



Tallinna Vesi



Environmental Report 2012

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AS Tallinna Vesi in brief

GENERAL FACTS

- AS Tallinna Vesi is the largest water utility company in Estonia, providing drinking water and wastewater disposal services to approximately 1/3 of Estonia's population.
- The Company provides water and wastewater disposal services to over 22,000 customers and 430,000 end consumers in Tallinn and its surrounding areas.
- The Company has the exclusive right to provide water and sewerage services in the Tallinn service area until the year 2020.
- A services agreement with 97 quality levels of service has been concluded between the city of Tallinn and the Company for providing the services.
- The Company has two main treatment plants: Ülemiste Water Treatment Plant and Paljassaare Wastewater Treatment Plant.
- Water has been treated at Ülemiste since 1927. A new water treatment plant was built in 1979.
- In 2012 the Water Treatment Plant produced an average of 60,000 m³ of water per day.
- Almost 90% of drinking water is produced from surface water. Lake Ülemiste is the main source of drinking water for the residents of Tallinn and, therefore, the lake is not a public water body. 10% of the consumers use regional ground water.
- Average water consumption in 2012 was 94 litres per inhabitant. Water consumption has remained stable during previous years.
- Paljassaare Wastewater Treatment Plant started operating in 1980.
- In 2012 the Wastewater Treatment Plant treated on an average 156,000 m³/day.
- The Company has an accredited water laboratory and an accredited wastewater laboratory, which together conducted approximately 135,000 analyses in 2012 (72,000 chemicals and 11,000 microbiological analyses from drinking water and 52,000 analyses from wastewater).
- The public water supply system comprises almost 1108 km of water networks, 17 water pumping stations and 67 ground water borehole pumping stations with 93 boreholes.
- The public sewerage system comprises 1127 km of wastewater networks, 456 km of storm water networks and over 163 sewerage pumping stations across the service area.
- AS Tallinna Vesi founded its 100% owned subsidiary, Watercom in 2010, to diversify the Company product offering and pursue business development and growth.
- In the end of 2012, the Company and its subsidiary employed a total of 313 employees.
- The Company shares are listed on the main list of Tallinn Stock Exchange.

OPERATIONAL SITES

- Head office, customer service, support services and OÜ Watercom are located in Ädala 10, Tallinn.
- Ülemiste water treatment plant, water and microbiological laboratory are located at Järvevana road 3, Tallinn.
- Paljassaare wastewater treatment plant, composting fields and wastewater laboratory are located Paljassaare põik 14, Tallinn.
- Sludge composting and experimental site is located in Liikva village, Harju county
- The catchment area ca 1,800 square kilometres is located in Harju and Järva counties.

MISSION

We create a better life with pure water!

VISION

Everyone wants to be our customer, employee and partner, because we are the leading water services company in the Baltic's.

OUR VALUES

Commitment – We work with passion, doing the maximum to achieve the objectives

Customer focus – Our actions help our customers and colleagues to find solutions

Teamwork – We all form one team who knows that our success depends on the contribution of each individual

Creativity – We have the courage and the energy to seek new opportunities and achieve better results

Proactivity – We act today for a better tomorrow



Values of Company

Chairman's statement

In 2012, AS Tallinna Vesi has continued to deliver a standard of product and service that is without comparison across the Baltic region. Once again we have managed to improve our performance across all business areas. These successes demonstrate that our sharp focus on operational performance continues to deliver significant benefits for the citizens of Tallinn and the wider environment.

Against this background of continuous improvement in our services it is very disappointing to find that the privatisation contract, which has helped to deliver these improvements, continues to be attacked by the Competition Authority, and as such the company finds itself having its contract broken as the Competition Authority has refused to grant the contractually agreed tariff increases for the past two years. In spite of our best efforts to engage in a professional dialogue with the Competition Authority it refuses to do so, and instead has increased its criticism of the company and its shareholders by alleging that the privatisation contract signed in 2001 is "illegal" and always was "illegal". These statements have been made without any supporting evidence.



Chairman of the Management

Although our dispute with the Competition Authority continues into 2013 there were a number of positive legal developments for the company. The most important of these was the May 2012 decision of the District Court when it ruled that the tariff mechanism that was the key part of our privatisation is a public law contract. This means that unless the Competition Authority is able to prove that the privatisation was manifestly against the public interest then it will have to uphold the contract or, if not, then the state of Estonia will be liable for compensation. Decisions such as this one clearly demonstrate the professionalism and integrity of the Estonian court system.

Operations performance – Continuous improvement and highest ever standards

We have continued to ensure we meet or exceed the services contract we signed with the City of Tallinn. This services contract requires us to maintain a high standard of service to our customers across a range of over 90 levels of service, ensuring that we deliver a service to our customers that is second to none.

During 2012 we have continuously improved our performance across all areas of the water and wastewater value chain, achieving the highest standards ever for wastewater treatment, and the performance of both our water network and wastewater network. After setting new high standards in 2011 we are extremely proud to have surpassed these levels in 2012, a clear demonstration of the success of our strategy of continuous improvement.

Excellent customer service - highest ever service ranking

This year our customer satisfaction rating increased to a TRI*M index all time high of 85. This is a huge improvement from the rating of 72 points at the end of 2011. We are now starting to see the benefits of our improved operational performance in our customer satisfaction results. Over the last few years we have made significant reductions in the number of interruptions to supply and other service related problems, for example since 2010 we have reduced the number of sewer blockages from 1 193 to 749. In addition, we have always tried to ensure our customers know in advance about our work when it would impact their daily lives. During the year over 90% of customers that were being impacted by our activities were notified in advance. In 2012, these proactive improvements were well recognised in the comments made by our customers in the results of our customer satisfaction survey.

Privatisation contract dispute

Throughout 2012 we have been unable to bring our dispute with the Competition Authority to a professional conclusion. As a consequence our tariffs remain at 2010 levels, and we still stand accused of acting illegally in Estonia. However, in spite of the fact that our legal disputes has not ended, the year saw a number of positive developments.

In the first quarter of 2012 the courts ruled that the Competition Authority could not unilaterally impose a 29% tariff cut on the company. The company sought an injunction from the courts to stop the Competition Authority's precept taking effect until all of our court cases have been concluded and the courts granted this injunction.

In May 2012, the Estonian Courts ruled that the tariff agreement from the privatisation contract was a public law contract. This is a landmark decision as it means that unless the Competition Authority is able to prove that the privatisation contract is manifestly against the public interest then the contract must be honoured or if not the state of Estonia will have to pay compensation. The Competition Authority had previously tried to avoid any discussion of the privatisation contract by claiming it was a private arrangement between the City of Tallinn and ASTV and as such should be treated as a civil law contract.

Our only disappointment was that the courts upheld the Competition Authority's request for closed court proceedings. We find it strange that an organisation that purports to represent the interests of the public should not believe its methods should be subject to public scrutiny. However, as we believe in absolute transparency in all our communications we have applied to the courts to have the court proceedings re-opened.

In addition, we continue with our complaint to the EU Commission. Throughout the year we have engaged in thorough and very professional dialogue with the EU Commission to help it fully understand all aspects of our case.

Our people and teams

The people in ASTV are key to the delivery of the highest levels of service to our customers and we would like to thank them for their dedication and continued hard work during the year. Against the backdrop of continued negative media coverage supplemented by the over-politicisation of our company, our staff have once again, delivered world class performance.

We believe that a committed, capable and motivated workforce is central to delivering our strategy and we remain fully focused on maintaining high levels of employee development and engagement. We strive to give our staff the opportunity to develop within the company, which can be seen in the fact that four of our five Management Board members have been promoted from within ASTV.

The safety and well-being of our employees is paramount and we believe that everybody in ASTV, both collectively and individually, has a part to play in maintaining a safe working environment. In 2012, our health and safety performance stood comparison with the performance of the best in class, and we will remain vigilant in our efforts to achieve the same very high standards in 2013.

Responsible company

As a company we are responsible to our shareholders, customers and other stakeholders for the performance and long-term success of our company. We believe that the way in which we operate already reflects the highest standards of corporate governance. In 2012, our approach to doing business was reflected in the following nominations and awards:

- Responsible Company - Gold award of the Responsible Business Forum in Estonia
- Environmentally friendly Office - the Ministry of Environment
- European Union Commission's EMAS 2012 Award - nomination for environmental performance
- BMA awards - Nasdaq OMX - Best IR 2nd in the Baltics

The community in which we operate is of great importance to our business and we have continued our investment in Tallinn through sponsorship and in terms of employee time through volunteering. Our main partners in 2012 were as follows:

- Ristiku Põhikool
- Õunakese Kindergarten
- Estonian Disabled Swimming Union
- PÖFF in Tallinn (Dark Nights Film Festival)

Stable Revenues, returns in accordance with other privatised utilities

We are a financially robust and resilient business. Our turnover from our main business activity - sales of water and wastewater - increased by 3.1% to 47.9 million euros and our operating profit from these activities increased by 5.2% to 26.7 million euros. The real return (net of inflation) on invested capital in our main business was 6.6% in 2012 and 6.9% over the five year period from 2007 to 2011, which is in accordance with the rates of return made by other privatised water utilities.

In 2012, we improved the long term financial stability of the company by extending our two 37.5m Euro loan facilities with Nordea bank, extending the maturity on these loans from November 2013 and November 2015 to 2018. By securing this re-financing early we have removed capital market risk by securing our capital structure for a further five years.

Outlook

In the current political and regulatory environment the outlook for the company is very uncertain. Given that the Estonian authorities are unwilling to enter into any meaningful discussions over the privatisation contracts, it appears that the company will be engaged in a long court process, which could last a number of years. It is apparent that the significant improvements in service count for very little within the new system of regulation. I would, however, like to inform all our stakeholders that we are committed to delivering the highest levels of service to all our direct customers and service users. This ongoing dispute severely limits our growth opportunities and as such, in 2013, our primary focus will be on improving performance and efficiency in our main services area in Tallinn. By continuing our focused approach to operational improvements and developing a repeatable business model we believe we will be ideally placed to expand across the region, once our current legal dispute is behind us.

Finally, I would like to thank my colleagues in AS Tallinna Vesi and OÜ Watercom, and all our suppliers and business partners for all their expertise, energy and support in serving our customers in this difficult time. It is because of all your efforts that we are, once again, able to report a level of operating and service performance that is second to none.

Company's general objectives 2012

Customer service	12 months	Objective in 2012	Status
Potential commitment for non-compliance with our promises (EUR)	380	<750	X
Written contacts answered within 2 working days (%)	98,5	≥95	X
Notifying customers about unplanned interruptions 1 h in advance (%)	90	≥80	X
Notifying customers on first phone call of what will happen and by when and we'll keep our word (%)	91	≥90	X
Customer satisfaction with the service has improved as a result of regular surveys (max. 4 points)	3,18	3,5	0
Operational performance	12 months	Objective in 2012	Status
Compliance of water quality at customer taps with the requirements (%)	99,55	≥99,31	X
Level of water loss in networks (%)	15,86	≤19	X
Average length of customer interruption (hours)	3,42	<3,5	X
Total number of blockages in sewerage system in Tallinn	715	<1000	X
Compliance of pollution parameters in effluent at the WWTP and at the storm water outlets (quarter)	4	≥4	X
People	12 months	Objective in 2012	Status
Employees recommend the Company as an Employer (min recommendation index according to the EOS)	3,5	3,60	0
Inter-departmental cooperation is better than in 2011 (based on the internal customer satisfaction survey)	41,8 and 4,9	≥ 45% and ≤3	0
Employee feedback to management is better in 2011 (according to the EOS)	4,4	≥ 4,6	0
0 work accidents that the Employer is liable for (No)	1	0	0
Short term sick leave day's (No)	883	<1200	X

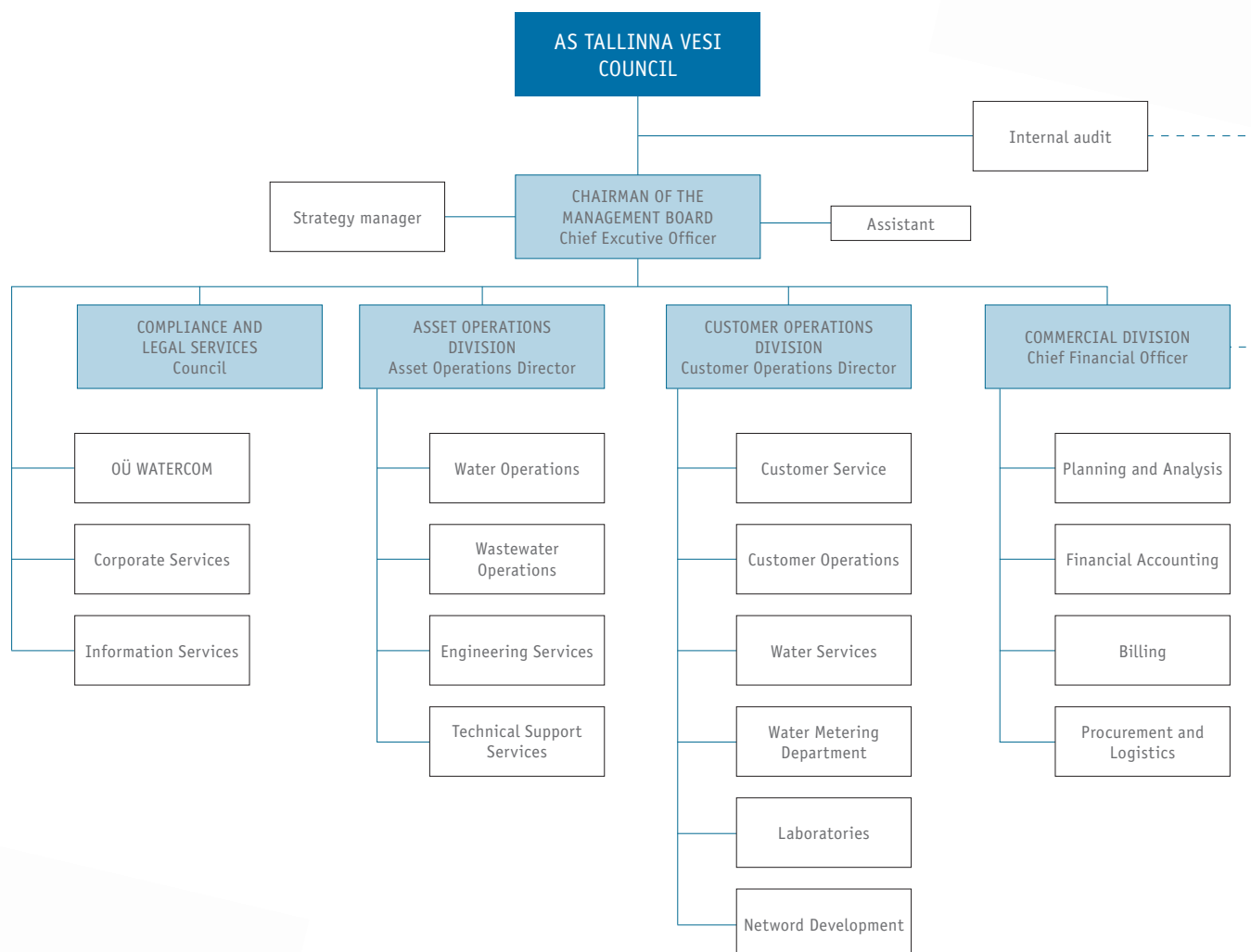
Legend: X - achieved; 0 - not achieved

Company's environmental objectives 2013 _____

- To ensure compliance with LoS (except WS7), environmental and health requirements, as well as legislation
- Reduced no of customer contacts related to water quality 10%
- Reduced no of customer contacts related to floodings/blockages 9%
- Reduced no of customer contacts related to water interruptions and pressure 10%
- To control and ensure the awareness of sub-contractors about significant environment related aspects of the Company
- To use water resources sparingly and to reduce the ecological footprint of own use water per employee in comparison with the last year
- To reduce the ecological footprint of waste per employee in comparison with the last year
- To reduce the ecological footprint of heat energy per employee in comparison with the last year
- To reduce the ecological footprint of electricity per employee in comparison with the last year
- To reduce the ecological footprint of transport per employee in comparison with the last year
- To raise environmental awareness of stakeholders
- To raise environmental awareness of employees
- To raise environmental awareness through education and enhance scientific co-operation
- To raise engagement with environmental and ethical business projects in the community and support causes linking to our values
- Be recognised as a flagship company for corporate social responsibility and promote doing business in an ethical and responsible way in the Baltics

Company's structure

Valid since 01.03.2013



Environmental policy

Quality and environmental policy approved by the Company's Executive Team expresses the Company's principles in organising activities related to corporate social responsibility and environment.

OUR CONTRIBUTION TO CUSTOMER AND THE COMMUNITY:

- Our customers have a possibility to continuously use pure drinking water and the possibility to discharge wastewater and storm water environmentally wisely.
- Our customers can communicate with us conveniently; we are fast and professional in finding solutions to their problems.
- We take responsibility and are aware of our impact on the health and quality of life of residents.
- We do more than required by the legal acts and we follow the best practices.
- We use natural resources sparingly.
- We shape the environmentally conscious way of thinking in our community by keeping an open dialogue, cooperation and valuing education.
- We proactively include various stakeholders, find sustainable solutions and constantly improve our services and work organisation.
- We are open and honest in providing regular information about our activities to our stakeholders.
- We strive to be a good neighbour in the community, by supporting water related activities that promote environmental awareness and healthy life style.

Customer satisfaction

In 2012, the Company provided water supply and sewerage services to a little more than 22,000 customers and 430,000 end users in Tallinn and its surrounding areas.

In 2012 the Company made its best efforts to maintain the very good quality of drinking water and to further improve the service reliability. The Company also made efforts to enhance resolving customer contacts. The main focus was both on the speed of resolving the issues and on improving the customer awareness of the Company's actions. Although the customer satisfaction survey results indicate satisfaction with the quality of our services, they also refer to some room for development in terms of problem solving. Customer satisfaction has significantly increased compared to the previous year. In comparison with the European utility and public sector, the satisfaction of the Company's customer is above the average. However, the Company is going to focus on the improvement of customer service also in 2013.

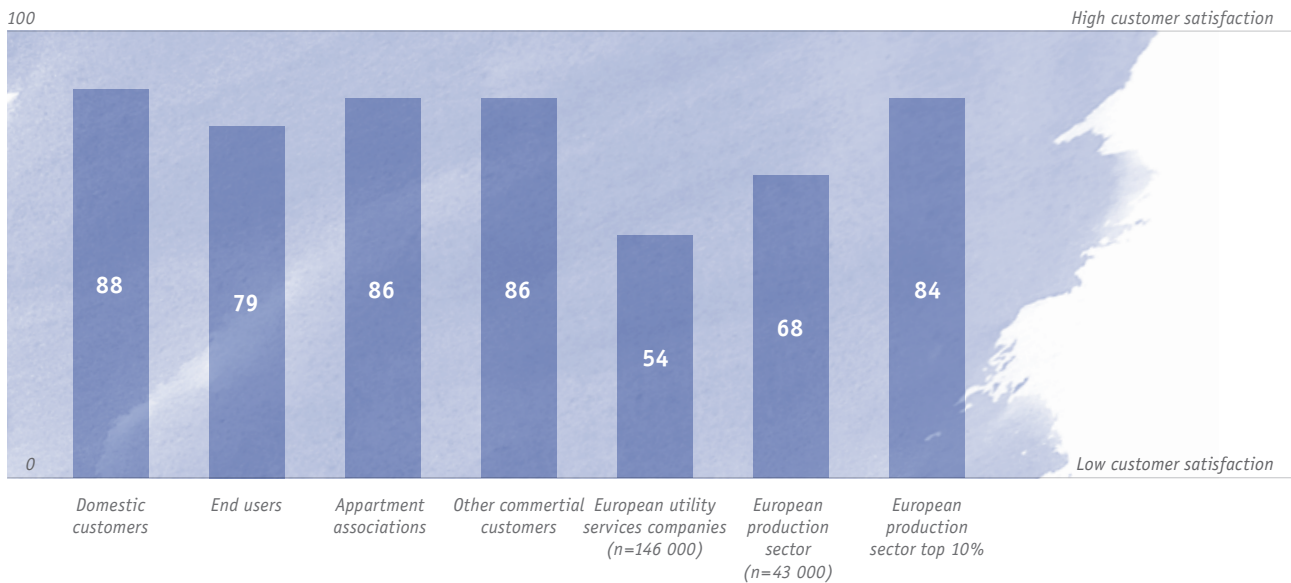


An independent market research company TNS Emor carried out a customer satisfaction survey, conducting phone interviews with 900 customers and end users regarding their satisfaction with the customer service of the Company in 2012. Satisfaction was measured on the basis of the TRI*M method developed by the research company to characterise the strength of customer relationships and to allow comparison with other companies. This model focuses on three elements:

- TRI*M index, which measures the strength of customer relationships and comprises further four elements – general satisfaction, recommendation, repeated use and usefulness/necessity of services products;
- TRI*M typology of customer relationships, describing the satisfaction and loyalty of customers;
- TRI*M grid analysis to highlight the strengths and weaknesses of a company.

