LAHTI REGION
ENVIRONMENTAL REVIEW
2010

FOREWORD

This is the fourth issue of the joint Hollola, Lahti and Nastola environmental report which contains key figures depicting the environmental status of each municipality. The city of Lahti has produced a similar report on the changes in its environmental status since 2002.

In June 2009, the Lahti City Council approved a new strategy emphasising the increasingly significant environmental values and responsibilities of the entire city group, as the environment and sustainable development have become one of the core issues in the city's strategic development programme. Now these environmental matters also hold centre stage in the municipal strategies of Hollola and Nastola. In 2010, our municipalities focused especially on drafting an agenda for a joint climate programme. In this task, we were greatly assisted by the IMMU project led by the Aalto University.

Also in 2010, the drafting of a joint groundwater protection plan was initiated in our municipalities, providing new information of the groundwater resources in our area. At the same time, all previous data will be collated into a summary which will also include hydrogeological reports. The protection plan has produced a considerable amount of new information concerning the geological structure of the Salpausselkä Ridge as well as its groundwater resources. The plan materials can be further used in various ways, for example in land use planning and groundwater table risk assessment. The work should be completed by the end of 2011.

Although the general recognition of environmental concerns has increased, its effects are not readily apparent as an overall reduction of the environmental load. Figures for 2010 indicate a reduction in traffic emissions, possibly due to the effects of recession and the consequent reduction in road journeys. Positive developments can also be seen in the area of building protection as the number of both the areas and buildings to be protected has increased. Carbon dioxide emissions have continuously been creeping upwards, although electricity consumption per person has slightly decreased.

At the beginning of 2011, joint environmental protection objectives drawn up in 2010 were submitted for consideration to the Lahti City Board and the Hollola and Nastola municipal boards. Oxidisers were set up in the Enonselkä Basin, and consequently there has been considerable improvement in the condition of Lake Vesijärvi. In 2010, the period of oxygen depletion was approximately one month compared with the three-month period in 2009. Environmental consultation has been strengthened and resident cooperation intensified in order to increase awareness of general environmental responsibility within our municipal areas.

In order to increase the ecological sustainability of the entire Lahti city group, the "Green City" project was set up, which received funds for two pilot projects aiming to improve the energy and material-efficiency of the city and construction developers.

Päivi Rahkonen
Hollolan
kunnanjohtaja

Jyrki Myllyvirta
Lahden
kaupunginjohtaja

Pauli Syyrakki
Nastolan
kunnanjohtaja

JOINT ENVIRONMENTAL POLICY FOR THE CITY AREA 2009 TO 2011

This environmental report is one of the tools for monitoring the implementation of the environmental policy. The city area municipalities of Hollola, Lahti and Nastola already decided on a joint environmental policy during the previous council term, and this new environmental policy has now been approved by each council. The following sections describe the new environmental policy as it was approved in the Lahti region municipal councils in May and June 2009.

"A joint environmental policy directs the activities of the municipalities/city and their businesses and corporations in environmental issues. Management of environmental issues is part of good housekeeping, and its continuous improvement will ensure that the municipalities/city promote environmental issues and sustainable development as pioneers. The implementation of environmental policy will be monitored and reported to local residents, decision-makers and various other interest groups.

The environmental policy also realises the municipal strategies approved by municipal councils.

The policy's environmental objectives, to be implemented by maintaining the environmental programme approved by the municipal boards, include the following:

- **To implement climate change control procedures and prepare for risks resulting from this change**
- **To protect quality of life and health in residential environments and settings as well as the diversity of nature**
- **To safeguard the quality and quantity of groundwater and uphold the recreational and natural values of waterways**
- **To provide resources for the distribution of up-to-date environmental information and increase the residents' opportunities to act on behalf of their environment**

The municipal and city leadership as well as business and corporate directors are responsible for the implementation of the environmental policy within their own organisations. An additional goal is for all employees and staff representatives to be aware of their own responsible role in environmental matters. Implementation of the environmental policy will be integrated in the functions of the various municipal units. At every level of decision-making, the effects of decisions on environmental goals will be monitored. Hollola, Lahti and Nastola, together with their residents, businesses, organisations and other interest groups, will work for the good of the common environment."

