          | 3 681          | 3 681                  |
| Soil protection   | 12 364         | 14 865         | 14 865                 |
| Noise reduction   | 3 534          | 2 384          | 2 384                  |
| Nature protection   | 1 486          | 1 368          | 1 368                  |
| Others  | 5 393          | 13 736         | 9 031                  |

## Breakdown of Environmental costs



## Breakdown of Environmental investments



Including the costs of HSY Water, the environmental costs of Helsinki in 2010 (including amortisations) added up to a total of 135.8 million euros, 3.2 per cent of all operating costs of the city and HSY Water. The largest expense items were environmentally-based taxes on electricity and fuel, and the costs caused to HSY Water by purification of waste water. Excluding the costs of HSY Water, the environmental costs added up to 95.9 million euros. Total costs increased by 11.1 per cent from the previous year. The costs from air protection, climate protection, water protection, and environmentally based taxes showed the most increase.

Including the income of HSY Water,

the environmental income of Helsinki in 2010 added up to a total of 62.2 million euros, 3.4 per cent of all operating income of the city and HSY Water. This sum was slightly smaller than in the previous year. The greatest single source of income was the municipal sewage fees paid to HSY Water (89 per cent of all environmental income). The greatest source of income for the city was the proceeds from the ticket sales of the Helsinki Zoo. Excluding the income of HSY Water, the environmental income added up to 6.6 million euros.

Including the investments of HSY Water, the environmental investments in Helsinki in 2010 added up to 55.1 million euros. Excluding the

investments of HSY Water, the environmental investments added up to 36.1 million euros. The most significant investments were made by HSY Water on expanding and renovating the sewerage network. The most significant investments of the city were targeted at cleaning contaminated soil and the surface structures of the old Myllypuro landfill site.

The total value of environmental responsibilities in the financial statements on 1 January 2010 was 46.7 million euros. The responsibilities were related to the after-treatment of the landfill site, the water damage in the metro tunnel, the introduction to new use of the A power plant area in Hanasaari, and the after-treatment of landfill sites.