The Company scored an average of 85 points among its customers and end users in the final TRI*M index of the customer satisfaction survey on a scale of 100. The results of the survey show that the satisfaction of end users has increased by 5 points from 74 (2011) to 79 (2012). Regardless of that, the customer relationships continue to be strong in all customer segments in the Company, being at a uniform high level of 79-88 points in the TRI*M index.

Satisfaction among Company's customers and end users in 2012



The databases of Global TRI*M Centre serve as the source for international comparisons by collecting the results of all customer surveys carried out by various service providers using the TRI*M methodology. During the comparison period 2008-2011, the global database contains feedback from 7.8 million customers to their partners.

Compared to the other utility companies in Europe, the Company's customer relationships can continually be considered to be very good. This means that customers are more satisfied with their service provider. It is obvious that the strength of customer relationships is also affected by the necessity of the service provided by the Company. According to the results of the 2012 survey, the score of the Company in terms of satisfaction of customers and end users is within the upper 10% among European manufacturing companies.

One of the reasons behind this considerable increase in satisfaction is the Company's changed media image which is no longer focused only on news related to the price of water. The Company's media coverage has become more positive and this has contributed to more positive views of the customers towards the services provided by the Company. Furthermore, the customers and end users feel that the price-quality ratio has improved. The relevant changes have not taken place in one year, however, the ratings of the quality of water and its stability have constantly kept improving. Over several years, the Company has made an effort in constantly improving the quality of service which is also reflected in higher ratings given by the customers in 2012.

The main strengths of the Company are the quality of water, billing and providing a stable water supply. In addition to that, the customers pointed out accuracy and promptness in informing of interruptions to water supply as positive aspects of the Company. Concerning the service, the bottleneck is still problem solving – the solutions offered by the Company have not always met the customers' expectations. While private customers' ratings of problem solving have somewhat increased over the year, there has been no progress during the year concerning business customers' opinions. According to the results of the 2012 survey, the Company has to pay more attention to solving the problems related to water pressure, quality of water and contracts.

Customers' satisfaction with different service channels has increased, the use of electronic channels as the main communication channels has grown and the preference of online self-service for reporting water meter readings has gone up. Over the last year and a half, the Company has continuously been investing in the development of online self-service, the results of which are reflected in increased use of online self-service and higher satisfaction with the respective service channel.

Customer satisfaction with different aspects of services 2011-2012

On a scale of 5	Commercial customers		Private customers	
	2011	2012	2011	2012
Taste of water	3.8	4.0	4.1	4.1
Odour of water	4.0	4.1	4.2	4.2
Clarity of water	4.0	4.1	4.2	4.1
Stable water pressure	4.0	3.9	3.9	4.0
Low number of emergencies and interruptions	4.1	4.1	4.1	4.2
Price/quality relationship	2.8	3.1	3.0	3.2
Accuracy and clarity of invoices	4.3	4.5	4.3	4.3
Customer Information line	3.9	4.0	4.0	4.1
Communication by e-mail	4.2	4.2	4.1	4.1
Self-service	3.8	4.1	3.8	4.0

DEVELOPMENT OF CUSTOMER SERVICE

It is important for the Company to continue focusing, above all, on issues related to problem solving. There are still some shortcomings concerning the speed of solving the problems, suitability of the proposed solution, solving the issue as promised and keeping the client up-to-date during the course of dealing with the issue. In 2012, the Company also continued improvement activities based on the feedback received from the customer satisfaction survey. The main activities were as follows:

- As a result of inter-departmental cooperation and agreements, at the end of the year (in approximately 90% of the cases) the customers who had turned to the Company via phone knew when the Company took actions for solving the problem raised by them;
- In cooperation with several restaurants, the Company continued with the campaign "Ask for tap water" and also carried out a campaign "Tap water = drinking water" in order to raise consumers' awareness about the quality of tap water;
- In order to reduce inconveniences experienced by customers due to interruptions to water supply, the Company notified most of its customers of emergency water interruptions at least one hour in advance;
- Starting from the mid-2012, the Company is conducting its own monthly customer satisfaction survey to get feedback from customers. This provides the Company with immediate feedback about customer requests resolved in the last month and allows it to react instantly if a customer is not satisfied with the actions carried out to resolve the issue;
- At the end of 2012, the Company carried out a campaign "Paperfree web self-service", the aim of which was to promote the use of self-service among the clients, because it is the most comfortable channel for reporting on meter readings and billing.



Self-service campaign 2012

Environmental management system

The Company's environmental activity is in compliance with the requirements of the international environmental management standard ISO 14001 and EU Eco Management and Audit Scheme (EMAS) Regulation.

The environmental management system forms a part of the Company's management system, the objective of which is to avoid or at the least minimise environmental pollution via integrating the environmental management system elements into the daily activities of the Company.

The basis for the environmental management system is the identification of both negative and positive significant environmental aspects and impacts which form the basis for determining the Company's environmental objectives and tasks for improving performance. Significant environmental aspects are those different facets of the Company's activities, which, in contact with the surrounding environment, have the most serious consequences for the natural environment, the quality of life and the Company's business activities.

An overview of the significant environmental aspects of the Company, their actual or potential environmental impact, the accompanying environmental objectives and tasks as well as progress against the objectives is presented in the next chapters of this Environmental Report.

Management of the environmental system has been established in accordance with the Company's structural scheme, described on the page 10. The main responsibility for ensuring and improving the functioning of the environmental management system lies with the senior management and the heads of structural units. Unit managers involve their employees in setting and fulfilling environmental objectives and tasks.

Compliance of the activities with environmental requirements

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Environmental management systems implemented Improvement activities carried out	Improvement of environmental performance, enhancement of cooperation with stakeholders
2012 OBJECTIVES AND TASKS	
To ensure compliance with regulatory requirements and requirements of the Services Agreement -	
To ensure the awareness of sub-contractors about significant environment related aspects of the Company +	

ENVIRONMENTAL LEGISLATION

The minimum requirement of environmental management system is compliance with environmental legislation. All improvements to the environmental management system must also be in accordance with the requirements and restrictions set out in applicable legislation.

To a large extent the Company's environmental activities are regulated by requirements arising from EU as well as national and local government legislation.

Amongst these the Water Act, the Public Water Supply and Sewerage Act, the Waste Act, the Chemicals Act, the Ambient Air Protection Act and regulations adopted on the basis thereon have the most significant impact on the Company. In order to meet the minimum requirements, the Company systematically monitors the relevant environmental legislation and amendments thereto. Each month the area of the Company's activities affected by the amendments are determined and the managers responsible for the particular areas are notified thereof. Managers of the respective areas ensure that the required changes are carried out.

In 2012 the Company actively participated in the approvals of the new draft acts related to water economy and environment mainly via Estonian Water Works Association, by submitting its opinions and making amendment proposals with regard to the draft legislation under discussion. With Estonian Water Works Association the Company has participated in the working groups for developing legislation related to water economy and environment and expressed its opinion with regard to draft legislation directly to the institutions processing the draft legislation (Ministry of Environment, Ministry of Justice, Ministry of Economic Affairs and Communications).

The important draft legislations in 2012, in regards to which the Company did active preparation work, were the amendment draft of the Public Water Supply and Sewerage Act (PWSSA) and the Ministry of Environment's regulation related to wastewater treatment "Requirements for wastewater treatment and discharging of effluent as well as stormwater into the receiving water body, and the methods for checking the fulfilment of these requirements".

ENVIRONMENTAL PERMITS

The Company must act in accordance with the conditions set out in the environmental permits issued to the Company. The main licensing authority for the Company is the Environmental Board's Harju-Järva-Rapla regional department, who has issued the following environmental permits to the Company:

- 4 special use of water permits (details on page 31);
- 2 waste permits (details on page 54);
- 2 ambient air pollution permits (details on page 62).

In 2012, the Company performed in conformity with all of the conditions set forth in applicable environmental permits. The matters related to the environmental permits have been resolved in cooperation with the Environmental Inspectorate and Harju County Environmental Services. 2012 was a very rainy year and thus a lot of organic substance was carried from the soil to the lake. The extraordinarily intense proliferation of algae of small biomass (*Planktolyngbya limnetica*) made the situation even more complicated in late autumn. Steep decline of temperature of lake water caused the named algae to break down into very fine particles and removing those from water became more difficult. This resulted in an increase in turbidity and together with it the residual aluminium concentration over the allowed level for a short period of time. The situation was controlled by optimising the performance of treatment process equipment and using significantly higher chemical doses. Health Board was immediately informed of the described situation and the measures were taken. As the indicators were slightly exceeded (below 10%) only for a short period of time, the situation did not cause any health risks.

REQUIREMENTS OF THE SERVICES AGREEMENT

Besides legislation, the activities of the Company are also regulated by the Services Agreement concluded between the Company and the City of Tallinn for ensuring 97 Levels of Services. Performance of the Service Agreement is supervised by the Supervisory Foundation for the Water Companies in Tallinn, appointed by the local government, to whom the Company annually submits a detailed report on compliance with the requirements of the Service Agreement.

96 Levels of Service out of 97 were met in 2012, exceeding the agreed objectives with regard to several levels of service, i.e. achieving a better result than the minimum required by the law or agreement. The only level of service, which the Company did not manage to fulfil in 2012, concerned interruption to supply, which lasted longer than 12 hours (in one case it took longer than 12 hours to eliminate the emergency). Average duration of an interruption to water supply of customer per hour has reduced from 3.14 to 2.83 compared to 2011. Reduction in the duration of water interruption was conditioned by planning the emergency works in advance.

REQUIREMENTS TO CONTRACTUAL PARTNERS

Considering the requirements set for the Company, the Company also requires its suppliers to meet environmental and work environment requirements.

To ensure the above, the Company has established environmental and work environment criteria for the qualification of suppliers in its procurement procedures. Bidders for construction works must confirm, that they apply health and safety and environmental protection measures at the construction sites.

Company's employees as well as the supervision staff of the Company's subsidiary OÜ Watercom monitor the supplier's activities with regard to health and safety and environment at sites. After the term of the contract the supervision staff assesses the activities of suppliers in ensuring compliance with the requirements in case of larger contracts (construction works starting from 65,000 euros, other services starting from 15,000 euros). In 2012 the average assessment given to the environmental activities of the suppliers was 4.65 on a scale of 5 points, which can be considered as a good result.

Compared to the previous year the average rating of the environmental performance of suppliers has decreased (4.81 in 2011). It is above all due to the reduction in the number of rated contracts. In 2011, there were also plenty of contracts involving less environmental risks.

In order to improve the awareness of suppliers, opening meetings were carried out for construction and reconstruction sites in 2012 (except for the constructions of individual connection points). The aim of the opening meetings was to additionally introduce to the contractors the Company's objectives, contractual requirements, construction norms and the quality, environment and occupational health and safety requirements applicable to the Company before the commencement of the construction works.

MANAGEMENT SYSTEM CONTROL AND AUDITS

In 2012 several authorities monitored the compliance of Company's activities, incl. environmental activities, with the requirements. Assessments and precepts related to environment or work environment were issued by the Transport Department of the City of Tallinn, the North-Estonian Regional Rescue Centre and Estonian Technical Surveillance Authority. The Company has presented its solutions for the received precepts, which have been approved by the authorities.

In addition to supervisory authorities, the Company's compliance with environmental legislation and Services Agreement requirements as well as with other intra-Company requirements is also monitored in internal and external audits of the management system.

As result of internal audits carried out in 2012 the internal auditors put forward a total of 5 non-conformities and 44 proposals, which formed a good source of management system improvement ideas for the managers.

In 2012 an interim audit was carried out in the Company by accredited certifier Det Norske Veritas in order to evaluate the compliance of the management system with the requirements of ISO 9001, ISO 14001, OHSAS 18001 standards and with the EU (EMAS) Regulation 1221/2009.

During the external audit no non-conformities to the requirements of ISO and OHSAS standards were discovered. The EMAS Report included one minor non-conformity, which was promptly eliminated.

As a result of external audit Det Norske Veritas confirmed the compliance of the management system and EMAS Report with the abovementioned requirements.

Company's ecological footprint*

The basis for the calculation of ecological footprint is land as a limited resource, which people use for satisfying their needs. The surface of the globe is divided into categories:

- Bioproductive land (arable land, pasture and woodland);
- Bioproductive sea (main territory for fishing);
- Energy land (land required for the producing energy and distribution systems);
- Built land (buildings, roads, etc);
- Biodiversity (unspoilt nature);
- Other land (rocks, deserts, etc).

Ecological footprint is a measure of human demand for the use of natural resources for its activities. Ecological footprint assesses the use of room accompanying the lifecycle of a product or service and can be measured in hectares per year (hereinafter ha per year). The Ecological Footprint Index demonstrates how much water and productive land is occupied for producing using and absorbing materials to be consumed.

In the calculation of a company's ecological footprint, two simple matters of fact are taken as the basis:

- It is possible to monitor and detect the majority of the resources, which the company consumes and several outputs produced;
- It is possible to measure the majority of the resources and waste flows in terms of biologically productive area, which is required for producing these resources and for disposing and neutralising waste.**

Ecological footprint factor*** is a conversion unit, which helps to equalize the measured source data so that the result would be easily understandable and comparable.

**According to the Estonian Fund for Nature (hereinafter EFN), the method of ecological footprint is one of the best and globally increasingly more used method, which enables in a complex manner to assess the impact of the activities of organisations and states to the environment.*

*** The load of the states to the ecosystems from "Ecological Footprint of Nations", 1997, page 32.*

**** Ecological footprint factors were taken from the book by Chambers et al "Sharing Nature's Interest" 2000 available in the library of EFN).*

Environmental impact measured on the basis of the ecological footprint method

11* different components** have been taken into account in the calculation of the ecological footprint (details on page 61), which correspond to the products and services used or produced in the Company's activity. Components have respectively been divided between five fields (water, waste, electricity, heating, transport). In order to get a better comparison, the ecological footprint per one employee has been pointed out separately. It must be emphasised that it is fair to compare the ecological footprints per person of various companies only in case the companies provide similar products or services and the ecological footprint has been calculated for the same indicators.

**Before was 12 components – transport for people and transport of goods. Now we don't see these types of transport separately.*

***These components have been taken into account for the calculation of which there is a respective factor.*

Treatment processes

WATER TREATMENT PROCESS

1. Surface water is gathered to Lake Ülemiste and directed to Water Treatment Plant.
2. Raw water passes through screens and microfilters, which remove algae and plankton from the water.
3. Water is led into reservoirs, where a mixture of ozone in air is injected into the water to deactivate microorganisms and oxidize organic substances.
4. A water treatment chemical coagulant is added to clarify the water.
5. During the clarification phase particulate matter, chemical flocs and precipitates are removed from the water.
6. Water passes through filters. In summer, dependent on the quality of raw water coming into the plant, activated carbon may be added in order to remove any remaining particles and to improve the taste of the drinking water.
7. Chlorine is added to the water for disinfection purposes.
8. The water is directed to drinking water reservoirs, from which it is pumped to the city water network in accordance with demand.

WASTEWATER TREATMENT PROCESS

1. Wastewater collected through the sewerage network is directed into the Main Pumping Station. Storm water is also collected into the combined sewerage system and directed to the Main Pumping Station.
2. Storm water collected in the areas of separate sewerage network is led to the storm water outlets through a separate storm water network.
3. In the mechanical treatment stage, the wastewater is screened to remove larger solids and the grit removal tanks remove grit and sand from the wastewater.
4. Smaller solid particles are removed in the primary sedimentation basins, formed sludge is removed from the process.
5. Coagulant is added to the wastewater for the chemical treatment of the phosphorus.
6. For the biological treatment the wastewater is conducted to the aeration tanks where the vital activity of various bacteria helps to remove nitrogen and biologically decomposing substances from the wastewater. To ensure a living environment suitable for the bacteria and to make their work more efficient, air and additional carbon in the form of methanol is injected.
7. Activated sludge that has formed in aeration tanks is settled in the secondary sedimentation basins.
8. Additional volume of nitrogen and biodegradable pollutants are removed from wastewater in biofilter as a result of the vital processes of the bacteria. Additional carbon in the form of methanol is added to increase the efficiency of the work of the bacteria.
9. Treated wastewater i.e. effluent is pumped via a deep sea outlet into the sea.
10. Sludge removed during the different phases of the treatment process is pumped to the sludge treatment plant.
11. Sludge is digested and stabilised in anaerobic digesters where bacteria make the organic matter decompose.
12. The biogas created in the course of anaerobic sludge digestion is used for the technological process and heating in the plant.
13. The stabilised sludge is dried and mixed with peat.
14. The outcome – sludge mixture with high nutrient content - is used in cultivation.

Drinking water quality

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Opportunity to connect the water network	Maintaining and improving the quality of life and the status of the environment
Compliance with drinking water requirements	Retaining and improving quality of life
Non-compliant drinking water in Maardu area	Danger to population's health
2012 OBJECTIVES AND TASKS	
To replace at least 5 km of the depreciated water pipeline +	
To ensure compliance of drinking water quality with the SM 82 regulation over 99,3% at customers premises in all activity areas (excl Maardu) +	

Customer satisfaction survey has demonstrated that drinking water quality is one of the main factors influencing customer satisfaction (see more details on page 14).

Drinking water quality must comply with the Minister of Social Affairs Decree No 82 from 31 July 2001 "Quality and Control Requirements and Analysis Methods for Drinking Water" (hereinafter referred to as Decree No 82) which originates from the Estonian Water Act and the European Union Drinking Water Directive 98/83/EC.

The Company has a detailed Drinking Water Quality Monitoring Programme for 2010-2013, approved by the Northern Department of the Health Board, which includes separate quality control requirements set for the water treatment plant, the ground water system and the city network. The named programme details the frequency of taking samples and the parameters to be determined.

Conditions of ground water usage have been determined in the permits for special use of water HR01037 (L.VV.HA-171414), HR1112 (L.VV.HA-194367), HA0382 (L.VV/320972) and HA1106 (L.VV/320980) issued to the Company. Although the usage of ground water is limited by water permits, it is possible to cover the ground water demand and still have sufficient reserves to replace partially some of the surface water supply in case there should be any problems with regard to the drinking water supplied from Ülemiste Water Treatment Plant.

Drinking water quality analyses are carried out by the Company's water laboratory, which is accredited on the basis of the internationally recognised ISO 17025 standard. In 2012 the water laboratory and microbiology laboratory performed a total of 83,000 analyses.

TREATED WATER QUALITY AT ÜLEMISTE TREATMENT PLANT

In 2012 the treated water quality at Ülemiste Water Treatment Plant was compliant with the requirements of Decree No 82, as provided in the table on page 23. The quality of drinking water is mostly ensured by the quality of surface water and the effectiveness of the treatment process.

Surface water quality

In 2012 the quality of raw water taken into the treatment system complied with the class A2 requirements of the European Council Directive 75/440/EC. To ensure compliance, the raw water quality indicators are checked once per day at the intake to the treatment system.

Raw water pollution indicators, such as total phosphorus and total nitrogen, are checked once per week. Additionally, a detailed in-depth analysis of raw water is carried out once per month in accordance with the Drinking Water Quality Monitoring Program.

Surface water quality is dependent on weather conditions – e.g. precipitation and thaw water, but also on the geographical conditions of the catchment area – moors, wetlands, areas of karst and forest, etc.

Permanganate oxygen demand was slightly higher in 2012 than in 2011. Raw water colour parameters were slightly lower in 2012 than in 2011. Unlike the previous years, the number of phytoplankton in the lake grew to the level of 1,2 million cells per ml in October also causing stronger work load for the treatment plant and higher doses of chemicals and ozone. The increase of permanganate oxygen demand is mainly caused by a higher than average volume of rain involving a large quantity of humine substances washed from the catchment area to the lake.

The reduction of raw water colour in the lake is a natural process, depending on the weather conditions and the water flowing into the lake. Last year the colour of the lake water was lower than the usual average in summer period. Due to the high volume of meltwater in spring 2012 less water was taken to the lake in summer period, therefore the average colour of the lake water stayed on the lower level than previous years. In case water is taken to the lake from the catchment area, the colour of raw water increases, because the water from the catchment area comes from the marsh areas and has usually higher colour (up to 200 on the Pt-Co scale).