LAHTI REGION ENVIRONMENTAL OBJECTIVES AND KEY MONITORING FIGURES

The Lahti Region Environmental Review 2010 presents the region's environmental status in the form of key figures and a written account. The environmental review is published annually, and it describes the realisation of the Environmental Policy within the Lahti region municipalities. Regular monitoring of key figures in Lahti was initiated through the use of an Environmental Balance Sheet in 2002.

In addition to Lahti, information for the 2010 environmental report has been collected from the Hollola and Nastola municipalities. Where the name of the municipality is not specifically mentioned for any indicator, the information applies to Lahti only. Longer term environmental changes have been indicated in the environmental report with colour-coded arrows, where information at least ten years old or older has been made available. A green arrow means a positive environmental change, a red arrow a negative change and a blue arrow means no great change either compared to the initial situation or over the last ten years or so. In addition, costs and investments arising from the Lahti city group environmental activities have been included in the report. This environmental review has been compiled as a joint venture by the Lahti city group and the Hollola and Nastola municipalities.

Monitoring the quality of life and health of the environment

The air quality in Lahti was continuously monitored over the last year at five measurement stations and by way of passive tubes at four further locations. The cold weather spell which began at the end of 2009 continued throughout January and February, occasionally increasing nitrogen dioxide levels to limit values. During March and April, when the spring-time street dust filled the air, inhaled particle concentrations exceeded health-based recommended levels. Towards the end of the summer, air quality was again reduced by 'fall-out' from the Russian forest fires.

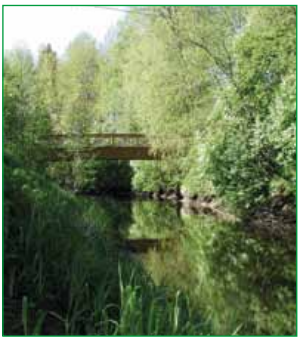
When calculated by the air quality index, the air quality in Lahti was good for 41%, satisfactory for 52%, fair for 6% and poor or very poor for 1% of annual hours. The measurement results were available in real time at the air quality portal, www.ilmanlaatu.fi. The air quality index could be read on the electronic display boards of local traffic bus stops as well as the Internet site of the Etelä-Suomen Sanomat newspaper. Also, bulletins were sent out to the media when air quality was reduced.

With the increase in traffic, noise has also become an increasing environmental and health hazard in the Lahti region as it has elsewhere. Automobile traffic in general causes nearly 90% of all environmental noise. The number of building lots and houses in the noisy areas does not necessarily indicate the noise situation as it really is. When areas are being built, noise prevention structures, such as noise barriers and embankments, are constructed. The effects of noise prevention measures are not immediately evident in the definition of noisy areas, since these areas are classified every five years.

By effectively managing environmental health care, health protection will help to create basic prerequisites for sustainable development in the city as well as for the living conditions, business activities and other aspects of city life that are satisfactory for both the residents and clients. In 2010, Environmental Health Surveillance handled a high number of complaints related to the damp and mould problems found in residential buildings, schools and day-care centres. The monitoring of household water was carried out mainly by samples taken from the water supply network. The condition of beaches and swimming pools was monitored by check-ups and sampling according to the monitoring plan.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Number of days with poor air quality	*20.0*	*22.0*	*17.0*	*14 in 2002*	→
Percentage of building lots in noisy areas in relation to all planned single-family house lots (%)	*-*	*10.6*	*4.5*	*11 in 2004*	→
Percentage of apartments in noisy areas in relation to all planned apartment square metres (%)	*46.0*	*16.2*	*3.8*		

Reduction of environmental load



The amount of energy produced and the emissions caused by energy production depend on the prevailing weather conditions, national energy requirements and the electricity supply method. Carbon dioxide emissions from energy production in Lahti show an upward trend, mostly due to the cold winters of the last few years.