# Indicators monitored in the environmental report

Realisation  
of  
objectives  
set for  
2010

| Indicator  | Objective  | av.<br>2005–2009 | 2010         | Trend | Realisation<br>of<br>objectives<br>set for<br>2010 |
|--|--|------------------|--------------|-------|--|
| <b>ENERGY AND THE CLIMATE</b>  |  |                  |              |       |  |
| Greenhouse gas emissions based on consumption in Helsinki (1,000 t CO <sub>2</sub> e)                                | 1990 level by 2010 and 20 % 2020 (report on the energy policy definitions of Helsinki)   | 3421             | 3230         |       |  |
| Greenhouse gas emissions corresponding to the consumption in Helsinki per capita (t CO <sub>2</sub> e/pers/a)        | 4.3 t CO <sub>2</sub> e per capita by 2030 (the climate strategy of the metropolitan area)   | 6.0              | 5.5          |       |  |
| Energy consumption of the community per capita (kWh/pers/a)  | The total consumption of energy will begin to decrease by 2020 (the national climate and energy strategy)  | 24845            | 25411        |       |  |
| Electricity consumption of the community per capita (kWh/pers/a)   | The electricity consumption per capita is decreased (strategy programme 2009–2012)   | 7747             | 7802         |       |  |
| The share of renewable energy of the electricity, district heating and cooling procurements by Helsingin Energia (%) | 20 % in 2020 (energy policies of Helsinki)   | 4.6              | 4.5          |       |  |
| Share of district heating of the buildings (%)   | the share of district heating is increased (energy policies of Helsinki)   | 86               | 86           |       |  |
| The specific consumption of electricity in buildings owned by the city (kWh/m <sup>2</sup> )                         | Saving 9 % by 2016 (municipal energy-efficiency agreement)   | 65.2             | 64.0         |       |  |
| The specific consumption of heating in buildings owned by the city (kWh/m <sup>2</sup> )                             | Saving 9 % by 2016 (municipal energy-efficiency agreement)   | 154.9            | 147.1        |       |  |
| Specific consumption of heating in new residential buildings that use district heating (kWh/m <sup>2</sup> )         | -30 % 2010, -50 % 2012 (national construction regulations)   | 35.6             | 27.0         |       |  |
| Energy inspections of residential buildings owned by the City of Helsinki (%)  | 80 % in 2013 (municipal energy-efficiency agreement)   | 22.9             | 34.0         |       |  |
| Energy inspections of service buildings owned by the City of Helsinki (%)  | 80 % in 2010 (municipal energy-efficiency agreement)   | 79.2             | 80.0         |       |  |
| <b>TRAFFIC, AIR QUALITY, AND NOISE</b>   |  |                  |              |       |  |
| The distribution of the methods of transportation in Helsinki (walking + cycling + public transport, %)              | +3 % in walking + cycling + public transport 2012 (strategy programme 2009–2012)   | 74.7 (2008)      | 72.3         |       |  |
| Motorisation (number of passenger cars per 1,000 persons)  | The transportation system is developed to promote sustainable forms of transportation (strategy programme 2009–2012)   | 376              | 395          |       |  |
| Number of public transportation trips (trips/person/a)   | The proportion of public transport as a transport mode is increased (strategy programme 2009–2012)   | 389.7            | 394.4        |       |  |
| Carbon dioxide emissions of road traffic in Helsinki (1,000 t CO <sub>2</sub> )                                      | -16 % 2020 (national climate strategy), -20 % 2030 (the climate strategy of the metropolitan area)   | 548.1            | 523.9 (2009) |       |  |
| Carbon dioxide emissions of passenger cars registered for the first time in Helsinki (g CO <sub>2</sub> /km)         | New passenger cars registered within the EU will reach the objective for average emissions (130 g CO <sub>2</sub> /km) between 2012 and 2015 (EU regulation) | 175.1            | 150.0        |       |  |
| The share of people using public transport when travelling towards the city centre in the mornings (%)               | >72.5 % in 2010 (binding operational objective of the Helsinki City Planning Department)   | 71.0             | 72.1         |       |  |
| Share of public transport in cross-sectional traffic (%)   | 19 % in 2010 (binding operational objective of the Helsinki City Planning Department)  | 16.9             | 18.5         |       |  |
| Share of cycling in the distribution of the methods of transport (%)   | doubled by 2015 (City Council objective) / share of cycling 15 % in 2020 (the Brussels Convention)   | 6.6 (2008)       | 9.0          |       |  |
| Annual average of nitrogen oxide in the air (micrograms/m <sup>3</sup> )   | 40 microgrammes/m <sup>3</sup> in 2010 (EU directive)  | 41.8             | 41.0         |       |  |
| Number of days when the limit value level of particulate matter was exceeded in Helsinki (pcs/a)                     | max 35 days per year in 2010 (EU directive)  | 29.2             | 25.0         |       |  |
| Constructing noise barriers to protect new residential areas (km)  | New residential areas are protected against noise (noise reduction operating plan)   | 0.2              | 1.3          |       |  |
| Constructing noise barriers to protect current land use (km)   | The new noise barriers presented in the operating plan (noise reduction operating plan)  | 1.8              | 2.9          |       |  |
| Usage of antinoise coating (km)  | Increasing the use of antinoise coating (noise reduction operating plan)   | 1.0              | 3.3          |       |  |
| <b>NATURE AND WATER</b>  |  |                  |              |       |  |
| Nitrogen emissions to the sea from the Viikinmäki sewage treatment plant (t/a)                                       | Nitrogen less than 500 t/a in 2009–2011 (City budget objective)  | 495              | 634          |       |  |
| Phosphorus emissions to the sea from the Viikinmäki sewage treatment plant (t/a)                                     | Phosphorus less than 30 t/a in 2009–2011 (City budget objective)   | 23.0             | 29.1         |       |  |
| <b>ENVIRONMENTAL RESPONSIBILITY AND WASTES</b>   |  |                  |              |       |  |
| Paper consumption of city employees (A4 sheet/employee/a)  | Reduced amount of waste (objective for the prevention of the creation of waste in the sustainable development operational programme)                         | 3306             | 2615         |       |  |
| Share of environmental criteria in the centralised procurements of the City of Helsinki (%)                          | 25 % in 2010, 50 % in 2015 (principle decision by the Government)  | 21.1             | 28.0         |       |  |
| Participation in environmental education organised by the city   | Increasing the environmental awareness of citizens and city employees (environmental policy)   | 4.8              | 4.7          |       |  |
| Utilising domestic waste in the Helsinki metropolitan area as materials (percentage)                                 | 50 % utilised as materials in 2016 (national waste management plan 2008)   | 46 (2004)        | 52 (2008)    |       |  |
| Amount of domestic waste in the Helsinki metropolitan region (kg/pers/a)   | Decreasing the total amount of waste (national waste management plan 2008)   | 332.3            | 338.0 (2008) |       |  |
| Amount of utilised domestic waste (kg/pers/a)  | 50 % utilised as materials in 2016 (national waste management plan 2008)   | 44.0             | 52.4         |       |  |

The trend describes the situation of the past year compared to the average of the previous five years.

The highlighted entries are joint indicators of six cities (Helsinki, Espoo, Vantaa, Turku, Tampere, Oulu)



## SUMMARY OF THE CITY OF HELSINKI ENVIRONMENTAL REPORT 2010

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