Permanganate oxygen demand in raw water 2008 – 2012, mg O₂/l

	2008	2009	2010	2011	2012
COD _{MN}	9.3	10.2	9.7	9.4	10.1

Raw water colour 2008-2012, degrees

	2008	2009	2010	2011	2012
Colour	45	53	54	56	46

Drinking water quality in Ülemiste Water Treatment Plant 2008-2012

Parameter	Unit	Average results					Decree no 82 EU directive 98/83/EC
		2008	2009	2010	2011	2012	
Odour	points	1	1	1	1	1	Acceptable to consumer
Taste	points	1	1	1	1	1	Acceptable to consumer
Turbidity	NTU	0.13	0.11	0.12	0.11	0.12	1
Colour	Pt mg/l	3	3	2	3	<3	Acceptable to consumer
Dry residue	mg/l	274	280	263	258	256	
pH		7.36	7.33	7.31	7.3	7.30	6.5-9.5
Conductivity	µS/cm	441	435	373	366	366	2,500
Alkalinity	mg-ekv/l	2.7	2.8	2.76	2.83	2.79	
Total hardness	mg-ekv/l	4.16	4.14	3.95	3.87	3.86	
Temporary hardness	mg-ekv/l	2.7	2.8	2.76	2.83	2.79	
Permanent hardness	mg-ekv/l	1.45	1.35	1.2	1.07	1.09	
Permanganate index (COD _{Mn})	mg O ₂ /l	3.2	3.3	3.0	3.0	3.2	5.0
Total organic carbon (TOC)	mg/l	5.9	6.0	6.0	5.9	6.2	Without unusual changes
Free CO ₂	mg/l	14	16	16	16	16	
Carbonates CO ₃ ²⁻	mg/l	0	0	0	0	0	
Bicarbonates HCO ₃ ⁻	mg/l	166	171	168	171	170	
Chlorides Cl ⁻	mg/l	26.8	26.8	26	25.1	26	250
Sulphates SO ₄ ²⁻	mg/l	40.1	34	28	25	26	250
Orthophosphates PO ₄ ³⁻	mg/l	<0.01	<0.01	<0.01	<0.02	<0.02	
Fluoride F ⁻	mg/l	0.09	0.07	0.08	0.09	0.1	1.5
Nitrates NO ₃ ⁻	mg/l	3.3	2.7	1.9	2.9	3.1	50
Ammonium NH ₄ ⁺	mg/l	0.003	0.003	0.005	<0.006	<0.006	0.50
Calcium Ca	mg/l	70.3	68.2	65	65.7	67	
Magnesium Mg	mg/l	8.1	7.8	7.15	7.3	6.6	
Total iron Fe	µg/l	<10	<10	<10	<10	<10	200
Manganese Mn	µg/l	2.5	6.7	12.5	13.2	5.3	50
Aluminium Al*	µg/l	93	95	108	101	110	200
Sodium Na	mg/l	7.1	6.8	6.1	6.6	6.3	200
Potassium K	mg/l	2.7	2.8	2.7	2.8	2.7	
Chromium Cr	µg/l	0.66	0.56	0.62	0.65	0.59	50
Copper Cu	µg/l	0.96	0.33	0.42	0.4	0.52	2,000
Mercury Hg	µg/l	<0.05	<0.05	<0.05	<0.1	<0.1	1
Lead Pb	µg/l	0.05	0.02	0.01	<0.02	<0.02	10
Selenium Se	µg/l	<0.4	<0.4	<0.4	<0.7	<0.7	10
Zinc Zn	µg/l	0.59	0.18	0.3	0.51	0.43	
Acrylic Amide	µg/l	0.015	0.016	0.016	0.014	0.015	0.10
Chloroform	µg/l	20	21	25	24	26	
THM	µg/l	26	26	30	29	29	100
Enterococh	CFU/100ml	0	0	0	0	0	0
No of colony forming units at 22°C	CFU/ml	1	0	0	0	0	Without unusual changes
Coliform bacteria	CFU/100ml	0	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0	0
Clostridium perfringens	CFU/100ml	0	0	0	0	0	0

*Residual aluminium has been calculated as per the results of in-depth analysis using ICP/MS method.

ÜLEMISTE SANITARY PROTECTION ZONE

Lake Ülemiste is the drinking water source for Tallinn and thus, pursuant to the Water Act, it is not a public water body. Taking into account the requirements set for the water quality of a lake used as a drinking water resource and the need to ensure that these are also met in the future, a sanitary protection zone of Lake Ülemiste catchment area was approved in 2009. The sanitary protection zone shall include the lake, the water catchment facilities thereof, the bank reinforcement facilities and the area surrounding the lake, which must be kept in its natural condition. Under the Water Act, entry into the sanitary protection zone is permitted only for persons performing duties related to environmental supervision and health protection, servicing of water intake facilities and forest maintenance, mowing of grass plants and water monitoring.



Ülemiste lake.

EFFICIENCY OF THE WATER TREATMENT PROCESS

Requirements established with regard to raw water quality are the basis for the design of the treatment process. Based on the quality of surface water in Lake Ülemiste the use of physicochemical treatment – prechlorination, coagulation, sedimentation, filtering and disinfection - is foreseen by legislative acts for ensuring the quality of drinking water. The treatment process in Ülemiste Water Treatment Plant is more efficient than prescribed by the compulsory requirements, as ozonation, which ensures the high quality of drinking water more effectively, is used instead of prechlorination. Moreover, ozone is an environmentally friendlier and safer chemical than chlorine.

During the last year the filter material was replaced in five filters. In one of these a thorough maintenance of the filter up to the bottom was carried out. Filter nozzles were cleaned, new supporting layers were formed and the filter was filled with new sand and anthracite. Maintenance significantly improved the performance of the filter. At the same time this showed the need to perform the same works with other filters, which has also been planned.

High- and low-tension switchyard of the microfilters' building was reconstructed, microfilters' cleaning system was improved, a new emptying pump was installed, the scheme of 1st level pumps was changed and a new 1st level pump P12 with a static mixer was installed, the installation of the meters on clarifiers in the B-building was completed, the meters on treated water were replaced. Those investments improved the reliability of the Water Treatment Plant.

GROUND WATER QUALITY

Approximately 10% of consumers in Tallinn, in the districts of Nõmme, Pirita, Merivälja, Laagri and Tiskre, are supplied with water produced from the Cambrian-Vendi and Cambrian-Ordovician aquifers. Ground water is also used in the Saue City, Maardu City and the Harku Rural Municipality.

In 2012, the quality of drinking water at the borehole pumping stations complied with the requirements of Decree No 82 of the Minister of Social Affairs and the parameters deriving therefrom, which are presented in the table on page 26. There were no cases of ground water pollution or potential pollution in 2012, demanding notification to the City and the Health Board.

Pursuant to the requirements established in the permits for special use of water and the drinking water quality monitoring programme, the Company monitors all quality parameters, which are of decisive importance in evaluating the condition of the ground water.

Water samples are taken from all bore-wells in use in order to ensure the supply of a good quality drinking water compliant with quality requirements to the consumers. In order to assess the health impacts of drinking water, the Company analyses the organoleptic features and also microbiological and chemical quality parameters. The analyses on ground water include determination of the content of such substances as mercury, antimony, arsenic, cadmium, uranium, chrome etc. deemed hazardous to the water environment by the Water Act. In addition to that, the Company is monitoring the quality of treated ground water (iron, manganese and ammonium content) on a monthly basis in 20 ground water pumping stations.

According to the EU Water Framework Directive (2000/60/EC), the qualitative or chemical condition of ground water is regarded to be good if the concentration of pollutants does not indicate an inflow of salty water or other water and does not exceed the respective quality standards.

The natural radioactivity of Estonian ground water has been thoroughly studied by the Geological Survey of Estonia as well as the Estonian Radiation Centre. The results of these studies have shown that the majority of ground water samples from the Cambrian-Vendi aquifer do not meet the levels stipulated in the Estonian regulation.

In relation to the radionuclides content in the ground water in Estonia, the Health Board carried out a health risk assessment in Tallinn's ground water areas (incl. Nõmme, Maardu, Saue, Tiskre, Pillado, Pirita, Merivälja, Pärnamäe) in 2010. Based on the results of the risk assessment, any health damage of accidental nature resulting from the content of radionuclides in the water is unlikely. According to the opinion of the Health Board there is no need to apply supplementary measures in Tallinn to reduce the content of radionuclides in drinking water.

Additional information on this topic is available on the website of the Health Board <http://www.terviseamet.ee/> and the relevant information is also available on the Company's website.

GROUND WATER TREATMENT

Ground water used for producing drinking water belongs to the quality class I-III. Ground water from Ordovician-Cambrian aquifer usually belongs to the quality class I and does not need any treatment. However, ground water from Cambrian-Vendi aquifer belonging to the quality class II or III and serving as the main drinking water source requires treatment. Mainly the reason is a natural excess content of iron, manganese or ammonium resulting in a non-compliance of colour with the drinking water standards.

In order to supply compliant drinking water, the Company treats ground water by using filtration and aeration for removing excess iron, manganese or ammonium from the water. Filtration uses pressure filters which are installed in the bore-well pumping stations. Pressure filters are used to aerate and filter raw ground water, no chemicals are used. The samples taken after the ground water treatment process indicate a significant decrease in turbidity as well as in the content of iron, manganese and ammonium, an improvement of colour and stability index and an increase in oxygen content.

Also, mixing of ground water from two different aquifers is used to improve drinking water quality before pumping it to the network.

The Company's monitoring data are used in national ground water monitoring when evaluating the condition of ground water quality in the region of Tallinn.

Ground water quality in pumping stations (excl. Maardu City) 2008 - 2012

Parameter	Unit	Average results					Decree no 82 EU directive 98/83/EC
		2008	2009	2010	2011	2012	
Odour	points	1.02	1,12	1	1	1	Acceptable to consumer
Taste	points	1	1	1	1	1	Acceptable to consumer
Temperature	°C	8.3	7.75	8.4	8.9	8.8	
Colour	mg Pt/l	3.69	4.17	3.6	4	<4	Acceptable to consumer
Turbidity	NTU	0.37	0.45	0.5	0.48	0.38	Acceptable to consumer
Dissolved O ₂	mg/l	6.6	6.5	5.4	5.4	5.8	
pH	pH unit	8.00	7.99	8	8.05	7.95	6.5 – 9.5
Conductivity	µS/cm	596	594	518	493	493	2,500
Permanganate index (COD Mn)*	O ₂ mg/l	0.75	0.75	0.7	0.66	0.69	5
Total organic carbon	mg/l	0.8	0.72	0.7	0.75	0.73	Without unusual changes
Alkalinity	mg-ekv/l	2.52	2.54	2.49	2.52	2.60	
Total hardness	mg-ekv/l	3.51	3.57	3.4	3.23	3.29	
Temporary hardness	mg-ekv/l	2.50	2.52	2.5	2.49	2.56	
Permanent hardness	mg-ekv/l	1.01	1.05	0.9	0.75	0.73	
Free CO ₂	mg/l	3	3.39	3.5	3	3.8	
Total iron Fe	mg/l	0.02	0.055	0.05	0.056	0.05	0.2
Fluoride F ⁻	mg/l	0.61	0.61	0.59	0.61	0.59	1.5
Manganese Mn	mg/l	0.009	0.0169	0.014	0.014	0.012	0.05
Ammonium NH ₄ ⁺	mg/l	0.114	0.127	0.135	0.124	0.125	0.5
Nitrites NO ₂ ⁻	mg/l	0.009	0.011	0.022	0.013	0.010	0.5
Nitrates NO ₃ ⁻	mg/l	0.743	0.788	0.75	0.8	<1	50
Stability index		0.14	0.14	0.09	0.22	0.1	
Sulphides S ₂ ⁻	mg/l	0.005	0.0045	0.005	0.004	<0.004	
Dry residue	mg/l	324	346	312	304	313	
Calcium Ca	mg/l	50	50	47	45	46	
Magnesium Mg	mg/l	13	11	12	12.1	12.2	
Sodium Na	mg/l	43	47.4	41	43.3	43	200
Potassium K	mg/l	6.7	7.12	6.8	6.88	6.8	
Sulphates SO ₄ ²⁻	mg/l	19	18.5	20	18.4	19	250
Bicarbonates HCO ₃ ⁻	mg/l	153.6	154.9	152	153.5	158	
Chlorides Cl ⁻	mg/l	101	89	83	82.8	83	250
Boron B	mg/l	0.17	0.1558	0.17	0.176	0.16	1
Aluminium Al	µg/l	1.27	2.843	1.03	0.91	1.4	200
Arsenic As	µg/l	0.10	0.106	0.11	<0.1	0.11	10
Cadmium Cd	µg/l	<0.01	0.01	0.02	0.01	<0.02	5
Chromium Cr	µg/l	0.58	0.50	0.45	0.50	0.52	50
Copper Cu	mg/l	0.0064	0.0067	0.0056	0.0033	0.0036	2
Mercury Hg	µg/l	<0.05	<0.05	<0.05	0.06	<0.1	1
Nickel Ni	µg/l	2.40	2.1	1.24	1	1.5	20
Lead Pb	µg/l	0.41	0.325	0.23	0.14	0.20	10
Antimony Sb	µg/l	0.01	0.01	0.02	0.02	0.01	5
Selenium Se	µg/l	0.4	<0.4	0.58	0.51	<0.7	10
Enterococci	CFU/100ml	0	0	0	0	0	0
No of colony forming units at 22°C	CFU/ml	5	12	9	6	3	Without unusual changes
Coliform bacteria	CFU/100ml	0	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0	0

* Minister of Social Affairs decree No 82 does not establish a requirement to determine COD in drinking water, provided that total organic carbon has been determined. The listed indicator has been determined in the drinking water sources and the content of that does not change after going through filters.

The Company started operating the assets of the water company of Maardu City on the 1st of July 2009. The concentration of manganese (Mn) and chloride (Cl⁻) has been relatively high in Maardu water over the years. Above all, the higher concentration of the named indicators is of natural origin and does not impose a direct health risk.

Higher content of manganese is generally characteristic to the water from Cambrian-Vendi aquifer. Special filters that remove manganese have been installed in several bore-well pumping stations of the Company (incl. in Maardu). Chlorine can be removed from water only by using reverse osmosis, which is not economically practical in this situation.

In 2011, gradual transfer of water supply for Maardu City to the water supply coming from Ülemiste Water Treatment Plant was started with the aim to improve water quality. Water supply in Maardu City was fully transferred to surface water supply by summer 2012. All bore-wells in Maardu are currently in reserve and there is practically no consumption of ground water. The bore-well pumping stations switch on only in case the pressure of drinking water from Ülemiste is insufficient.

Ground water quality in Maardu pumping station 2009-2012

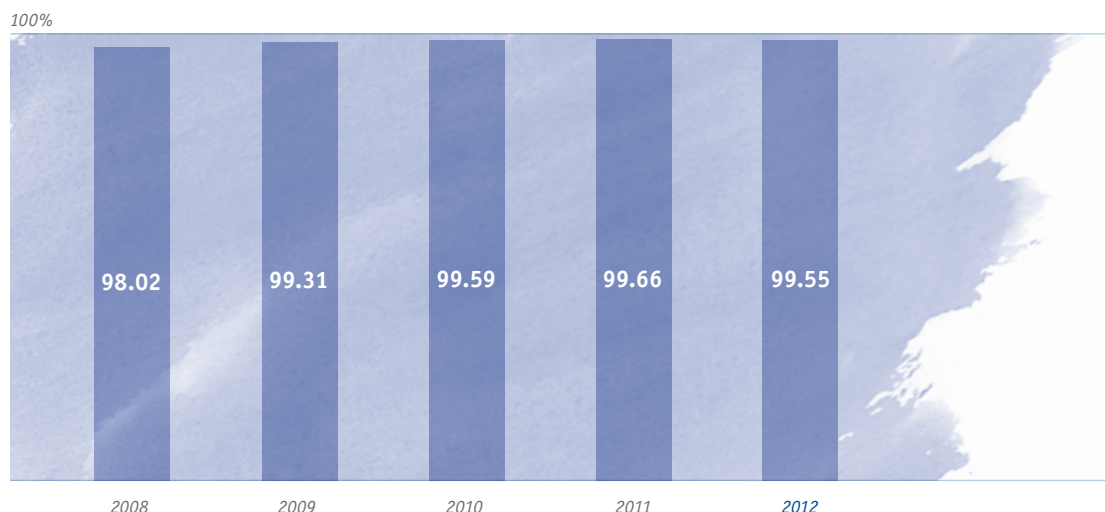
Parameter*	Unit	Average results				Decree no 82 EU directive 98/83/EC
		2009	2010	2011	2012	
Odour	points	1	1	1	1	Acceptable to consumer
Taste	points	1	1	1	1	Acceptable to consumer
Temperature	°C	8.2	8.5	11	9.5	
Colour	mg Pt/l	4	3.6	4	3.8	Acceptable to consumer
Turbidity	NTU	1.55	1.55	1.91	1.99	Acceptable to consumer
Dissolved O ₂	mg/l	3.9	3.3	3.1	2.5	
pH	pH unit	7.96	7.99	7.95	7.64	>6.5 - <9.5
Conductivity	µS/cm	1159	1052	918	703	2500
Permanganate index (COD _{Mn})	O ₂ mg/l	1.26	0.93	1.17	1.78	5
Total iron Fe	mg/l	1.16	0.165	0.158	0.133	0.2
Fluoride F ⁻	mg/l	0.38	0.415	0.37	0.42	1.5
Manganese Mn	mg/l	0.063	0.072	0.068	0.065	0.05
Ammonium NH ₄ ⁺	mg/l	0.462	0.511	0.49	0.42	0.5
Nitrites NO ₂ ⁻	mg/l	0.005	0.004	0.004	0.005	0.5
Nitrates NO ₃ ⁻	mg/l	0.5	0.53	1.2	2.15	50
Calcium Ca	mg/l	94.5	88	101	95	
Magnesium Mg	mg/l	17.3	17	17.6	17.3	
Sodium Na	mg/l	100.2	90	101	103	200
Potassium K	mg/l	10.2	10.4	10.2	9.7	
Sulphates SO ₄ ²⁻	mg/l	5	3.67	5.72	7.7	250
Chlorides Cl ⁻	mg/l	266	265	305	288	250
Boron B	mg/l	0.073	0.082	0.06	0.068	1
Aluminium Al	µg/l	0.84	1.88	1.0	3.23	200
Arsenic As	µg/l	<0.1	0.1	<0.1	0.11	10
Cadmium Cd	µg/l	<0.01	0.01	<0.02	<0.02	5
Chromium Cr	µg/l	0.4	0.77	0.39	0.72	50
Copper Cu	mg/l	0.75	1.02	0.002	0.0005	2
Mercury Hg	µg/l	<0.05	<0.05	<0.1	<0.1	1
Nickel Ni	µg/l	0.67	0.74	0.56	0.38	20
Lead Pb	µg/l	0.08	0.135	0.07	0.37	10
Antimony Sb	µg/l	<0.01	0.01	0.01	0.01	5
Selenium Se	µg/l	<0.4	0.4	<0.7	<0.7	10
Enterococci	CFU/100ml	0	0	0	0	0
No of colony forming units at 22°C	CFU/ml	21	4	15	13	Without unusual changes
Coliform bacteria	CFU/100ml	0	0	0	0	0
Escherichia coli	CFU/100ml	0	0	0	0	0

* The Decree No 82 of the Minister of Social Affairs does not require the indicators of potassium, sulphate, sodium, boron, aluminium, arsenic, cadmium, chrome, copper, mercury, nickel, plumbum, antimony and selenium. The parameters listed above have been determined in the drinking water source and do not change whilst going through the filters.

WATER QUALITY AT THE CONSUMERS PREMISES

The Company has monitored drinking water quality in compliance with Drinking Water Quality Monitoring Programme for 2010-2013 approved by the Northern Department of the Health Board. During 2012 the Company took samples twice a month from sampling points agreed with the Northern Department of the Health Board. A total of 2,921 samples were taken from the city water network during the year. In 2012, 99.55% of all samples taken, including 99.97% of microbiological samples, complied with the requirements of Directive 98/83/EU and Minister of Social Affairs Decree No 82.

Compliance of the quality of drinking water with the requirements set out in Minister of Social Affairs Decree No 82 in 2008-2012, in %



WATER NETWORKS MAINTENANCE AND INVESTMENTS

Preventive actions are taken by cleaning the water network and replacing worn-out pipes in order to maintain and improve the drinking water quality at customers' tap. During the cleaning process air is pumped into the water network, which after mixing with water removes the sediment buildup from the network and serves as one of the important methods improving water quality in distribution networks. In 2012, air-scouring was carried out on 143 km of water network. The main reason for a decrease in the volume of cleaned network compared to the previous years has been extremely cold winters which make those works difficult. Another reason has simply been a larger volume of flushing to respond as needed in order to ensure water quality.

Cleaned water network 2008-2012, km

	2008	2009	2010	2011	2012
km	229	232	165	151	143

Investments in replacing old water pipes and network extensions have facilitated improvement in water quality and more efficient usage of water resources. 5.2 kilometres of water pipes were renovated and 0.9km of new water pipes were constructed in 2012, providing an opportunity to connect to public water supply network for 13 properties. AS Tallinna Vesi had agreed upon the networks extension programme with the City of Tallinn for the years 2008-2012 (final deadline 30.03.2012). The majority of works were done in 2008-2009. In 2011 and 2012, the few works which had not been done previously were done or the constructions were carried out on the basis of the later changes made in the construction programme.

Water network reconstruction 2008-2012, km

	2008	2009	2010	2011	2012
Reconstruction	16.7	23.8	16.7	5.1	5.2

Water network extensions and connection opportunities 2008-2012

	2008	2009	2010	2011	2012
Network extensions km	3.0	5.5	6.2	0.003	0.9
Number of new customers given access to water network	86	80	126	1	13

Usage of water resources

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Interruptions to water supply	Decrease in the quality of life
Metered and provided drinking water	Overview of the consumption of water resources
Local floodings due to blockages and technical failures	Decrease in the quality of life and property damage
2012 OBJECTIVES AND TASKS	
To use water resources sparingly +	
To ensure compliance with regulatory requirements and requirements of the Services Agreement -	
To effectively repair leakages on average in 48 hours or less +	
To extend the use of online sensors for detecting leaks and zoning +	
To ensure that customers have a timely calibrated water meter -	

SPECIAL USE OF WATER

The activities of water undertaking in using water resources are regulated by the Water Act and its implementing provisions. For operating a water company must have a valid permit for special use of water and pay a fee for the water resource used.