The amount of municipal landfill waste, or landfill waste per resident, has been considerably reduced. This is due to the recycling of energy at Ekovoima Ltd in Riihimäki and at the Kotkan Energia utility power plant in Kotka. The production of landfill waste has been controlled by increasing environmental awareness, offering advice in waste sorting and payment options and by providing recycling centre services.

Vehicle exhaust regulations and the taxation of liquid fuels have proved effective procedures in the reduction of nitrogen oxide emissions. Especially since catalytic converters became more common in vehicles with the renewal of the vehicle stock, the amounts of NO_x emissions in the Lahti area have been consistently reduced. An increase in the amount of traffic and the number of vehicles keeps the level of CO_2 emissions in the area consistently high.

The waste water produced by the total of 120,000 residents in the Lahti and Hollola areas is treated at Lahti Aqua Ltd.'s Kariniemi and Ali-Juhakkala sewage treatment plants. In 2010, a total of 11.2 million cubic metres of waste water was treated, and both plants complied with the purification requirements set forth in the permit requirements. The plants are biological-chemical sewage treatment plants where solid waste and sand are mechanically removed from the waste water, while organic matter and nitrogen are removed biologically and phosphorus chemically.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Amount of landfill waste produced by city offices and plants (tons)	*1,109*	*1,117*	*1,142*	*1,304 in 2001*	↗
Amount of municipal waste to be disposed of by landfilling per resident (kg)	*44*	*39*	*167*	*234 in 1999*	↗
Carbon dioxide emissions from energy production and industry (tons)	*818,800*	*744,115*	*654,000*	*691,300 in 1997*	↘
NO_x emissions from traffic (LIISA 2009 model) (kg/resident)					
Lahti	*5*	*5*	*6*	*12 in 1997*	↗
Hollola	*11*	*11*	*12*	*26 in 1997*	↗
Nastola	*13*	*13*	*14*	*29 in 1997*	↗
CO_2 emissions from traffic (LIISA 2009 model) (kg/resident)					
Lahti	*1,426*	*1,443*	*1,532*	*1,433 in 1997*	→
Hollola	*2,731*	*2,758*	*2,919*	*2,813 in 1997*	→
Nastola	*3,142*	*3,142*	*3,315*	*3,022 in 1997*	→

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Emissions into the Porvoonjoki river from sewage treatment plants (tons) Ho-La total and purification efficiency (%)					
Phosphorus	*3.0 (97.4%)*	*2.5 (97.9%)*	*3.2 (97.4%)*	*5.8 in 1997*	↗
Nitrogen (NH_4)	*34.0 (94.3%)*	*38.8 (94.4%)*	*24.0 (96.5%)*	*28.8 in 1997*	↘
BHK_7	*64.0 (98.8%)*	*65.2 (98.8%)*	*80.0 (98.5%)*	*140 in 1997*	↗
Waste water quantities (million m^3) Na, Ho-La (total)	*12.3*	*12.7*	*15.2*	*12.5 in 1997*	

Sustainable development in the use of natural resources

Approximately 90% of the municipal waste received by the local waste management company Päijät-Häme Waste Disposal Ltd can be reused. Recyclables include waste carton, glass, metal, separately sorted energy waste and separately sorted biowaste.

Lahti Energia Ltd has increased the utilisation of renewable fuels and energy waste in energy production with the development of sorting systems. In addition to natural gas and coal, separately sorted energy waste and wood are used in the production of district heating for homes. The district heating network currently covers nearly the entire Lahti city area, and approximately 90% of city dwellers reside in homes where district heating is provided. The district heating network also covers the Nastola and Hollola municipal centre areas.

The indicator for the functionality and leakage of the water supply network is unmetered consumption percentage. The percentage of unmetered consumption of the water pumped in Lahti was 5.8, which was an excellent result nationally considering that the average for the entire country was approximately 20%. The lower the unmetered consumption percentage, the less water and energy waste is created.

In 2010, the total electricity consumption increased by 7.6 per cent due to financial recovery. The high increase in the percentage was partly due to the low initial level of the previous year's electricity consumption and the cold weather.

The energy consumption of the city organization comprises both the heat and electricity used. The city has made an Energy Efficiency Agreement with the Ministry of Employment and Economy in order to implement energy-saving measures. Lahti has played an active part in developing energy and material-efficient acquisitions, yet there is still room for improvement in taking into account environmental issues when making certain acquisitions.

Traffic development in the Lahti region is similar to the national trend; the amount of passenger car traffic continues to increase, with the numbers of passengers in public transport, however, showing a slight decrease. In addition to travel habits, the increase in the number of cars reflects the distances in the region as well as the decentralisation of the community structure, which has resulted in the various functions being located at a far distance from each other. The number of light traffic routes has increased slightly from the previous year.

In 2010, the biogas produced during sludge treatment at Lahti Aqua Ltd's Kariniemi and Ali-Juhakkala sewage treatment plants was utilised as heating energy. Of the 15,000 MWh of energy produced, 63% was utilised for heating the treatment plants and 37% was conducted to the Lahti Energia Ltd district heating network. The heating energy produced for the district heating network covered the heating energy needs of approximately 370 single-family houses. Overall, the degree of recycling of biogas is 100%.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
The degree of recycling of municipal waste received by Päijät-Häme Waste Disposal Ltd (%)	*88.2*	*89.3*	*54.3*	*34 in 2002*	↗
The percentage of renewable fuels in energy production (%)	*9.9*	*7.8*	*14.7*	*0 in 1997*	↗
Water consumption per resident (L/day)					
Lahti, household consumption	*128*	*130*	*132*	*269 in 1997*	↗
Lahti, specific consumption	*201*	*203*	*200*	*269 in 1997*	↗
Hollola, specific consumption	*120*	*107*	*121*		
Nastola, specific consumption	*193*	*191*	*182*	*173 in 2000*	↘
Electricity consumption, kWh/resident/year	*9,022 v. 2009*	*9,163 v. 2008*	*9,376 v. 2007*	*8,240 in 1997*	→
Specific electricity consumption in the city/municipality properties, kWh/r-m³					
Lahti	*16.9*	*16.5*	*16.3*	*16.2 in 1999*	→
Hollola	*20.0*	*19.9*	*19.2*		
Nastola	*22.2*	-	-		
Heat consumption in the city/municipality properties, kWh/r-m³					
Lahti	*42.8*	*46.6*	*45.6*	*49.9 in 1999*	↗
Hollola	*36.6*	*31.4*	*27.4*		
Nastola	*54.7*	-	-		
Environmental aspects noted in invitations to tender (%)	*26*	*11*	*11*	*11 in 2003*	↗
*Relative change index for vehicle traffic **	*110.2*	*109.8*	*111.5*	*100.0 in 2000*	↘
Number of public transport passengers, journeys/ resident/year	*54.6*	*52.6*	*54.0*	*67.0 in 1997*	→
Combined pedestrian and cycling paths (km)					
Lahti	*388*	*380*	*370*	*344 in 2001*	↗
Hollola	*56*	*51*	*49*		
Nastola	*47*	*58*	*57*		
Car dependency, cars/1,000 residents					
Lahti	*477*	*467*	*463*	*387 in 2001*	↘
Hollola	*551*	*540*	*519*	*392 in 2001*	↘
Nastola	*564*	*546*	*530*	*422 in 2001*	↘

** The relative vehicle traffic change index in Lahti includes ten different locations where the amount of traffic is monitored.*