The permit for special use of water defines different activities, for instance the amount of water which the Company may extract, water quality monitoring requirements, requirements set for calculation of water extracted, the permitted limits of pollutants contained in effluent, pollutants monitoring requirements and measures reducing the impact of special use of water.

All requirements established in the permits for special use of water were met in 2012.

The fee for special use of water is paid for the amount of water taken into Ülemiste Water Treatment Plant and for water pumped from ground water aquifers. In 2012 the fee for special use of water amounted to 4.61% of the service costs.

Valid water permits of AS Tallinna Vesi

Permit	Valid until	Description of special use of water
Permit for special use of water No HR1112 (L.VV.HA-194367)	31.10.2013	Harju County. Saue City Extraction of ground water from boreholes, over 5 m ³ /day. Collection of wastewater and directing wastewater to Paljassaare Wastewater Treatment Plant owned by AS Tallinna Vesi.
Permit for special use of water No HR01037 (L.VV.HA-171414)	01.04.2013	Tallinn public water supply and sewerage system main operating area, Tallinn surface water catchment system facilities area in Harju and Järva Counties Regulating surface water resources in water bodies of Ülemiste-Pirita-Jägala surface water system, water extraction from Lake Ülemiste, extracting ground water from Ordovician-Cambrian and Cambrian-Vendi aquifers through Tallinn public water supply and sewerage system boreholes, for discharging biologically treated effluent through a deep-sea outlet pipe into Tallinn Bay and for discharging mechanically treated storm water into the sea, Mustjõe Stream and Pääsküla Wetland.
Permit for special use of water No HA0382 (L.VV/320972)	06.11.2016	Harju County. Harku Municipality (includes Tiskre). Extraction of ground water from borehole, over 5 m ³ /day. Discharge and treatment of sewage and storm water from customers and discharge of wastewater to the receiving body of water.
Permit for special use of water No HA1106 (L.VV/320980)	31.10.2016	Maardu City public water supply and sewerage system operating area. Extraction of industrial and drinking water from Cambrian-Vendi aquifers at the expense of 40 ground water deposits of Harju County in order to supply water to the institutions, enterprises and inhabitants of Maardu City, Kallavere and Muuga area. Since November 2012 wastewater from all connectees to Kallavere and Maardu public sewerage system was discharged to Tallinn public sewerage system (the new supply point is in Sinimäe street).

USAGE OF SURFACE WATER RESOURCES

The Company receives surface water from an extensive water catchment system encompassing the river basins of Soodla, Jägala and Pirita River with a total area of ca 1,800 km², covering mostly the Harju sub-basin. Water catchment system consists on hydropoints constructed on rivers and of water reservoirs as well as the connecting canals.

The most important water reservoir is Lake Ülemiste with a net volume of 15.8 million m³ on a normal headwater level. Additional water reserves for dry periods have been accumulated to Paunküla water reservoir on the headwaters of the Pirita River (9.9 million m³) and to Soodla water reservoir on the Soodla River (7.4 million m³).

The extent of water resources in Tallinn's surface water catchment system primarily depends on the amount of precipitation and its distribution over the year. In a year of average rainfall approximately 50% of the possible water resources in the system are used up.

The total runoff of rivers in QI of 2012 was 70% higher than the long-term average, the highest flow peaks in spring occurred in March. High water levels and flows continued in QII as well. In some places the flows in QIII exceeded the long-term average 2-3 times. The first two months of QIV – October and November – were warmer than usual, especially November, which was also quite rainy. Water level was higher than usual at that time already in the beginning of the quarter. Ülemiste water stock was slightly supplemented in the end of August and beginning of September.

With the permit for special use of water HR01037 (L.VV.HA-171414; valid 01.04.2008-01.04.2013) the Company is allowed to extract 47,500 thousand m³ of surface water per year from Lake Ülemiste. The actual surface water use in 2012 was 21,750 thousand m³.

Usage of surface water from lake Ülemiste and compliance with special use of water permit no HR01037, thousand m³

	2008	2009	2010	2011	2012
thousand /m ³	22,241	21,172	21,978	21,569	21,750

In 2012, the Company used 564,338 m³ of water for its own use, which creates an ecological footprint of 45.147 ha/y (see page 61). Ecological footprint is not calculated for water production, because those numbers are included in the end-users' ecological footprint.

Continuous overview of flow volumes allows the Company to use water resources in a more sustainable way. In order to regulate water resources in an optimal and precise manner, water metering points have been constructed to all hydropoints, allowing the measurement of both flow volumes directed into canals as well as the so-called sanitary flow volumes remaining in rivers. Measuring is carried out on a regular basis, following the requirements of the permit for special use of water.

USAGE OF GROUND WATER

For the constant inspection of ground water stock in Tallinn the Company carries out regular measurements of ground water levels. All bore-wells of the Company currently in use are equipped with automatic hydrostatic pressure sensors which enable to measure the static and dynamic level of ground water. The results of measuring the water levels in bore-wells indicate an increase in pressure level in the used aquifers, thus, the recovery of ground water stock.

The Company met all requirements established in the special use of water permits in 2012.

Usage of ground water and compliance with permits for special use of water No HR01037, HR1112, HA0382, HA1106, m³

	2008	2009	2010	2011	2012
Actual usage by Tallinn	2 450 533	2 552 685	2 461 524	2 229 612	2 161 789
<i>Incl from Cambrian-Vendi aquifer</i>	<i>2 168 265</i>	<i>2 186 521</i>	<i>2 042 743</i>	<i>1 803 412</i>	<i>1 748 057</i>
Maximum volume permitted	6 676 945	6 676 945	6 676 945	6 676 945	6 676 945
Actual usage by Saue	214,028	202,621	222,473	213,701	210,655
<i>Incl from Cambrian-Vendi aquifer</i>	<i>166,770</i>	<i>146,184</i>	<i>165,110</i>	<i>187,074</i>	<i>155,639</i>
Maximum volume permitted	474,500	474,500	474,500	474,500	474,500
Actual usage by Tiskre	39,661	41,733	43,513	45,471	
Maximum volume permitted	65,700	65,700	65,700	65,700/ 71,800***	
Actual usage by Harku *	6,372	703	0	12,697	57,187***
<i>Incl from Ordovician-Cambrian aquifer</i>				<i>10,308</i>	<i>8,492</i>
Maximum volume permitted	51,100	51,100	51,100	51,100/ 66,320***	138,120/ 141,120****
Actual usage by Maardu City **		766,505	714,454	618,751	35,997
Maximum volume permitted		1,383,350	1,383,350	1,383,350/ 1,382,400***	1,382,400

* Since 25.10.2011 Tiskre area has been addressed in the permit for special use of water for Harku Rural Municipality (HA0382).

** In 2008, the Company entered into the contract for operating the public water supply and sewerage infrastructure assets in the City of Maardu with AS Maardu Vesi and started those activities in summer 2009.

*** The maximum volume permitted by the new permit for special use of water No HA1106 and HA0382.

**** Since 25.10.2011 Tiskre area has been addressed in the permit for special use of water for Harku Rural Municipality (HA0382). On 25.09.2012, an increase in the allowed water extraction volume by 3000 m³ was applied for. Thus, 141 120 m³ became the maximum volume permitted.

LEAKAGES AND WATER SUPPLY INTERRUPTIONS

Another important aspect of water usage is the reduction of water losses in the network. In 2012 the Company achieved a leakage level of 15.86% which is extremely better than the Company's commitment deriving from the Service Agreement (26%). To achieve this, new leakage detection and remote reading devices were obtained and remote control system was upgraded. Two new network and cable detection devices for locating the network and three portable ultrasonic meters were purchased.

Small water tanks enable to offer temporary water supply to customers fast and in a more flexible manner even in case of water interruptions of short duration. Small water tanks can be transported to the emergency site with a regular car and the volume of water discharged into sewerage system later is lower. In addition the Company has five large water tanks with a capacity of 5m³ and a truck carrying a water tank. In case house connection is closed for sensitive customers, if necessary, temporary water connections to water metering points are constructed and temporary water supply is ensured with an air-water pressure tank.

Leakage level 2008-2012, %

	2008	2009	2010	2011	2012
Leakage level	17.25	17.51	21.39	17.73	15.86

Quick detection and elimination of leakages help to reduce the leakage level. Daily work is supported by an updated water supply network information system, leakage specialists have special equipment for leakage detection, and along with the network zoning and remote reading system it allows detecting possible water leakages on the network rapidly.

The optimum leakage level calculation made for Tallinn shows that the suitable indicator in our conditions falls within the range of 15-18%. The leakage data has been compared to the Helsinki Region Environmental Services Authority (Helsingin seudun ympäristöpalvelut, hereinafter HSY), where the average leakage level has been ca 17% in previous years.

Although the leakage level in 2012 was an excellent outcome, the Company will continue to work on keeping the same leakage level in order to achieve an economic level of leakages in 2013. The optimum leakage level is considered to be the level where the further reduction of leakages would cost more than water production. Factors such as the costs of finding and repairing leakages and the costs of water production are taken into account in calculating the optimum leakage level.

Average time for eliminating leakages 2008-2012, in days

	2008	2009	2010	2011	2012
Average time of eliminating leakages	1.5	1.3	1.5	0.97	0.83

It is important for customers to have a 24-hour access to water with excellent quality indicators and correct pressure. The likelihood of water interruptions cannot entirely be excluded. Nevertheless, it is possible to reduce the number and duration of interruptions and notify the customers in advance. The Company's objective is to notify customers of any possible interruptions, however, in case of unplanned interruption it cannot always be done in a timely manner. There were a total of 501 interruptions to water supply in 2012, 560 in 2011. One of the Company's objectives in 2012 was to inform customers about unplanned interruptions 1 hour in advance in at least 80% of cases. However, unfortunately customers were not informed in advance of 50 emergency interruptions, but irrespective of this the Company's objective was achieved for 90.2%. This result is significantly well above the target.

WATER METERING

All customers of the Company have been equipped with water meters. In total over 21,788 water meters have been installed to customer' s connection points, facilitating to achieve more accurate accounting for the usage of water resources.

In 2005-2011 the Company took in use more reliable and accurate single jet class C water meters. As a result, the number of expert analyses ordered by customers for verifying the accuracy of the water meters has decreased. While a total of 391 expert analyses were carried out in 2008, this number was 487 in 2009, 308 in 2010, 235 in 2011 and 146 in 2012. The increase in 2009 is explained by the fact that new customers from Maardu City were highly interested in verifying the accuracy of their water meters.

The Company has the obligation to replace water meters every two years and the replacement of water meters takes place on the basis of a respective programme. In 2012 11,388 water meters were replaced.

In 2013 the Company will continue to work to ensure that customers have a timely calibrated water meter.

Wastewater collection

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Extensive floods	Pollution of the ground and sea water, danger to population's health, decrease in life quality, damage to the assets of the population
Opportunity to connect to the public wastewater network	Maintaining and improving the quality of life and the status of the environment
2012 OBJECTIVES AND TASKS	
To ensure compliance at all outlets +	
Number of information requests regarding sewer blockages, floodings and storm water is less than 2550 +	
To carry out maintenance on 180 km of the sewerage network +	
To rehabilitate or replace at least 5 km of the existing sewerage mains +	
To react in case of blockages and floods within 1 hour on more than 80% of cases +	
Total number of blockages in sewerage system in Tallinn is below 1000 +	
To reduce potential pollution of natural environment by providing wastewater discharge service to new customers +	
To avoid emergencies, which cause significant damage to the population and nature +	

The main measures for ensuring the collection and discharge of wastewater are linked to preventive flushing of wastewater network as well as reconstruction and extension of sewerage and storm water network; additionally wastewater concentration levels are regularly monitored in order to prevent failures of the treatment process.

CLEANING AND MAINTENANCE OF THE WASTEWATER NETWORK

The purpose of wastewater network cleaning is preventive maintenance in order to avoid flooding and reduce blockages. At the same time it must be noted that pressure washing may not directly reduce the number of blockages as it depends on various factors.

Blockages are mainly caused by sediments settling in wastewater pipes. Lower water consumption of recent years has resulted in the reduction of flow volumes and flow speeds, which in turn increases the risk of blockages. Additionally, continuous extension of sewerage network should be taken into account when assessing the total number of blockages.

For flushing the pipe, first, flow speed is generated with high pressure, which carries sediment into cesspool. Sediment is then collected to pressure washing trucks and transported to wastewater treatment plant. Pressure washing truck with recycle system enables to use the water required for flushing repeatedly. Earlier, the Company carried the flushing works on the pipes out itself. Since the launch of the subsidiary Watercom OÜ, this service is outsourced to the subsidiary.

Despite the continuous expansion of the service area, the number of blockages is still maintained at a level lower than the set requirement, and the total number of blockages has decreased. One reason behind this is the systematic work on databases and increasing the volume of pressure washing works carried out on sewerage systems. Additionally, after each blockage an analysis is carried out to identify the causes and remove them.

Wastewater network flushed 2008-2012, km

	2008	2009	2010	2011	2012
Pressure washing on sewerage systems, km	165	180	147	195	182

Number of blockages 2008-2012

	2008	2009	2010	2011	2012
Number of blockages	1,336	1,089	1,152	982	749

WASTEWATER NETWORKS RECONSTRUCTION AND NETWORK EXTENSIONS

Investments into the replacement of depreciated sewerage network and construction of new network contribute to the improvement of the quality of environmentally friendly service and to creating a safe opportunity to discharge wastewater for end-users who did not have this opportunity so far.

During 2012 the Company renovated 5.9 km of the existing sewerage network. 1.2 km of new sewerage systems and 1.6 km of storm water systems were constructed.

By 2012 the initially agreed volume of works for networks extension programme was carried out. In 2011 sewerage networks extension works were performed and storm water facilities were constructed on the basis of the amendments which have been made into the construction programme later. AS Tallinna Vesi had agreed upon the networks extension programme with the City of Tallinn for the years 2008-2012 (final deadline was 30.03.2012). The majority of works were done in 2008-2009. The initial agreed volume of network extension programme was completed by 2011. In 2012, some more sewerage network extension and construction of stormwater facilities were carried out (based on the later amendments made to the construction programme).

Wastewater and storm water network reconstruction 2008-2012, km

	2008	2009	2010	2011	2012
reconstructions	5.9	5.5	5.7	5.7	5.9

Wastewater and storm water network extensions 2008-2012, km

	2008	2009	2010	2011	2012
Sewerage network extensions	34.1	42.8	41	0.09	1.2
Storm water network extensions	14.3	8.2	14.6	2.3	1.6
Properties with connection opportunity	1,204	1,423	1,176	25	19

CONTROLLING OVERPOLLUTION CAUSED BY CUSTOMER

In order to ensure acceptable concentrations of pollution in the wastewater reaching the wastewater treatment plant, the Wastewater Inspectorate of the Company regularly monitors and checks the compliance with regulatory requirements at (industrial) commercial sites where wastewater is discharged into the public sewerage system. The majority of the industrial wastewater in the sewerage system is from the food processing industry.

The Wastewater Inspectorate of AS Tallinna Vesi regularly monitors the sewerage systems of the sites in Tallinn and Maardu. In 2012, 596 control inspections were made for identifying inspection wells, for checking local treatment facilities and boundary drawings.

1,438 wastewater samples, incl. 510 mainly storm water monitoring samples, were taken for determining the wastewater pollution load at sites. Over-pollution instances were identified and over-pollution fees were applied on 375 occasions.

Information on the average pollution indicators of major industries is also regularly submitted to the Environmental Board's Harju-Järva-Rapla regional department.

STORM WATER OUTLETS

In 2012 the Company monitored, pursuant to the requirements set forth in the water permit, 24 storm water outlets, the largest of which are the Lasnamäe, Harku and Mustoja outlets. The storm water outlets of Kadriorg were added in 2012.

Samples for determining pollutants are taken regularly from storm water outlets pursuant to the sampling procedure determined in the permits for special use of HR01037 and HA1106. Four storm water outlets have been equipped with local treatment facilities such as sand and oil traps, in order to avoid possible environment pollution. Maintenance and cleaning of traps takes place regularly.

The requirements set forth in the water permit were met in 2012.

In total 7,391,440 m³ of stormwater, carrying pollutants to the environment, was discharged through these outlets in 2012. Pursuant to Environmental Charges Act the wastewater concentrations did not exceed the allowed limits and pollution charge was not applied.

Storm water volume 2008-2012, m³

	2008	2009	2010	2011	2012
Storm water volume	5,414,016	5,468,711	5,698,232	6,002,180	7,391,440

Pollutants from the main outlets 2008-2012, in tons

	2008	2009	2010	2011	2012
Suspended solids	109	90.9	110.6	114.5	143.4
Oil products	4.5	3.4	0.4	0.5	0.5

Wastewater treatment results

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Wastewater compliant with the requirements discharged into the sea	Retaining the condition of sea water
Wastewater non-compliant with the requirements discharged into the sea	Deterioration of the condition of sea water
Flooding of wastewater collection area	Deterioration of human environment and sea water, pollution of the ground
2012 OBJECTIVES AND TASKS	
To ensure compliance of waste water pollution parameters with regulatory requirements and requirements of the Services Agreement in 4 quarters +	

56,982,383 m³ of wastewater was treated at Paljassaare Wastewater Treatment Plant in 2012. Wastewater volumes in 2012 were 11% higher than in 2011. Due to heavy rain and downpour, the hydraulic capacity of the plant was often on or over the edge of its limits.

Treated wastewater volume 2008-2012, m³

thousand m ³ /year	2008	2009	2010	2011	2012
Treated wastewater volume	51,338	46,173	45,915	50,806	56,982

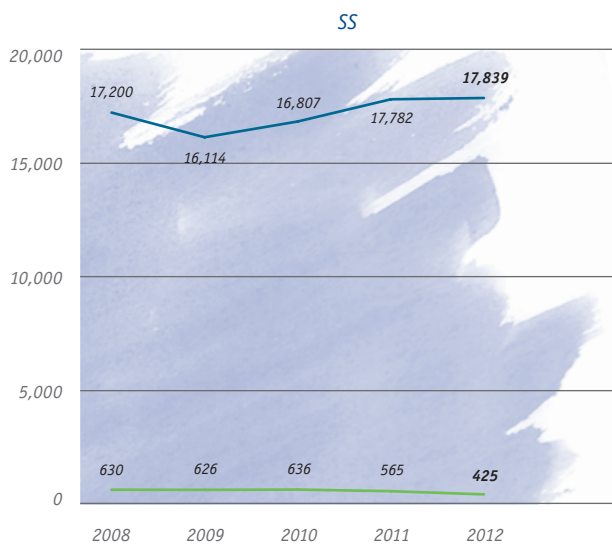
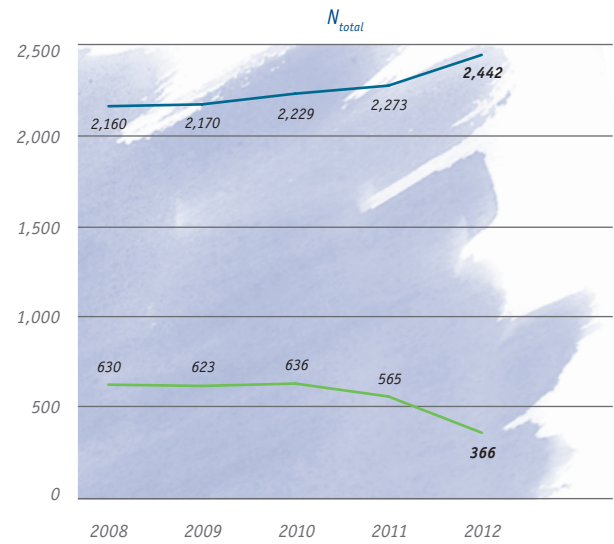
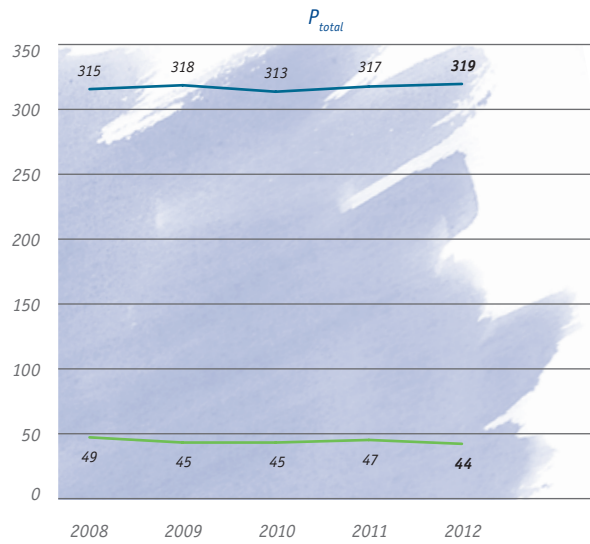
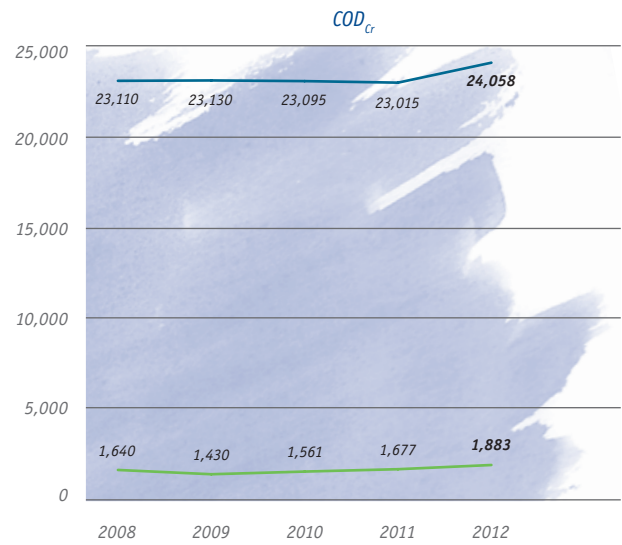
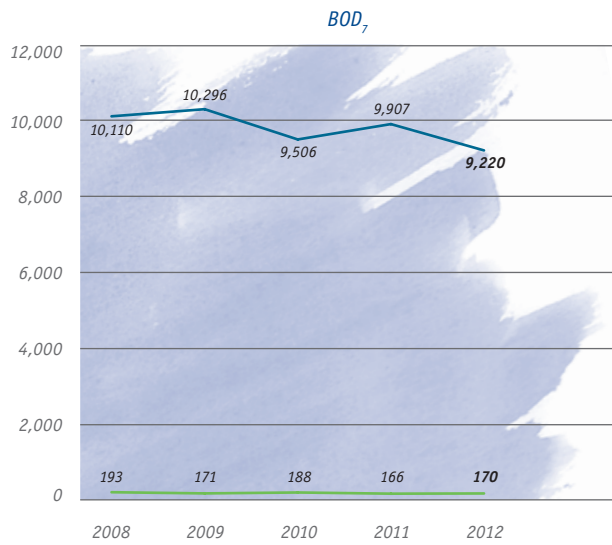
The quality of water discharged to the sea is set by legislation and the permit for special use of permit HR01037. The concentration of pollutants in sewage led to the treatment plant and in the wastewater led from treatment, as well as the efficiency of the treatment process are monitored in order to assess the quality of wastewater. The following are the most significant indicators monitored:

- Biological oxygen demand (BOD₇) shows the amount of oxygen required for the defined biological decomposition of organic matter in the course of 7 days;
- Total phosphorus (P_{tot}) and total nitrogen (N_{tot}) are elements contained in nutrient salts, which increase the growth of plankton in water. If the content of nutrient salts is too high, such growth can be so strong that oxygen is used up and a shortage of oxygen arises;
- Suspended solids (SS) shows the volume of solid matter in water which is caught in a filter with a defined mesh size;
- Chemical oxygen demand (COD_{cr}) is a measure of the decomposition of organic matter, measured as the consumption of oxygen in chemical oxidation of all organic matter in water;
- Oil products show the amount of light (like petroleum) and heavy (like heavy fuel oil) oil products.