Preservation of landscape and cultural values

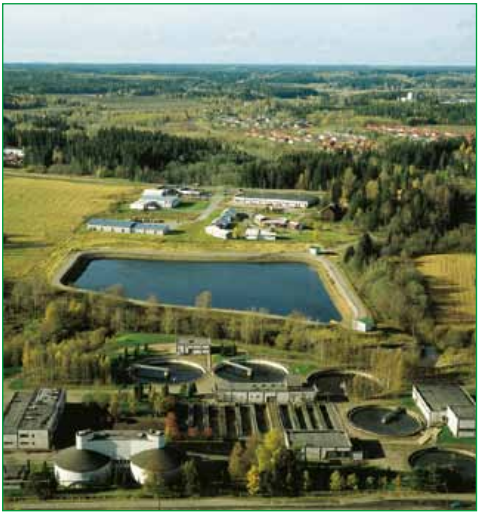
City planning strives to organise the utilisation and construction of areas in a way that ensures favourable prerequisites for a pleasant environment and to promote ecologically, financially, socially and culturally sustainable development. The aim is to enable the city to grow and develop, at the same time taking into account the environment and climate change control. In city planning, special attention has been given to the protection of valuable areas at the early stages, which has kept the level of protected area within the built-up environment mostly unchanged over the last few years. In Lahti, the parks within the city planning areas cover 2,039 ha and 981 lots are protected by city planning regulations. In Nastola, the parks within the city planning areas cover 592 ha.

Traditional landscapes are part of the prevailing environment and should be maintained and preserved through proper management. Over time mankind has created its own environment, a cultural environment which today is called the traditional landscape. The traditional landscape concept is more extensive than the traditional biotope concept, and may even include grazed areas created by traditional land use, not necessarily containing any valuable vegetation. However, as such these areas are of historic or scenic value and therefore worth preserving. In the Lahti area, the Jalkaranta meadow should be mentioned as an area of scenic value and the Ristola stone-age dwelling as a prehistoric relic.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Percentage of parks and green areas within the city planning areas (%)					
Lahti	*28.7*	*28.7*	*28*	*22 in 2001*	→
Hollola	*25*	*25*	*25*		
Nastola	*37*	*37*	*37*		
Valuable areas protected by city planning regulations (number of lots)	*981*	*967*	*966*	*60* in 1983*	↗
Number of protected buildings	*109*	*93*	*92*	*3 in 1979*	↗
Traditional landscapes (ha)					
Lahti	*26.6*	*26.6*	*26.6*	*26.6 in 1995*	→
Hollola	*54.9*	*54.9*	*54.9*		
Nastola	*9.9*	*9.9*	*9.9*		

** City plan for the Tapanila single-family house area*

Safeguarding of the quality and quantity of groundwater



Lahti, Hollola and Nastola are located near Salpausselkä and related end moraines, which belong to one of the largest groundwater aquifers in Finland. The tap water in the region consists entirely of good-quality groundwater. Water quality is monitored within groundwater areas, water catchment areas and water supply networks. In 2010, the amount of pumped water in Lahti and Hollola totalled 9.1 million cubic metres, and all water samples complied with all quality requirements and recommendations set for household water.

Approximately 100,000 cubic metres of groundwater is generated daily in Lahti and the adjacent areas. Lahti Aqua Ltd uses approximately a quarter of this for community household water, which is equivalent to approximately one half of all current water catchment permits. The majority of untreated water is taken from the Jalkaranta water catchment basin and the Hollola-Lahti joint municipal waterworks water catchment areas in Hollola and Hämeenkoski. The quality of the groundwater used as household water is excellent and will not require any significant treatment.

Jalkaranta, the largest water catchment area of Lahti Aqua Ltd, saw the introduction of a new water treatment plant in summer 2010. At this plant, the pH treatment of water is carried out by using limestone alkalisation. In addition, disinfection chemicals and their mode of administration were changed and a UV disinfection treatment of the water was implemented. These reforms improved the water treatment systems and enhanced the opportunity to use additional capacity and prepare for possible abnormal situations in water treatment.