The load of pollutants entering into the WWTP have changed compared to 2011 as follows: BOD₇ has decreased by ca 7%, COD_{cr} has grown by ca 2.5% and total nitrogen by ca 7%. The loads of total phosphorus and suspended solids are more or less on the same level with the previous year.

Regarding the level of pollutants discharged, the organics indicators have slightly increased BOD₇ by ca 2.5 % and COD_{cr} by ca 12%. Total phosphorus has reduced by 6% and the volume of suspended solids by 10% and thanks to updating the biological treatment stage by adding biofilter to the process, the content of total nitrogen in the effluent has significantly reduced by 35% compared to the previous year.

Amounts of pollutants coming into the Wastewater Treatment Plant and discharged into the sea 2008-2012, tons



— influent
— effluent

The wastewater laboratory conducted approx. 52,000 analyses in 2012.

In the reporting year, the operation in all stages of the treatment process was continuously improved, in order to achieve maximum treatment results in the conditions where the pollution loads (especially for nitrogen compounds) exceed the process capacity.

There were numerous planned replacements of process equipment also in 2012, the situation of fixed assets was improved by thorough repairs, the replacement of mixers in the activated sludge process was continued together with the renewal of aeration system, an additional electrical air blower was installed into the biological treatment stage, during the extensive renovation of the 1st treatment stage the screening system was replaced in the main pumping station and the entire technological equipment in the screen house.

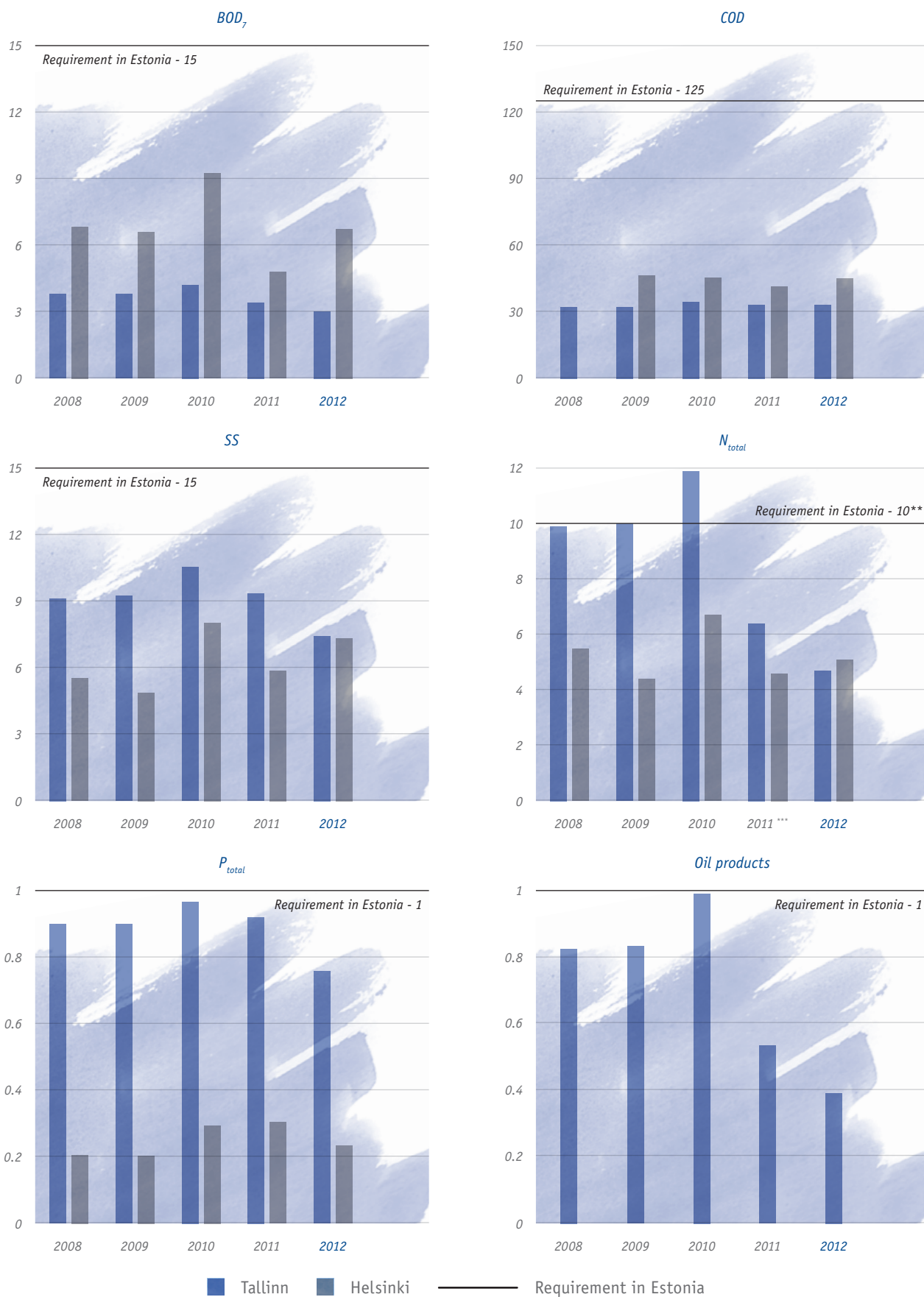
Thanks to the very good operating work, use of chemicals and electricity without any resource restrictions and the 3rd treatment stage - biofilter - launched in the second half of the year, the Company achieved full compliance of wastewater leaving the wastewater treatment plant with all regulatory requirements in all 4 quarters in year 2011 and also in year 2012. In 2012, the Company was also recognised for this achievement by the Ministry of Environment.

The treatment results of 2012 were in compliance with the HELCOM requirements, which are similar to the requirements set by legislation. The Helsinki Commission, or HELCOM, organizes intergovernmental cooperation between countries located round the Baltic Sea in order to protect the Baltic Sea environment from all sources of pollution.



*Environment-friendly operational process of 2012.
Certificate of honour given by Ministry of Environment.*

Average pollution indicators in treated wastewater 2008-2012 compared to regulatory requirements and the results of HSY*, mg/l

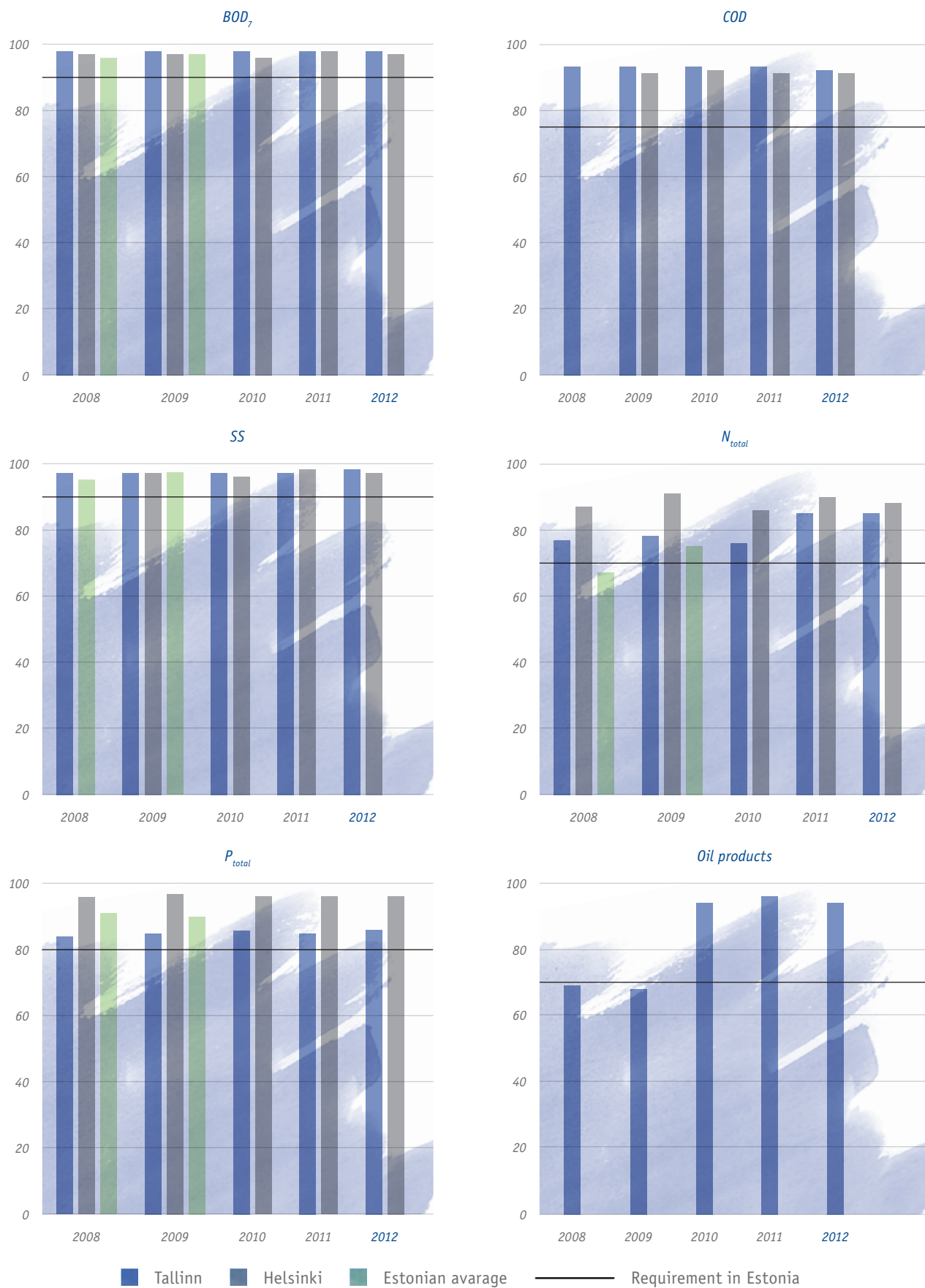


* Until 2009, the results were compared to those of Helsingin Vesi Oy, which since 01.01.2010 operates under the HSY

** In line with the applicable legal acts, the compliance of total nitrogen has not been analysed at the wastewater temperature below 12°C.

*** In 2012 HSY adjusted the N_{total} result of 2011. Right nr is 4.6 mg/l

Wastewater Treatment Plant treatment efficiency 2008-2012 in percentage terms, compared to the regulatory requirements, Estonia's average results* and the results of HSY, %



* The most recent data on Estonia's average are available for 2009. The calculation is based on the data from the five largest water companies in Estonia.

OUTLETS TO THE SEA

Throughout the year, 185,922 m³ of highly diluted wastewater, which underwent mechanical treatment, was discharged to the sea through the deep-sea outlet due to the shock loads, which exceeded the biological treatment capacity.

2012 was a year of very much snow, the summer was also very rainy. Partly treated wastewater was discharged to the sea mainly in March-April during thaw, the rest was lead to the sea on single days in July and September during heavy showers, i.e. in extraordinary weather conditions, when the emergency outlet was opened and a total of 136 962 m³ of wastewater diluted with stormwater (1/6) was conducted to environment to avoid major damages.

Wastewater Treatment Plant overflows 2008 - 2012, m³/year

	2008	2009	2010	2011	2012
Untreated wastewater discharged to the sea	12,489	0	0	107,510	136,962
Partly treated wastewater discharged to the sea	61,386	64,181	173,941	23,604	185,922

ENVIRONMENTAL CHARGES

The Company has the obligation to pay a pollution charge for pollutants discharged to water bodies. Taxable pollutants contained in treated effluent and storm water, which are established for the specific outlet in the special use of water permit, are included in the pollution charge calculations.

Both the receiving water coefficient of the specific outlet as well as compliance with the pollutant limit value in effluent are taken into account in pollution charge calculations. In case the limit value is exceeded, a ten-fold pollution charge is set for the exceeding amounts of pollutants; if the pollutant levels remain below the limit value or are equal to it, legislation foresees a possibility to apply for a 50% reduction of the pollution charge. A reduction of the pollution charge is only possible when the results of all outlets comply with the water permit requirements.

In 2012, the Company paid the pollution tax of 818'k euros, which is, irrespective of an increase in pollution taxes, 150'k euros less compared to 2011.

Chemicals handling

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Drinking water compliant with requirements	Retaining and improving life quality
Wastewater compliant with the requirements discharged into the sea	Retaining the condition of sea water
2012 OBJECTIVES AND TASKS	
To control and optimise the usage of chemicals +	
To reduce the risk of accidents occurring as a result of chemical usage +	

The Company uses approximately 450 hazardous and less hazardous chemicals in its operating activities. On one hand chemicals become hazardous primarily due to their characteristics, which pose a danger to the population and the environment, on the other hand the level of hazardousness depends on the amount of chemical used.

In 2012, the Company used a total of 5,819.8 tons of different chemicals. In 2011, a total of 5,642.5 tons of chemicals were used.

Large amounts chemicals and more hazardous chemicals are used at the Company's treatment plants. The amounts of chemicals used at the treatment plants predominantly depend on the volume and characteristics of the water reaching the plants, which, in turn, depend on weather conditions in the case of surface water and on the level of pollution in the case of wastewater.

WATER TREATMENT CHEMICALS

Chlorine

Under the Chemicals Act the Company has been classified as a category B Company with risk of a major accident due to the large amounts of chlorine used in the water treatment process.

In the water treatment process water is disinfected, so that the water would be safe to human health. The most common disinfectant in use is chlorine, which is effective and has a longer-term effect in the water distribution network. As a chemical, chlorine which is a poisonous gas, is heavier than air, causes irritation, has a corrosive effect and affects mucous membranes both internally and externally. Thus in the case of a chlorine emergency the people in the affected area may suffer serious damage to health or die.

The likelihood of accidents involving chlorine has been minimized by applying all necessary safety requirements.



Danger zone in case of a chlorine emergency based on the risk analysis

A crisis action plan has been put in place in order to be able to liquidate an unlikely but still possible chlorine emergency. In addition to the annual instruction and practical training on safety of chemicals given to the employees, practical trainings of chlorine emergency liquidation are frequently carried out in cooperation with the Rescue Centre. In 2012 a theoretical training was carried out for employees with practical use of protective equipment. The training was attended by the security company G4S and the representative of the Rescue Centre. The training was aimed at increasing employees' awareness and practicing cooperation with the staff on site as well as the coordination between different institutions in managing the elimination of an accident involving hazardous substances. The Company compiled and sent an informative leaflet to the residents and companies located in the risk area for acting in case of chlorine accident situation.

Ozone

The usage of chlorine has decreased considerably over the past decade. The main reason behind the reduction is the replacement of water prechlorination with ozonation. Ozone effectively breaks down organic matter and disinfects water. Ozone is produced locally in the Company and only in amounts needed. Thanks to the closed process and the fact that no stock is kept, the risk for the environment is minimal.

An ambient air pollution permit has been issued to the Company for limiting the residual ozone emissions and the permit was renewed in 2010 (see more details on page 62). A thermic destructor of residual ozone has been integrated into the process in order to meet the requirements of the ozone plant pollution permit. With temperature increasing, residual ozone emitted from the system is in turn broken down into oxygen and thus no ozone is emitted into ambient air. 100% of the residual ozone was broken down in 2012.

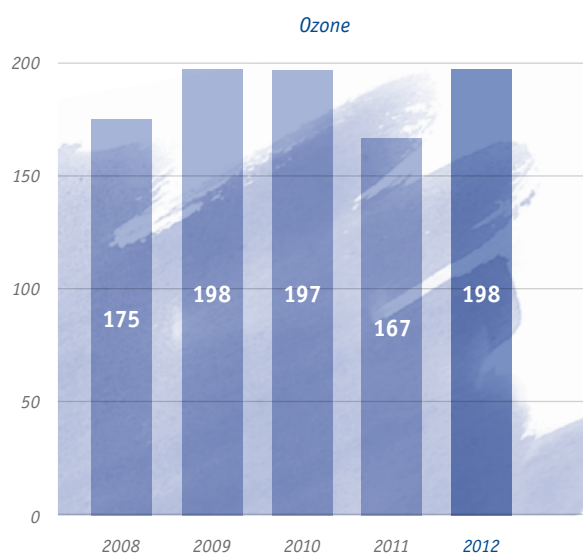
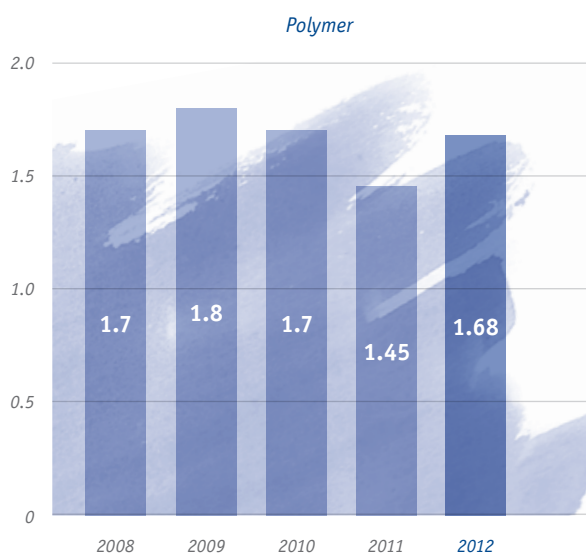
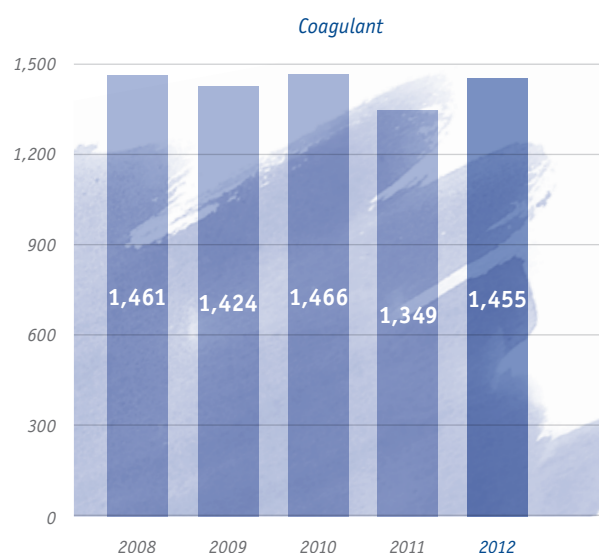
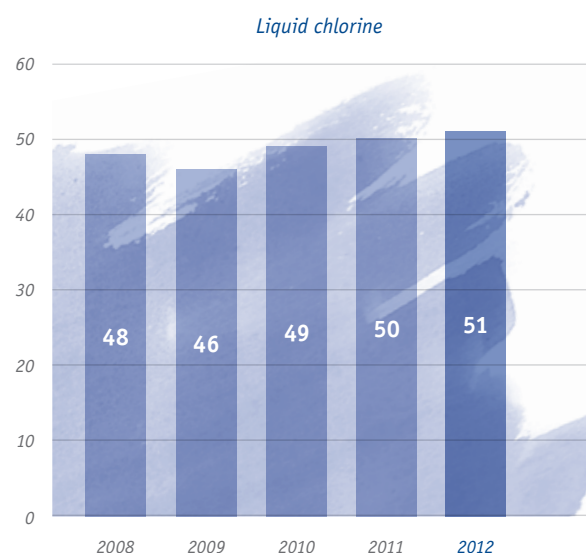
Coagulants and polymers

Significant amounts of coagulants and polymers, which help to remove the particular matter, suspended solids, etc. from water, are used in the treatment process. Both coagulants and polymers are used in liquid form. These do not possess as toxic characteristics as chlorine and provided that the safety requirements are met, they do not pose a danger to the environment or the population.

USAGE OF WATER TREATMENT CHEMICALS

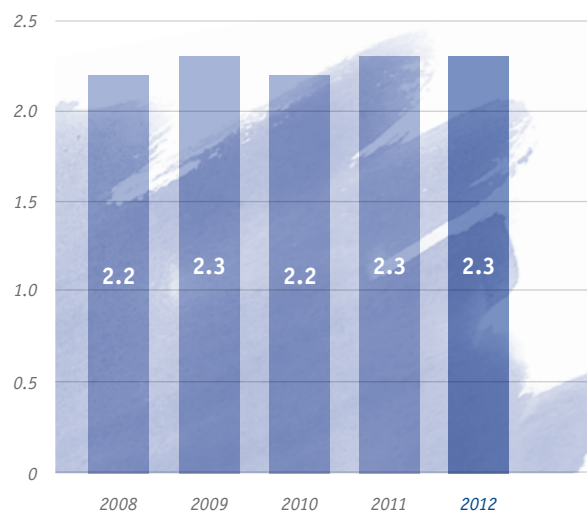
Irrespective of the very different characteristics of raw water and changeable weather conditions, the usage of chemicals has remained relatively stable during the last years. The usage of chemicals depends directly on the quality of surface water. The Company must guarantee the compliance of drinking water quality with the applicable standards and in some respect, as per the Company objectives, those standards are outperformed. Due to a high volume of rain an intense blooming of plankton started in the second half of summer of 2012 in Lake Ülemiste, reaching its maximum in October, when the number exceeded the limit of 1,2 million cells in 1 ml. The named extraordinary situation caused heavy load for the treatment plant and the removal of plankton required considerably higher doses of chemicals and ozone. Plankton was characterised by a relatively low biomass and high number, i.e. it was a very small plankton, which was very difficult to remove from water. Steep drop in raw water temperature in November caused plankton to decay and together with the low water temperature it had a significant impact on the results of the treatment process. Despite the measures taken, it was difficult to control the removal of organic matter in the treatment process and the level of residual aluminium. In order to find out the optimum doses of chemicals and new solutions, the Company collaborated with AS Kemivesi and Kemira OY, producers of chemicals.

Usage of water treatment chemicals 2008-2012, tons

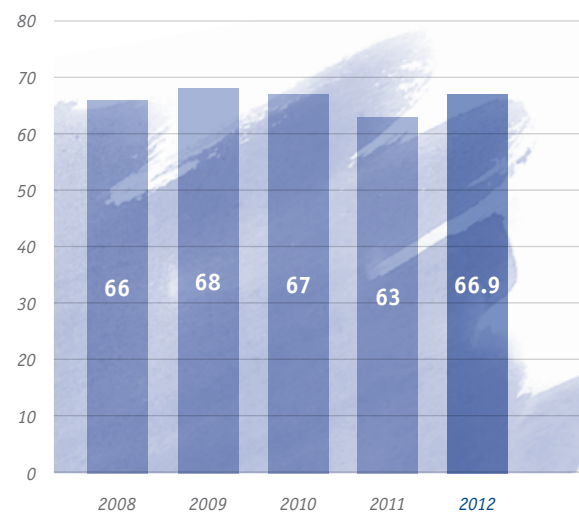


Average usage of water treatment chemicals per unit of production 2008-2012, g/m³

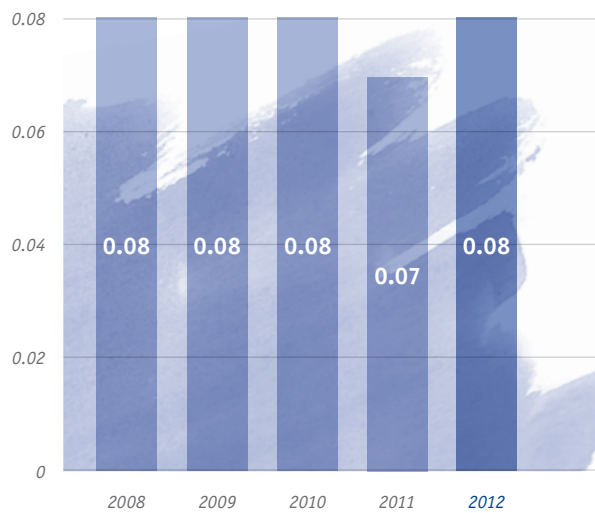
Liquid chlorine



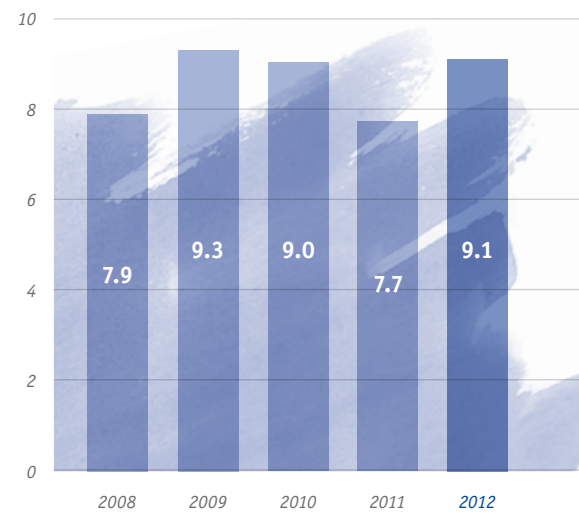
Coagulant



Polymer



Ozone



WASTEWATER TREATMENT CHEMICALS

Methanol

Due to the methanol used in wastewater treatment, the Company has been classified as a hazardous company on the basis of chemical legislation. Methanol is used to increase the efficiency of the nitrogen removal activities of the bacteria participating in the biological treatment process.

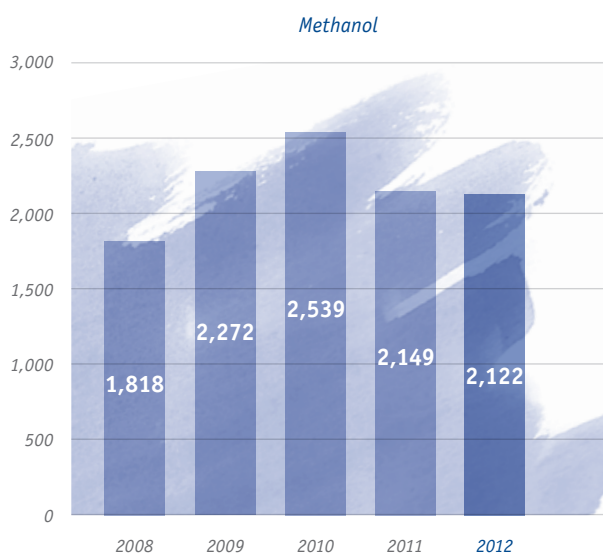
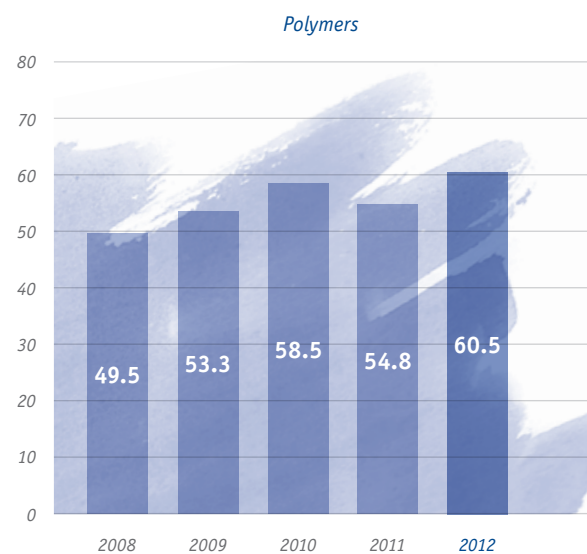
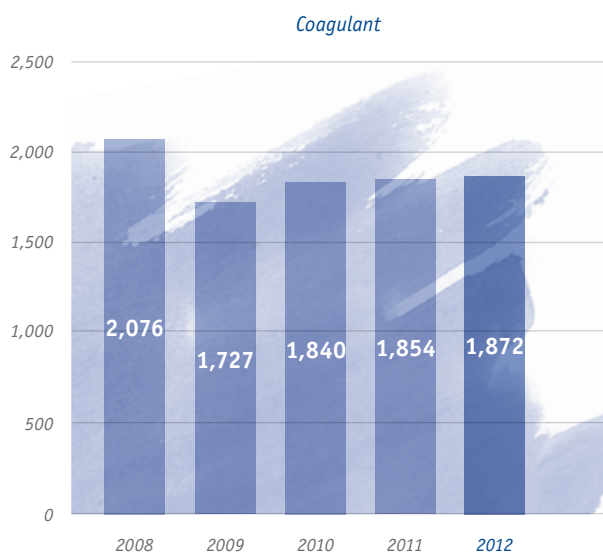
Coagulants and polymers

Significant amounts of coagulants and polymers are used in the wastewater treatment process. Coagulants are used for the chemical processing of wastewater to remove phosphorus. Polymers are used to change the qualities of sludge and adding them makes it easier to remove water from the sludge. Provided that safety requirements are followed, these are not hazardous to the environment or the population.

USAGE OF WASTEWATER TREATMENT CHEMICALS

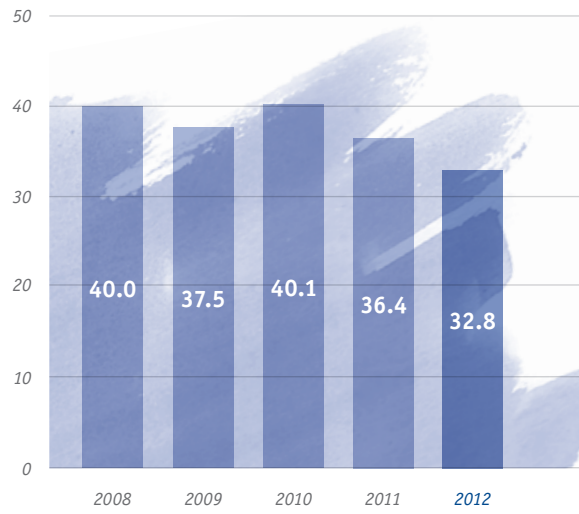
In 2012 the usage of methanol was lower and coagulant and polymers was little bit higher than in 2011.

Usage of wastewater treatment chemicals 2008-2012, tons

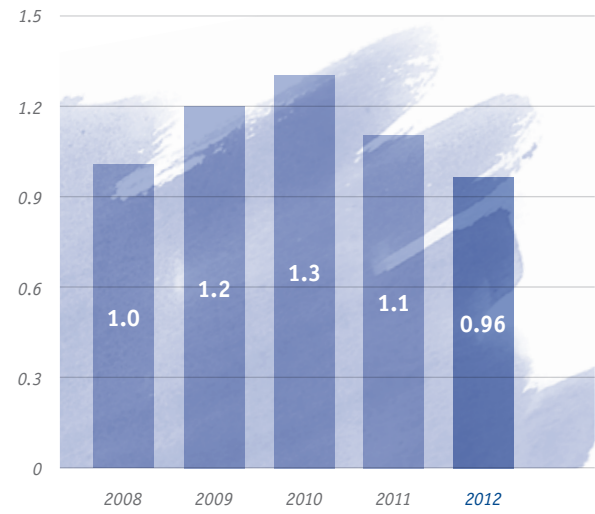


Average usage of wastewater treatment chemicals per unit of production 2008-2012, g/m³

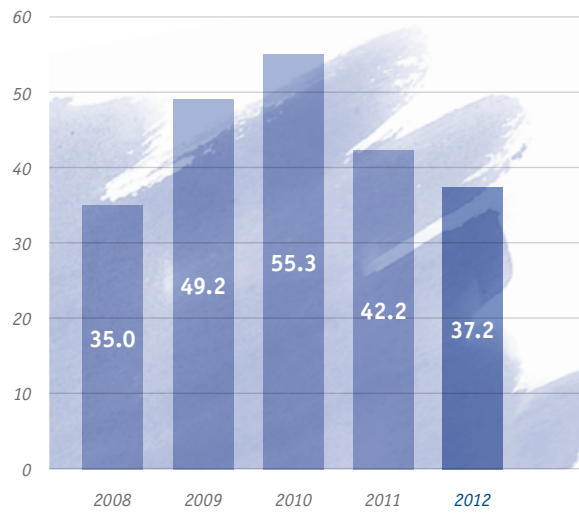
Coagulant



Polymers



Methanol



ENSURING CHEMICALS SAFETY

The likelihood of accidents involving chemicals has been minimized, as the chemicals handling systems are compliant with the security and safety requirements.

The necessary conditions for the storage and use of all chemicals have been created, also the information from the chemicals safety data sheets, the regulatory requirements and the safety instructions are followed. Chemicals safety data sheets are available in the Company both electronically and in hard copy at the handling sites of the given chemical.

Absorbents and personal protective equipment are also available at the chemical handling sites. The sites for handling hazardous chemicals are equipped with automated alarm and degassing system for the early detection and liquidation of possible leakages.

The Company has established procedures for ensuring the training of employees and the liquidation of emergencies. Provided that the security and safety requirements are followed, the likelihood of chemicals emergencies (chlorine, methanol, biogas) with serious consequences to human health and the environment is small. As a rule, chemicals emergencies constitute smaller leakages, which do not escape from the purposefully adapted production premises and do not damage the environment or people.

There were no reported chemicals accidents in 2012, which would have caused damage to people or the environment.



Chlorine emergency training at the WTP in 2012



Chlorine emergency training at the WTP in 2012

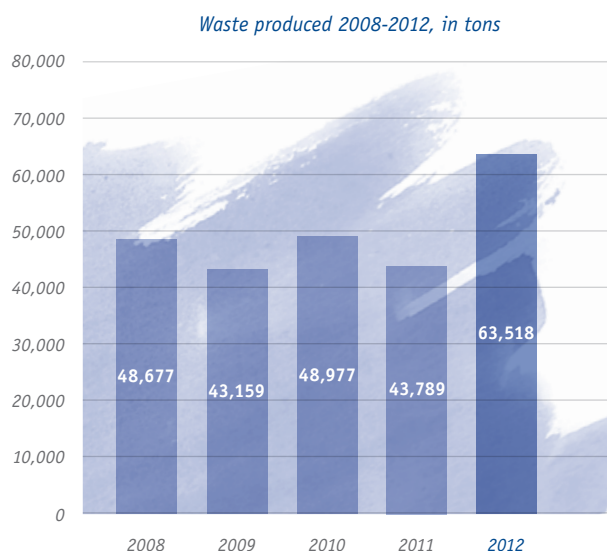
Waste management

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Recycling sludge into compost	Reducing and recycling of waste, improving the qualities of the ground and natural environment
Wastes	Deterioration of human environment and pollution of the ground
2012 OBJECTIVES AND TASKS	
To improve the efficiency of sorting and recovery of waste +	
To recycle all sludge and sell 32,000 t of compost +	
To ensure the sludge handling compliance with the requirements of the waste permit +	
Reduction of hard copy invoices to 30% +	

A total of 63,518 tons of waste, which is over 20,000 tons more than during the previous year, was produced in Company in 2012.

In 2012, mixed municipal waste created an ecological footprint of 388.044 ha per year, in 2011 it was 452.3 ha per year.

Most of the waste produced is non-hazardous waste. The majority of the Company's waste is produced at the Wastewater Treatment Plant and in the Customer Operations Department.



WASTE RELATED TO WASTEWATER TREATMENT

The large share of non-hazardous wastes are always wastewater sludge as a by-product from the wastewater treatment process. Other treatment process related waste such as waste from screens and sand traps' sludge is also produced in significant amounts.

In 2012, 20 437 tons of sludge was produced during wastewater treatment process in the Company. The named sludge is taken to the composting fields and is mixed with peat, thereafter the mixed sludge is intended to be sold to customers or to be used on different sites in the years 2013-2014.

The amount of sludge, but also of waste from screens and sand trap grids, depends directly on the amount of incoming wastewater, the weather conditions and the efficiency of the city's road cleaning service. In 2012 the amount of sludge from treatment equipment was lower than in 2011, but the volume of collected waste from screens was higher. This is above all related to the fact that in 2011 sand washers and screen presses with washers were installed in the Wastewater Treatment Plant and those catch more screen waste during the mechanical treatment stage.

All sludge is reused. Possibilities for additional treatment of other waste created in wastewater treatment and reduction of waste going to landfill are explored by the Company.

EXCAVATION WASTE

The amount of excavated soil and stones form the bulk of the waste produced at networks maintenance and repair works. The amount has increased in recent years in connection with the redaction Tallinn City Council Regulation No 28 of 20.05.2010 of Tallinn City Excavation Works Regulation enforced on 29.05.2010, which set an obligation on the performers of excavation works to carry out asphalt reinstatement works in a larger volume.

In 2012, the subsidiary continued to focus on carrying out large construction projects by building the street networks in Tallinn and Harju County. It also entered the market with new services (road reinstatement). Due to the increase in the volume of construction-, maintenance- and emergency services of the subsidiary, the total volume of excavation and stone waste grew considerably in 2012 to 39,182.54 tons. High work volumes also caused the asphalt waste to grow by more than 50% in 2012.

SORTED OFFICE WASTE

In 2012 the Company continued to separate paper and cardboards as well as packages from mixed municipal waste, in order to allow further recycling and reuse. The proportion of electronic bills to be sent to customers was increased, also improved self-service and double-sided printing was made automatic, where possible, in order to reduce the amount of paper used.

In 2011, wastepaper and cardboards created an ecological footprint of 34.3 ha per year, but in 2012 it was already 9.952 ha per year. The campaign "Paper-free web self-service" aimed above all at customers to quit paper invoices definitely contributed to this reduction.

HAZARDOUS WASTE

The share of hazardous waste in the total volume of waste is small, below 1%, and its amounts have remained stable over recent years. The largest category of hazardous waste is used oil and oil waste, which is the result of maintenance works in machinery and equipment.

Similarly to the recent years, the proportion of reusable waste from ordinary waste is over 90%, with both sludge reusage and reusable waste delivered to partners taken into account.

Types and amounts of the more significant waste 2008-2012, in tons

Type of waste	2008	2009	2010	2011	2012
Mixed municipal waste	115	145	171	112	96
Paper and cardboard	14	13	14	14	4
Packages	4	4.7	4.7	4.5	0.7
Biodegradable waste	2.5	5.2	5.4	5.3	4.4
Waste from screens	286	337	303	596	920
Wastewater sludge	35,691	31,087	33,885	28,763	20,437
Sandtraps grid	1,105	975	716	509	141
Excavated stones and soil	10,334	9,569	11,750	12,417	39,183
Asphalt waste	1,021	947	1,790	1,161	2,305
Mixed building waste	33	43	18	30	103
Concrete and bricks	48	29	40	38	243
Metal scrap	14	0.5	26.7	23.6	47
Hazardous waste	5	4	3.5	2.1	3
Other waste	4.5	1	250.2*	115.7	32
TOTAL	48,678	43,159	48,977	43,791	63,518

Possible to reuse. * Includes 248 tons of mineral snowcleaning waste.

SLUDGE REUSAGE

The main part of recycled waste was wastewater sludge. Sludge mixed with peat, i.e. the sludge mixture, can be used for landscaping and horticulture. Sludge mixture is prepared on 14 ha of composting fields constructed on the territory of the wastewater treatment plant, a part of the sludge is also transported to the Company's field in Liikva.

The Wastewater Laboratory monitors the sludge mixture quality on a regular basis. The results of analyses confirmed the compliance of the sludge mixture with regulatory requirements. 18 357 tons of mixed sludge was sold to the customers in 2012. In 2012, Total of 20,437 tons of sludge was produced during wastewater treatment process in the Company. The named sludge is taken to the composting fields. During 2012 a total of 24,754 tons of stabilised waste was taken from the composting fields away: 18,357 tons of mixed sludge was sold to the customers (this has partly been produced in the wastewater treatment process in 2011) and 6,074 tons was used on the sites of the Company.