In 2010, the drafting of a joint groundwater protection plan for Hollola, Lahti and Nastola was initiated. Work and steering groups were responsible for the steering of work. The work group convened approximately once a month and the steering group four times a year.

The PIUHA project of the Häme Centre for Economic Development, Transport and the Environment, which analyses the Sopenkorpi soil and groundwater conditions, continued in 2010 (PIUHA = project for reutilisation of contaminated industrial areas). Soil contaminated by oil was also reclaimed in the Sopenkorpi area. Towards the end of the year, soil in the Niemenkatu street was restored. In addition, a few smaller restoration projects were carried out during the year, e.g. some related to oil damage on the soil.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Groundwater conductivity (µS/cm), depicts the total amount of salts dissolved in the water (limit value 2,500 µS/cm)					
Lahti, Jalkaranta	*205*	*196*	*202*		
Hollola, Ruoppa	*97*	*109*	*105*		
Nastola, Mälkönen water catchment area	*193*	*215*	*190*		
Decisions made on the cleaning of contaminated lands (total number)					
Lahti	*3*	*4*	*5*	*11 in 2001*	
Hollola	-	*1*	*1*		
Nastola	-	-	-		

Preservation of the recreational and natural values of lakes

The waterway management work of the Region Environmental Service is carried out jointly with the Päijät-Häme Lake Vesijärvi Foundation as part of the Vesijärvi programme. The aim of the Vesijärvi programme is to improve and maintain the condition of the smaller lakes in the Vesijärvi and Lahti regions. The Environmental Services are responsible for a third of the budget of the Vesijärvi programme, which is approximately one million euros in total. In addition, the Land Use Department, Municipal Engineering, Lahti Region Environmental Services and Koiskala Fishing Association have committed to management procedures at the Lake Kymijärvi for the period of 2004 to 2013. The management procedures aim to prevent adverse effects of shore construction on water quality.

In 2010, the condition of waterways was monitored via a monitoring programme on five lakes in Hollola, nine in Lahti and eight in Nastola. In the Vesijärvi, Alasenjärvi, Kymijärvi and Ruuhijärvi lakes, the water quality of the most significant drain ditches was also monitored. In the Enonselkä and Paimelanlahti areas, water quality was also monitored at five continuously working measurement stations and, additionally, a weather station was added to one station. The results were available on the Internet.

The Enonselkä area of the Lake Vesijärvi area was oxidised with nine oxidisers, excluding the full cycling times of the water. Period of oxygen depletion in the summer was shortened to 35 days from the earlier period of approximately one hundred days. 4,000 eels were planted in the city water area of the Lake Vesijärvi. The management fishing yield of the waterways totalled 252,000 kg, with the Vesijärvi yield being 201,000 kg.

Aquatic plants were cut in the Alasenjärvi, Kymijärvi, Merrasjärvi, Joutjärvi, Mytäjäinen and Vesijärvi lakes in the Lahti area. In Hollola, aquatic plants were cut in Hedelmätarhanlampi and Vesijärvi. In Nastola, cutting was carried out in Kivijärvi, Ruuhijärvi, Arrajärvi, Salajärvi, Alvojärvi, Kymijärvi, Villähteen Kukkanen, Pikku-Kukkanen and Sylvöjärvi. In addition, three wetlands were created near Alasenjärvi.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Lake water chlorophyll, August (µg/L)					
Vesijärvi, Enonselän Lankiluoto	*4.5*	*76.0*	*12.0*	*10 in 1995*	↗
Hollolan Arkiomaanjärvi	*7.3*	*2.9*	*-*		
Nastolan Salajärvi	*11.0*	*12.0*	*13.0*		
Lake water transparency, August (m)					
Vesijärvi, Enonselkä	*2.2*	*0.9*	*1.8*	*2.6 in 1995*	→
Alasenjärvi	*3.0*	*2.5*	*2.5*	*4.6 in 1995*	↘
Hollolan Arkiomaanjärvi	*2.0*	*2.0*	*-*		
Nastolan Salajärvi	*2.5*	*-*	*2.0*		
Vesijärvi management fishing yields (t/year)	*201*	*216*	*137*	*125 in 1995*	↗
Kymijärvi heating plant's heating load into Vesijärvi, (t/year)	*1,071*	*1,001*	*666*	*722 in 1995*	↘