RESEARCH INTO SLUDGE REUSAGE POSSIBILITIES

Based on the studies to date, the peat soils of bogs are the most suitable soil for afforestation. The tolerance of different tree species towards the amount of sludge used differs, being higher among bigger plants with a stronger root system. The main factors hindering tree growth in bogs are the insufficient air content of the soil, an excess amount of sludge as well as wild animals, to whom the trees in areas processed with sludge serve as a tasty forage.

WASTE PERMITS

The conditions of waste permits related to sludge recycling were met in 2012.

Waste permits

Permits	Valid until	Description of waste permit
Waste permit no L.JÄ/317241	09.09.2014	Issued for recycling stabilised waste in Paljassaare regarding part of stabilised waste, domestic wastewater sludge and biodegradable waste.
Waste permit no L.JÄ/317829	30.12.2014	Issued for recycling stabilised waste and for transporting waste to Liikva as well as for recycling biodegradable waste

Compliance with Paljassaare waste permit L.JÄ.HA-317241, in tons

Type of waste	Permitted	Actual				
		2008	2009	2010	2011	2012
Domestic wastewater treatment sludge	450,000	35,691	31,087	30,986	34,968	26,928
Stabilised waste	45,000	26,270	16,784	20,480	28,960	24,764
Biodegradable waste	10,000	0	0	0	0	0

Compliance with Liikva waste permit L.JÄ.HA-317829, in tons

Type of waste	Permitted	Actual				
		2008	2009	2010	2011	2012
Stabilised waste	15,000	9,421	14,303	10,506	6,008	4,210
Biodegradable waste	3,000	0	0	0	0	0

Energy consumption

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Biogas produced and consumed	Reduction in the consumption of fossil fuels
Electricity and thermal energy consumed	Contributing to the pollution of the environment due to the production of electricity, decrease in natural resources
Fuel and oil leaks	Cause the pollution of the soil
2012 OBJECTIVES AND TASKS	
To use energy more efficiently and sparingly and to prepare a long-term strategy for energy use -	
To develop a business plan for improving sludge treatment aimed to make an efficient use of biogas -	
To use transport more efficiently, develop a long-term strategy for the means of transport +	

ELECTRICITY CONSUMPTION

The majority of electricity consumed is used for running the core processes of the Company – in the Water and Wastewater Treatment Plants, and in the Networks to operate pumping stations and other equipment.

The total consumption of electricity by the Company has steadily increased, mostly due to updating the technological process of wastewater treatment and due to extending the operating area of the network's pumping stations.

Electricity consumption 2008-2012, kWh

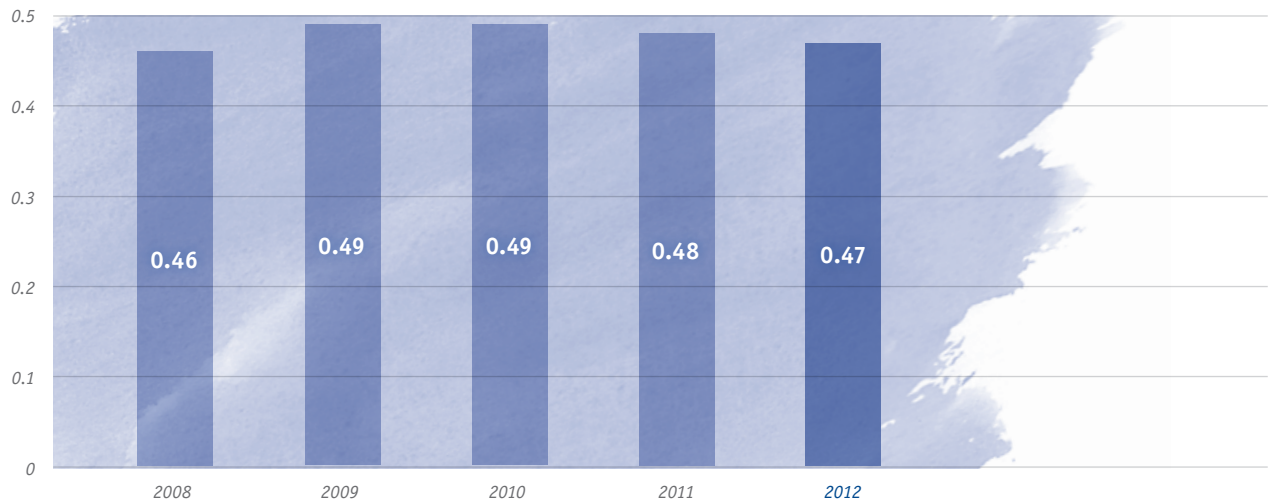
Unit	2008	2009	2010	2011	2012
Water Treatment	10,237,200	10,371,961	10,656,875	10,381,797	10,324,562
Wastewater Treatment	20,167,157	19,645,827	19,749,590	21,720,862	25,195,382
<i>Incl electricity from biogas</i>	<i>1,390,471</i>	<i>730,299</i>	<i>1,966,080</i>	<i>764,786</i>	<i>0</i>
Networks pumping stations	6,213,493	5,964,515	6,432,559	6,324,407	7,103,909
Maardu*		383,728	693,265	719,450	558,143
Other	924,809	885,720	865,723	799,763	992,707
TOTAL	37,543,659	37,251,751	38,398,012	39,946,279	44,174,703

* The Company started operating the assets of the water company of Maardu City on July 1st 2009.

Ecological footprint is calculated in the Company only with regard to the volume of electricity purchased from Eesti Energia in ha per year per MWh. The use of biogas belongs to green energy, regarding which there is no specific calculation factor. In 2012, an ecological footprint of 7,112.127 ha per year was made and in 2011 ecological footprint was 6,308.3 ha per year. In 2012, the footprint increased, because in 2011 the use of biogas decreased and the gas engine which was used to produce electricity out of biogas broke down in the end of the same year. Thus, the gas engine was not used at all for the production of electricity in 2012. Currently biogas is used only to produce heat.

In the water treatment process, electricity is mostly used for pumping water in the various stages of the treatment process and into the water supply system, a significant part of electricity is used for producing ozone. Compared to 2011 electricity consumption has reduced (0.470 kWh/m³ in 2012, 0.481 kWh/m³ in 2011). Electricity consumption in Water Treatment Plant has increased in connection with the increase in the production (21,191,759 m³ in 2012 and 20,859,977 m³ in 2011).

Electricity consumption per unit produced at the Water Treatment Plant 2008-2012, kWh/m³



The increase in energy demand linked to the new technology used in wastewater treatment is also illustrated by electricity consumption per unit of wastewater treated, which has been almost the same for the last five years since the reconstruction of the process, but has stabilized. Electricity consumption is to a large degree also impacted by the weather, because combined sewerage system is being used to a great extent, as a result of which a large volume of storm water is directed to the wastewater treatment process.

Electricity consumption per unit produced at the Wastewater Treatment Plant 2008-2012, kWh/m³



CONSUMPTION OF HEAT ENERGY

The majority of heat energy consumed is used for running the core processes – for heating the operations and office buildings.

Heat energy is purchased from AS Eesti Gaas and AS Tallinna Küte. To some extent the use of heat energy is compensated by the heat energy received from the biogas in Wastewater Treatment Plant. In 2012, all the heat used in the Wastewater Treatment Plant was produced out of biogas.

In 2011 and 2012 the heat consumption of As Tallinna Vesi in Maardu was 0, because the tenant of adjacent premises pays for the heating in pumping station.

Consumption of heat energy 2008-2012, MWh

Unit	2008	2009	2010	2011	2012
Water Treatment	5,142	4,264	5,617.60	4,357.6	4,800.0
Wastewater Treatment	7,423	6,515	8,176	6,634	10,467.0
<i>Incl electricity from biogas</i>	<i>4,654</i>	<i>5,032.50</i>	<i>4,505.60</i>	<i>5,133.7</i>	<i>10,467.0</i>
Territory of Ädala office	960.4	956.6	1,256.70	1,176.24	1,212.76
Maardu*	0	66.6	38.4	0	0
TOTAL	13,525.40	11,802.20	15,097.70	12,167.84	16,479.76

* The Company started operating the assets of the water company of Maardu City on July 1st 2009.

In 2012, the ecological footprint related to the consumption of heat energy was 451.2 ha per year in Water Treatment Plant and in 2011 it was 409.6 ha per year. All of the heat used in Wastewater Treatment Plant is produced from biogas but ecological footprint was calculated for the use of natural gas and in 2012 it was 0 ha per year. In 2011 it was 141 ha per year. The ecological footprint of the territory of Ädala office in 2012 was 114 ha per year and in 2011 it was 110.6 ha per year. In total the ecological footprint of the Company in relation to the heat energy produced from natural gas in 2012 was 565.2 ha per year and in 2011 it was 661.2 ha per year.

USE OF ENERGY

Green energy

An excellent opportunity for reducing damage to the environment is the use of green energy. For the Company this means above all maximum usage of biogas created as a result of sludge fermentation in wastewater treatment in other work processes, however, at the same time the Company is trying to find also other environmentally-friendly solutions.

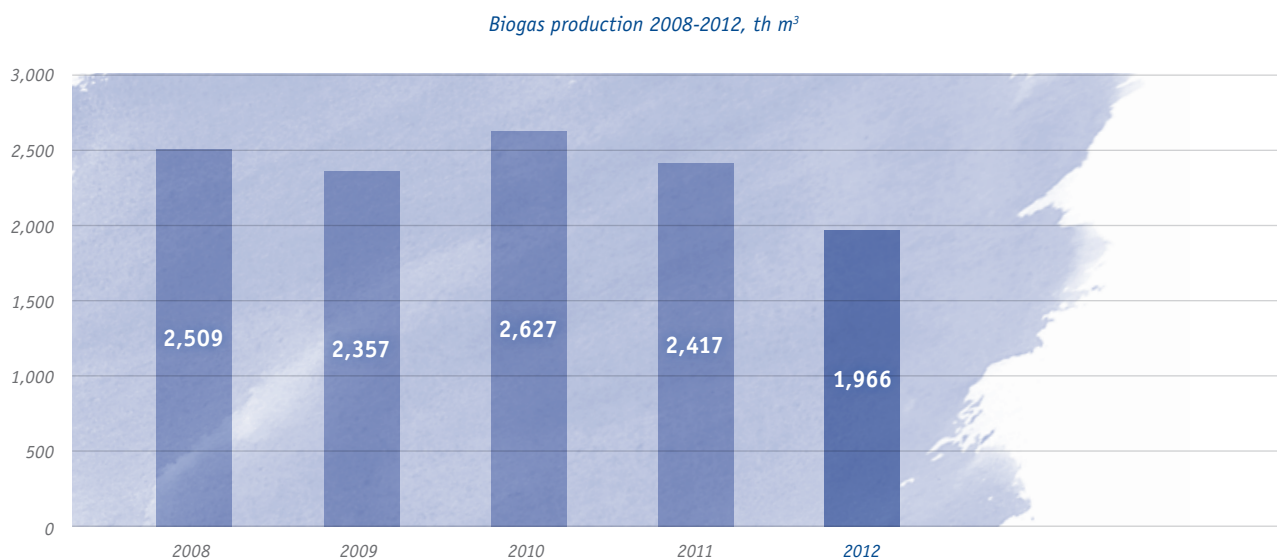
In 2010 three feasibility studies were ordered regarding the opportunities of producing green energy. Two of these were regarding the opportunities of combined heat and power plant in Wastewater Treatment Plant and the third feasibility study was regarding the heat pumps in Water Treatment Plant. The work on the project of combined heat and power plant will be continued also in 2013. On the basis calculations of other projects are not feasible, thus this project is closed. For details on hydro energy, please refer to page 60.

Biogas reusage

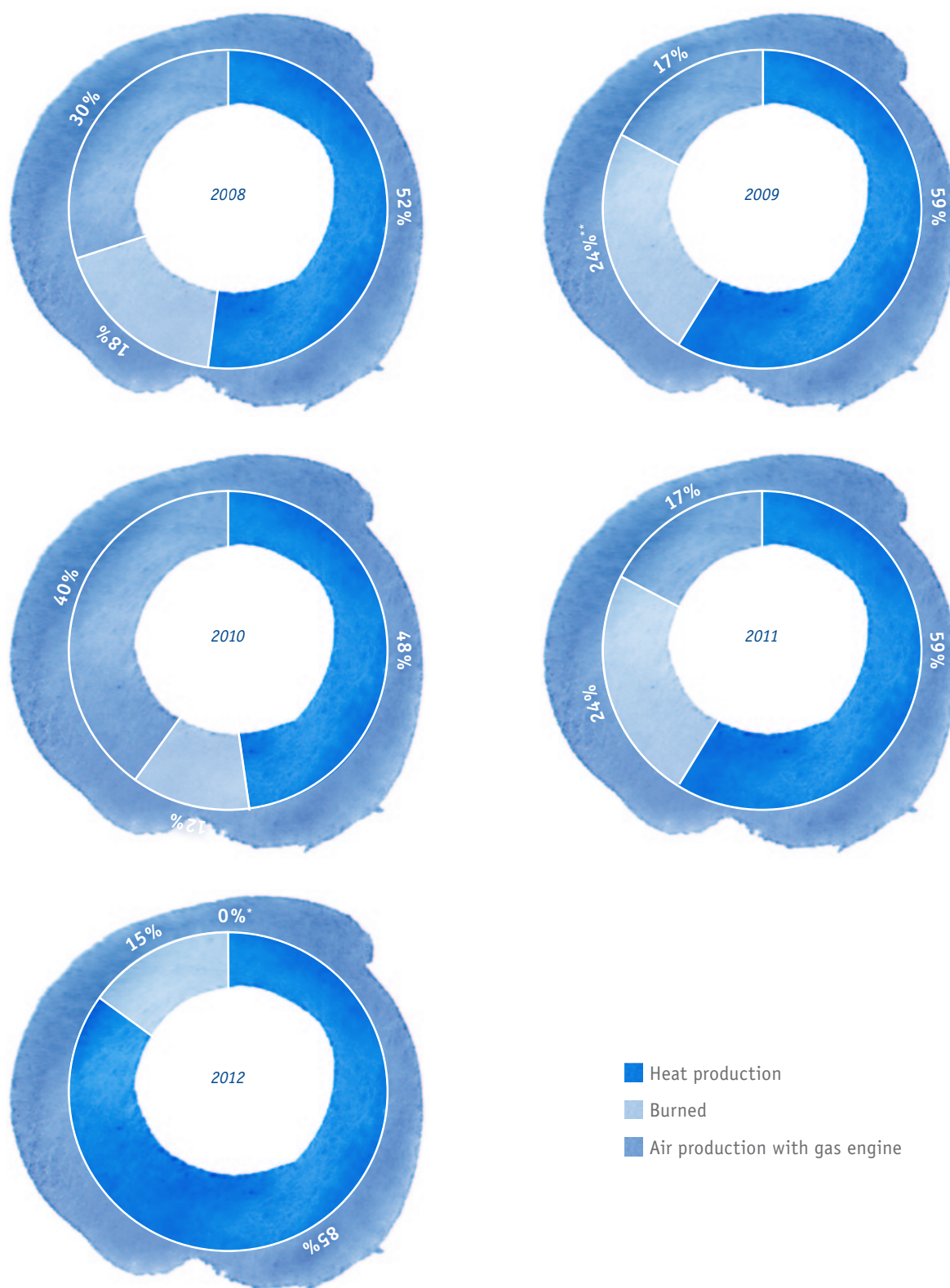
Over recent winters the production of biogas has been hindered by wastewater collected from the streets, which has mixed with snow clearing chemicals and causes disruptions in the digesters' fermentation process. Also in 2012, digesters were operated by using an operating tactic implemented in 2008, which helped to keep the biogas production at the same level as in the previous year.

In 2012, a total of 1,965,616 m³ of biogas was produced in Paljassaare Wastewater Treatment Plant digesters. Biogas is directed to a boiler house for heat production and until July 2011 also to an air blower operating on a gas engine, which produces air necessary for the biological treatment bacteria. In August 2011 the gas engine broke and has stopped working since. At the moment the procedure for choosing and procuring a combined plant operating on a biogas is still ongoing.

In 2011, 85% (1,666,964 m³) of biogas was used for operating the gas engine or for heat production. A part of the biogas produced was burned.



Biogas usage 2008-2012, %



* In the second half of 2011, an emergency breakdown of gas engine occurred and it was not used anymore in 2012.

** Specified data in 2012. Right nr is 24% (burned).

Opportunities for producing hydro energy

The operating hydropower plants in the Company's hydropoints of Soodla and Kaunissaare are also related to the production of green energy. The maximum capacities of these hydropower plants are ca 260 kW and 170 kW respectively. These hydropower plants do not belong to the Company, however, cooperation contracts have been concluded and the Company is participating in operating the plants. The Company is closely cooperating with the owners (OÜ Kaunissaare Hüdrolektrijaam and OÜ Uus Energia) of the hydropower plants and creates maximum conditions possible for the use of hydro energy.

Fuel consumption

The Company has 95 vehicles for carrying out different operating tasks, over half of them use petrol for fuel. The biggest group of vehicles is passenger cars and operating vehicles, including minivans and team vans. A smaller group of vehicles includes special purpose vehicles such tractors and trucks.

Fuel consumption has decreased compared to the last year. The Company tries to control its fuel consumption above all by setting limits to the car users and using GSM tracking systems as well.

Fuel consumption 2008-2012, in litres

	2008	2009	2010	2011	2012
Petrol	141,644	126,286	85,735	66,418	71,030
Diesel	205,738	201,351	170,365	140,331	132,284
TOTAL FUEL	347,382	327,637	256,100	206,410	203,314
Total number of vehicles	140	137	124	98	95

Transport

The Company does not keep a separate record of the mileage covered, but this can be calculated per vehicle type, taking into account average fuel consumption. In 2012 the mileage of vehicle transport was 2,915,003.5 km and in 2011 the respective figure was 2,993,963 km (all km of transport is calculated for people transport because we can't calculate exact km for the transport of goods). In 2012, vehicle transport created an ecological footprint of 174.9 ha per year and in 2011 it was 180 ha per year.

In 2012 bus service was used for transporting people on 3 occasions and altogether a distance of 711.9 km was covered, the related ecological footprint of 0.021 ha per year. In 2011 bus service was used on 5 occasions, in total covering a distance of 815 km, thus creating an ecological footprint of 0.025 ha per year.

Company's employees have business trips also outside Estonia. To some extent travelling by ship has been used, however, travelling by plane has been used more often. 176.40 km was covered by ship in 2012 and 534 km in 2011, and the ecological footprint related thereto in 2012 was 0.002 ha per year and the respective figure in 2011 was 0.005 ha per year.

In 2012 Company's employees used plane transport only for short-distance flights (less than 5,000 km). Altogether 146,287.00 km was covered, the ecological footprint of which is 13.17 ha per year. In 2011 also only short-distance flights were used flights (less than 5,000 km), totalling 90,518.00 km, creating an ecological footprint of 8.15 ha per year.

Summarized table of the Company's ecological footprint

The environmental impact of 11 different aspects was measured on the basis of the ecological footprint method. The Company has the greatest impact on the environment through the use of electricity, followed by the use of heat energy. Use of electricity and heat energy are in a close and inevitable connection with the Company's core activity and with the expansion of the activities also the ecological footprint inevitably increases. Efficient and sustainable use of electricity and heat energy are being thoroughly controlled in the Company.

Aspects that serve as the basis for calculating the ecological footprint		Consumption/ production (rounded)	Ecological footprint per employee (ha per year per employee)	Ecological footprint (ha per year)
Water (m³)				
1. Water consumed	2012	564,338	0.144	45.147
	2011	709,800	0.19	56.78
Waste (t)				
2. Recycled paper	2012	4.1	0.032	9.952
	2011	14	0.115	34.3
3. Recycled metal	2012	47	0.165	51.7
	2011	23.6	0.087	25.96
4. Concrete (to a landfill)	2012	242.7	0.077	24.266
	2011	38	0.013	3.8
5. Mixed municipal waste (to a landfill)	2012	96.1	1.236	388.044
	2011	112	1.513	452.3
Electricity (MWh)				
6. Electricity from oil shale	2012	44,174.8	22.650	7,112.127
	2011	39,182	21.098	6308.3
Heat energy (MWh)				
7. Heat energy produced from natural gas	2012	6,012.8	1.800	565.200
	2011	7,034.1	2.211	661.21
Transport for people (km)				
8. By car	2012	2,915,003.5	0.557	174.9
	2011	2,993,963.33	0.601	179.64
9. By plane	2012	146,287	0.042	13.166
	2011	90,518	0.027	8.15
10. By bus	2012	711.9	0.0001	0.0214
	2011	815	0.0001	0.025
11. By ship	2012	176.4	0.00001	0.002
	2011	534	0.0002	0.005
TOTAL	2012	26.7	8384.52	
	2011	25.85	7730.43	

Air emission

SIGNIFICANT ENVIRONMENTAL ASPECTS	IMPACTS
Emission of exhausts	Polluting the air
2012 OBJECTIVES AND TASKS	
To ensure compliance with the requirements of the environmental permits +	

In order to reduce ambient air pollution, the Company focuses on limiting the amount of pollutants emitted from Ülemiste and Paljassaare boiler houses, particularly the pollutants of primary importance, such as nitrogen dioxide, carbon monoxide and volatile organic compounds as well as CO₂ greenhouse gas emissions. Also the emissions of ozone produced for drinking water treatment are regulated.