Diversity of nature as the riches of the region

Forests owned by the city of Lahti are maintained with a multiuse principle, in accordance with the FSC certificate criteria. The maintenance of the city forests has focused on recreational and protective values, which also enable the protection of the diversity of nature. The diverse species of the region are safeguarded for future generations at eight nature reserve areas within the city, which represent a wide scale of various habitats, such as old forests, marshes and waterways with rich birdlife.

Some 300 of the LUMO (biodiversity) sites have been included in the database of the city. These sites increase the diversity of the city nature, and they were first mapped in Lahti as early as 1995. A new nature trail was completed at Renkomäki in May. Information boards were renewed and a few new campfire areas were built on other nature trail routes. Habitat type reports were created in the Salpausselkä area in Nastola and Hollola, and dragonfly environments were studied at the Kilpiäinen nature reserve. Several nature trips were organised in the Lahti area nature sites during the year.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Percentage of areas protected under the Environmental Protection Act of the entire municipal land area (%)					
Lahti	*2.80*	*2.80*	*2.80*	*1.9 in 1995*	↗
Hollola	*1.35*	*1.35*	*1.35*		
Nastola	*0.14*	*0.14*	*0.14*		
Areas protected under the Environmental Protection Act (ha)					
Lahti	*380*	*380*	*380*	*256 in 1995*	↗
Hollola	*751*	*730*	*717*		
Nastola	*67*	*62*	*52*		
LUMO sites in Lahti (ha)	*700*	*700*	*700*	*500 in 1995*	→
Habitat type sites (ha)					
Lahti	*23.5*	*23.5*	*22.6*		
Hollola	*16.5*	*15.1*	*14.1*		
Nastola	*9.1*	*9.1*	*9.1*		

Environmental issues as part of education

Environmental issues and sustainable development have been integrated in school curricula. A special environment programme named the Green Flag is available for schools and day-care centres. The programme aims at promoting a more environmentally friendly daily life and sustained environmental education as well as at encouraging the participation of children and young people. The Kivimaa Lower Comprehensive School in Lahti has obtained the right to use the Green Flag and the Hollola Upper Secondary School has been granted the educational institute environmental certificate.

With the assistance of the Environmental Counselling Centre of the Lahti Region Environmental Services, the environmental knowledge and skills of both child and youth groups and educators have been increased. Environmental education resources are dependent on project funding and therefore vary year on year. The traditional voluntary spring cleaning campaign was organised at the beginning of May in the Lahti, Hollola and Nastola area schools, when over 9,000 pupils cleaned rubbish from the areas adjacent to their schools. The investment in waste counselling given to residents has remained unchanged throughout the 2000's.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Green Flag schools and environmental certificate educational institutes					
Lahti	*1*	*1*	*1*	*1 in 2000*	→
Hollola	*1*	*1*	*1*		
Participants of the environment school Ekoteko	*2,536*	*2,049*	*2,661*	*2,750 in 2001*	→
Päijät-Häme Waste Disposal Ltd's investment in waste advice (€/resident)	*0.86*	*1.17*	*1.27*	*1.39 in 2000*	

Opportunities to participate and contribute effectively

Opportunities for residents to participate are promoted by various resident events and questionnaires. Resident events related to land use planning increased in 2010 with the General Plan 2025 events. In addition, city plans and any changes to these are available at the Technical and Environmental Services' customer service centre at Vesijärvenkatu 11C as well as the Land Use Department office, Lahti main library and regional libraries.

The city of Lahti attempts to improve residents' opportunities to participate and make an impact through various projects. The city group's various functions have focused on the development of electronic services. Electronic services are available for areas such as construction permit applications, property procedure applications as well as for making appointments for health services and oral health care. An electronic eForm can be used to provide feedback on the Technical and Environment Department services, operation and decision-making or for submitting proposals in matters pertaining to these functions. Feedback can be given on planning, construction, street conditions and traffic arrangements, among other things.

Investments have been made in the development of environmental consultation, which has resulted in increased customer contacts with 9,913 people reached during the year. A new form of resident action, the OmaTeko resident forum, brings environmental advice to the social media, thus affording a new way of participation for the residents. The resident committee uses questionnaires to assess the quality of management of each city-owned area.

The youth of Lahti have an opportunity to affect various issues at the youth council, and anyone wishing to participate can apply through their school or youth association. Each upper comprehensive school, upper secondary school and youth association will select two representatives for the youth council. The representatives are selected for one year at a time at the beginning of each school year.

Key monitoring figures	2010	2009	2008	Longer term environmental change	
Number of land use planning-related resident events	*34*	*10*	*15*	*49 in 2000*	→
Satisfaction percentage in resident questionnaires, Technical Services (%)	*66*	*68*	*68*	*72 in 1998*	→
Number of environmental advice-related resident events	*92*	*89*	*67*	*53 in 2001*	↗

Environmental Balance Sheet 2010, Summary, 1,000 Euros

Environmental Category	City of Lahti			Lahti City Group			Operational area of LRES		
	Return	Expend-itures	Invest-ments	Return	Expendi-tures	Invest-ments	Return	Expendi-tures	Invest-ments
1. Air and climate protection	*13.2*	*223.1*		*13.2*	*4,609.4*	*38,164.0*	*13.2*	*4,744.6*	*38,164.0*
2. Water protection and waste water treatment	*3.0*	*240.5*		*13,379.0*	*6,653.1*	*2,897.0*	*16,621.0*	*7,357.1*	*4,212.0*
3. Waste management and prevention of littering	*8.0*	*1,317.7*		*11,308.0*	*12,960.5*	*669.1*	*11,308.0*	*13,003.7*	*669.1*
4. Soil and ground protection		*400.0*	*300.0*	*,*	*634.1*	*334.3*	*,*	*641.1*	*334.3*
5. Noise and vibration prevention		*,10.0*	*254.0*	*,*	*10.0*	*254.0*	*,*	*10.0*	*254.0*
6. Nature and scenery protection		*7.0*		*,*	*7.0*	*,*	*,*	*11.0*	
7. Administrative functions	*1,290.0*	*2,745.0*	*55.0*	*1,290.0*	*2,745.0*	*55.0*	*1,290.0*	*2,745.0*	*55.0,*
8. Promotion of environmental protection	*24.0*	*311.2*		*24.0*	*9,374.8*	*120.0*	*24.0*	*9,374.8*	*120.0*
9. Environmentally-based taxes and payments		*448.8*	*,*	*,*	*1,152.9*	*,*	*,*	*1,183.5*	*,*
Total	***1,338.2***	***5,703.3***	***609.0***	***26,014.2***	***38,146.8***	***42,493.4***	***29,256.2***	***39,070.8***	***43,808.4***
Interest costs					*62.0*			*62.0*	
Environmental provisions					*-495.0*			*-495.0*	
Change in environmental provisions					*-495.0*			*-495.0*	
Environmental debt (Estimated cost)									

Additional information

Lahti Region Environmental Service
Vesijärvenkatu 11 C, FIN-15141 LAHTI
Kari Porra
kari.porra@lahti.fi
Timo Permanto
timo.permanto@lahti.fi
puh. 050 559 4054
edited by Marja-Leena Kalpio
www.lahti.fi

Photos: photo archive of the city of Lahti

Lahti Region Environmental Review 2010
ISSN-L 1798-310X
ISSN 1798-310X
Sarja 8/2011

Printed matter
441 042

02-31-146

Markprint Oy, Lahti, 2011