The Company pays a pollution charge for pollutants emitted into ambient air. In 2012 the charge remained under 1% of the total pollution charge paid.

The requirements set with the ambient air pollution permits were all met in 2012.

Air emission permits

Permit	Valid until	Description of ambient air pollution permit
Pollution permit no L.ÕV.HA 48701	termless	Valid for Paljassaare Wastewater Treatment Plant pollution sources – the chimney of the boiler house, exhaust pipes, the chimney of the combined heat plant. Establishes the list of pollutants emitted into ambient air and the annual permitted emission amounts thereof.
Pollution permit no L.ÕV/319438	termless	Valid for Ülemiste Water Treatment Plant pollution sources – the chimney of the boiler house, ozonisation, diesel generator. Establishes the list of pollutants emitted into ambient air and the annual permitted emission amounts thereof.

Ambient air pollution from Water Treatment Plant pollution sources 2008 - 2012, in tons

Pollutant	2008		2009		2010		2011		2012	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
Nitrogen dioxide	2.4	1.4	2.4	1.4	2.4	1.5	1.954	1.3	1.954	1.236
Carbon monoxide	1.9	1.3	1.9	1.3	1.9	1.4	1.846	1.19	1.846	1.127
Volatile organic compounds	0.17	0.1	0.17	0.09	0.17	0.1	0.125	0.08	0.125	0.077
Carbon dioxide	1,691	1,209	1,691	1,145	1,691	1,271	1,688	1,081	1,688	1,021
Sulphur dioxide	0.01	0	0.01	0	0.01	0.007	0	0	0	0.001*
Total solid particles	0.05	0.002	0.05	0.003	0.05	0.003	0.004	0.004	0.004	0.004

* Sulphur dioxide emissions into ambient air were below the threshold.

Since 2011, a new ambient air pollution permit (LÖV/319438) is valid in the Water Treatment Plant, replacing also the special pollution permit for ozone.

Ambient air pollution from Wastewater Treatment Plant pollution sources 2008- 2012, in tons

Pollutant	2008		2009		2010		2011		2012	
	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual	Allowed	Actual
Nitrogen dioxide	29.8	17,4	29.8	10.6	29.8	23.5	29.8	11	29.8	2.64
Carbon monoxide	210	115	210	62.3	210	161.9	210	64.9	210	2.64
Volatile organic compounds	14	7.7	14	4.2	14	10.8	14	5	14	14
Carbon dioxide	4,440	3,697	4,440	3,229	4,440	4,135	4,440	3,298	4,440	2,392
Sulphur dioxide	17.8	17.5	17.8	16.9	17.8	16.9	17.8	17.4	17.8	17.78
Total solid particles	0.05	0.002	0.05	0.003	0.05	0.003	0.004	0.004	0.004	0.004

* Sulphur dioxide emissions into ambient air were below the threshold.

Considerable reduction in nitrogen dioxide and carbon oxide in 2012 was caused by the emergency breakdown of gas engine.

Environmental performance

In addition to the data on ecological footprint and as set out by the requirements of EMAS III, the Company outlines below its main indicators of the environmental performance regarding energy efficiency, material efficiency, water, waste, biological diversity and emissions. 3 elements have been presented for each main indicator:

- figure A, which stands for the total annual input/impact in the respective area
- figure B, which stands for the total gross sale revenue of the organisation in millions of Euros,
- figure R, which stands for the ratio A/B

Main indicators of environmental performance		Consumption (rounded) i.e. annual input (figure A)	Annual output of the Company (figure B)	Ratio R (A/B)
Energy Efficiency				
Electricity (MWh)				
Electric power produced from oil shale	2012	44,174.7	52.9	835.1
	2011	39,182	51.24	764.68
Electric power produced from biogas	2012	0	52.9	0
	2011	764.79	51.24	14.93
Heat (MWh)				
Heat produced from natural gas	2012	6,012.76	52.9	113.7
	2011	7,034.14	51.24	137.28
Thermal energy produced from biogas	2012	10,467.0	52.9	197.9
	2011	5,133.7	51.24	100.19
Material Efficiency				
Handling of chemicals (t)				
Liquid chlorine	2012	51	52.9	0.97
	2011	50	51.24	0.98
Coagulant	2012	3,327	52.9	62.9
	2011	3,203	51.24	62.51
Polymer	2012	62.18	52.9	1.18
	2011	56.25	51.24	1.10
Ozone	2012	198	52.9	3.74
	2011	167	51.24	3.26
Methanol	2012	2,122	52.9	40.11
	2011	2,149	51.24	41.94
Total chemicals	2012	5,819.8	52.9	110.0
	2011	5,642.5	51.24	110.1
Water (th m³)				
Surface water	2012	21,750	52.9	411.15
	2011	21,569	51.24	420.94
Ground water	2012	2,465.63	52.9	46.61
	2011	3,111	51.24	60.71
Effluent	2012	56,982	52.9	1077.16
	2011	50,806	51.24	991.53

Waste (t)				
Mixed municipal waste	2012	96	52.9	1.82
	2011	112	51.24	2.19
Recycled paper and cardboard	2012	4	52.9	0.08
	2011	14	51.24	0.27
Recycled packages	2012	0.7	52.9	0.01
	2011	4.5	51.24	0.09
Recycled biodegradable waste	2012	4.4	52.9	0.08
	2011	5.3	51.24	0.10
Waste from screens	2012	920	52.9	17.38
	2011	596	51.24	11.63
Recycled sludge	2012	20,437	52.9	386.33
	2011	28,763	51.24	561.34
Sandtraps grid	2012	141	52.9	2.66
	2011	509	51.24	9.93
Recycled excavated stones and soil	2012	39,183	52.9	740.7
	2011	12,417	51.24	242.33
Asphalt waste	2012	2,305	52.9	43.56
	2011	1,161	51.24	22.66
Mixed building waste	2012	103	52.9	1.94
	2011	30	51.24	0.59
Concrete and bricks	2012	243	52.9	4.59
	2011	38	51.24	0.74
Recycled metal	2012	47	52.9	0.89
	2011	23.6	51.24	0.46
Hazardous waste	2012	3	52.9	0.06
	2011	2.1	51.24	0.04
Other	2012	3	52.9	0.61
	2011	115.7	51.24	2.26
Biological diversity (m²)				
Land use, land carrying buildings	2012	461,922	52.9	8,731.98
	2011	657,272	51.24	12,827.3
Emissions (t)				
Nitrogen dioxide	2012	3.88	52.9	0.07
	2011	12.3	51.24	0.24
Carbon monoxide	2012	3.77	52.9	0.07
	2011	66.1	51.24	1.29
Volatile organic compounds	2012	14.08	52.9	0.27
	2011	5.08	51.24	0.1
Carbon dioxide	2012	3,413	52.9	64.52
	2011	4,379	51.24	85.46
Sulphur dioxide	2012	0	52.9	0
	2011	0	51.24	0
Total solid particles	2012	0	52.9	0
	2011	0	51.24	0
Hydrogen sulphide	2012	17.78	52.9	0.34
	2011	17.4	51.24	0.34

Organisation and employees

2012 OBJECTIVES AND TASKS

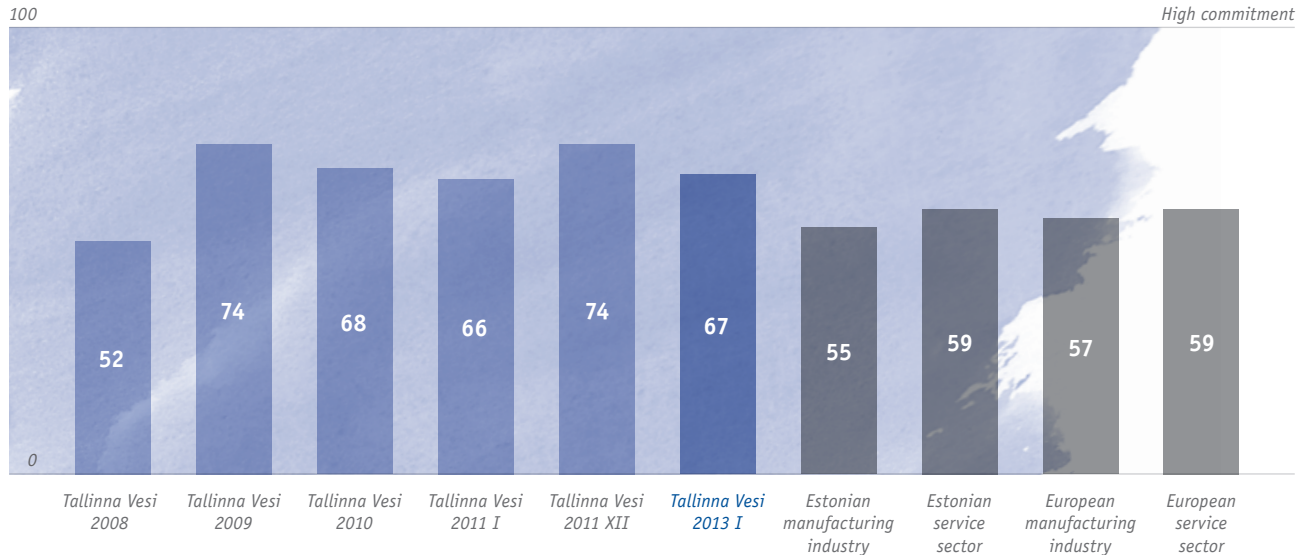
To create the Green Team of the company and carry out at least 2 successful environmental projects +

The most important change was the decision of the Management Team to use insourcing other services from OÜ Watercom, Subsidiary of AS Tallinna Vesi, instead of outsourcing the services, in order to increase the efficiency of the Company, raise the quality of service and improve supervision. During the second half of the year, a change in work organisation was carried out in the Operations Division of the Company, concerning above all specifying the areas of responsibility and increasing transparency. The Executive Team of the Company considers it extremely important to involve employees in the decision-making process, inform them regularly and treat them equally. Meetings were held for that purpose between the Management Board and the employees and an internal newsletter was issued to address the performance and delivery of the Company's objectives at least once a quarter.

As of the end of 2012, the Company and its Subsidiary employed a total number of 313 employees under permanent employment contracts. Compared to the same period previous year when there were 311 people working for the Company, this number has largely remained the same.

The commitment and satisfaction of the employees were higher compared to both Estonian and European average in industry and service sector in 2012, but the employees' ratings were somewhat more critical than they were a year ago. AS Tallinna Vesi employee commitment in 2012 reflects the column 2013 I (it means that survey was carried out in January of 2013).

AS Tallinna Vesi employee commitment in 2012



DEVELOPMENT OF EMPLOYEES

The development of employees is still one of the main priorities for the Company. Besides the traditional in-service training and development programmes, the Company focused on the commitment and competence of frontline managers in 2012.

The average age of the staff in the Company and the Subsidiary is high (47.2 and 43.8 years respectively) and in bigger operational units a considerable number of employees are over 50 years old. Therefore, it is of critical importance for the organisation that the management would be able to cope with the change of staff expected to occur in the coming years, maintaining the high level operational and service performance at the same time.

There were 701 training days in total in 2012. This number has increased compared to 2011 due to the number of employees participating in development programmes, renewals of competence certificates and rise in the number of professional group trainings and in-house trainings. There was a significant increase in in-house guidance and involvement of mentors (incl. outside of the Company) in which case the sharing of knowledge has been from one colleague to another or from mentor to mentee. Almost 25% of the Company's employees participate in various long-term development programmes.



Strategy Seminars for staff 2012



First aid Winter days for employees 2012

OCCUPATIONAL HEALTH AND SAFETY

Work environment related activities of the Company are in compliance with the requirements of legislation and the international occupational health and safety management system standard OHSAS 18001.

Work environment management system is based on an assessment of risks in the work environment area and execution of activities aimed at preventing or reducing these risks. Workplaces are under constant internal monitoring and internal as well as external audits of the management system are carried out.

In 2012, special focus was on the improvement in following work safety requirements at the excavation sites of both the Company and subcontractors as well as on internal and external occupational health and safety trainings, development of methods which increase the knowledge of safety requirements and constant improvement of the work environment in accordance with the rules of OHSAS 18001:2007.

In 2012, 2 occupational accidents occurred, none of which had severe consequences (an employee sprained right ankle joint when stepping out of the car/stretched ligaments; an employee entered customer's garden and was attacked by a dog/scratches on a thigh).

In 2012, the Company lost 7 working days due to occupational accidents whereas in 2011 it was 86 working days. The causes of occupational accidents were thoroughly analysed by the Work Environment Council. Action plans to prevent any further occupational accidents of a similar type were put together and the timely delivery of those action plans was constantly monitored by the Work Environment Council.

The Company focused on the development of awareness promoting methods. "Terve Tilgu" traffic sign reflects the achievement of the Company's occupational health objectives on a weekly basis, various articles on occupational safety were published in the internal newspaper, cartoons on safety (Napo) and other thematic information are shown on the TV set in a rest room, a so-called occupational health and safety corner was set up in the rest room, where people can find necessary information and pick up thematic leaflets and brochures etc.

WORK ENVIRONMENT TRAININGS

The implementation and results of work environment related actions are largely dependent on the awareness of employees. Therefore, much attention is paid to work environment training, information materials and other actions as well as channels to raise awareness of the issues related to work environment. In 2012 the following training events in the field of occupational safety were carried out:

- trainings on pressure equipment;
- first-aid training and in-service training;
- training and in-service training of Work Environment Council members and work environment representatives;
- training "Working in collectors and wells"
- training on temporary traffic rearrangement (marking road works) with practical classes on site;
- chlorine safety training was carried out at the Water Treatment Plant together with the Technical Surveillance Authority and Estonian Rescue Services;
- training on the usage of trench support;
- fire, electrical, chemical and gas work safety trainings;
- information hours for employees on various safety related subjects (personal protective equipment, what to do in case of a work accident, ergonomics and physiological risk factors etc.);
- 9-day training for work environment specialists organised by the Labour Inspectorate;
- various seminars for health promoting positions.

CONTINUOUS IMPROVEMENT IN THE FIELD OF OCCUPATIONAL SAFETY

Several actions to improve the work environment were carried out in 2012 at the treatment plants, water and sewerage networks, laboratories, and offices. Among the most important works were:

- renewal of and additions to the Company's work environment risk analysis. In accordance to the results of risk analysis action plans for the improvement of work environment for 2013 have been started;
- during the cold winter period, temperature was measured in various rooms of the building on a regular basis and heating was regulated accordingly. Also, electric convectors were used where needed;
- all workshops of the Company were inspected and deficiencies in work environment were eliminated;
- the existing ventilation system was adjusted to the changed planning of the rooms;
- the ergonomics of computer workstations was improved;
- in cooperation with the Ergonomics Laboratory of Tallinn University of Technology the work environment of our IT staff was observed and measured (lights, indoor climate, air movement, carbon dioxide in the air etc.). Measurements were carried out as part of the cooperation project between Finland, Estonia and Latvia aimed at setting up the H&S best practices for IT staff. Measurements were followed by a questionnaire, the results of which were provided to the Company together with improvement proposals;
- measurements of lights and indoor climate were carried out in various departments, noise was measured in offices;
- AS Mõõtelabor carried out noise measurements in the buildings of biofilter and blowers in the Wastewater Treatment Plant and as a result of those measurements markings were supplemented;
- procurement was carried out to purchase new ergonomic and durable office chairs. In 2013-2015 all office chairs will be replaced.

PROMOTING OCCUPATIONAL HEALTH

For the eighth year, the Company successfully participated in the “Health Promoting Work Places” project, aimed at developing a healthy work environment, primarily by changing mindsets and increasing the mutual involvement of both employers and employees.

The Company organises various sports activities for its employees to promote a healthy lifestyle. Employees of the Company have the opportunity to use two gyms, as well as squash and ball courts, and also take part in the Company’s sports events.

In cooperation with SA PERH the examination determining muscle tension and cortisol in saliva (stress hormone) was carried out in the Company’s medical office, 40 employees participated. During the period of 23-29 April, a Heart Week took place all over Estonia and within this event, the Company organized various activities: healthy half-hours doing office yoga, evening yoga classes; especially heart-healthy meals at the canteen; opportunity to visit Kalev SPA for special rates; it was possible to measure blood pressure, weigh oneself and to read materials promoting healthy lifestyle issued by the National Institute for Health Development in the Company’s medical office. In addition to the activities organized within the Company, also other activities taking place in Tallinn within the Heart Week were promoted.

Employees attend regular health checks, as foreseen by law, which provide the basis for adjustment of working conditions where necessary. In addition to the procedures foreseen by legislation, the Company provides influenza vaccinations to all interested employees and prophylactic massage according to the prescription of the occupational health doctor. Also, the occupational health doctor can be consulted in the medical office of the Company.

INVOLMENT OF EMPLOYEES

The Company values its staff as versatile personalities and considers the various needs of people in work organisation. The Company aims at supporting the employees’ voluntary contribution to community projects. Strong attention is also turned to the work environment related activities and improvement of the employees’ awareness of (occupational) health. Through voluntary activities and support, the Company strives to give its contribution to the community. This is part of the social responsibility of the Company.

The Company’s internal newspaper “Infotilk”, Intranet, internal TV set, information stands (so-called Green Stand or occupational health and safety corner) and posters are used to improve the environmental awareness of employees. Employees are also involved in various decision making processes and joint events which increase awareness and relevant regular in-house trainings and excursions are being organised as well.

- All staff continues to have the opportunity to submit their ideas for improving the environment, quality and occupational environment to the **Bank Of Good Ideas**, where the ideas which get approved are going to be delivered and the authors of the idea will be recognised.
- In 2012, a **Green Team** was set up in the Company. This is a learning environment consisting of 20 employees, who voluntarily contribute to reducing the Company’s ecological footprint, making the environmental policy more effective and delivering an environmental strategy. All this together improves the knowledge and environmental awareness of staff. In 2012, the Green Team selected 7 environmental projects, 2 of which were delivered already in the first year. The 5 remaining projects require a more long-term contribution and delivery.

- In 2012, the Green Team organised a Flea Market. All staff had the option to bring their unused things to be sold in the bazaar with at least 10% of that going for charity. A total of over 30 employees of the Company participated in the project. Within the same project the old office furniture of the Company was sold as well. 250 euros in total were collected for charity and were used to buy the necessary art supplies for the children with special needs.
- A **tree planting event** lead by the Green Team and instructed by the Environmental Board took place in the area of Ülemiste Water Treatment Plant. 40 employees of the Company willing to reduce their carbon footprint and protect Lake Ülemiste against pollution and dust coming from the road were involved in the planting event. More than 500 plants in total were set in the area during the event.
- During the **cleaning up event “Let’s do it 2012”** that took place across Estonia, Pikakari’s beach and surrounding area next to Katariina Quay were cleaned up. In addition to the Company’s volunteers, also the employees of Fujitsu Siemens, Coca-Cola Hellenic, Embassy of the United States of America as well as the local residents of North Tallinn participated in the cleaning event. Around 120 volunteers contributed to cleaning up the beach area.
- In 2012, the Company’s **“Good deed projects”** attracted a participation of over 20 employees who contributed voluntarily into the community’s development. The Company’s employees participated in the Estonian Food Bank’s food collecting campaign “Notice an empty stomach” by forwarding relevant information as well as collecting food products. The Company’s employees also participated in the charity event Rat Race supporting the children of big families at the risk of poverty through the Estonian Union of Families of Many Children. Our employees also visited kindergarten “Õunake” which is a nursery for children with special needs to bake ginger breads together with them. Traditionally, the Company used the creation of “Õunake” kindergarten children for its Christmas card design.



Flea Market 2012



Tree planting event in Ülemiste 2012



Cleaning up event “Let’s do it 2012”

- In 2012, the Company's employees were **involved in various actions** in several cases. For example, our employees visited schools and kindergartens to talk about the importance of water in the world. Numerous employees of different departments are involved in organising the Open Door Days at the treatment plants. The photos of the Company's staff are decorating the calendars of the Company for the second year in a row already. Approximately 10% of the Company's staff participates in carrying out the annual internal environmental audits. For already the fourth year in a row, voluntary project management trainings take place providing the participants with an opportunity to organise and carry out all big internal events of the Company (winter and summer days, Christmas Party), also environmental projects and projects aimed at increasing employees' awareness. The Company's new vision and strategic objectives for the years 2012-2016 were worded in the course of the strategy seminars which took place in the beginning of the year.



Education programme in kindergarten 2012



Celebrating The World Water Day 2012



Baking ginger breads in Õunakese kindergarten 2012

Our community

2012 OBJECTIVES AND TASKS

To support environmental, ecological and educational projects areas and activities according to the sponsorship principles +

To implement the Environmental Educational programme for schools +

To carry out Open-door days at Ülemiste water treatment plant and Paljassaare wastewater treatment plant +

Being Estonia's largest water company, our activity affects the quality of life of almost one third of Estonia's residents and its surrounding natural habitat. Supplying good quality drinking water to the population as well as the disposal and treatment of wastewater and stormwater, and leading it back to the nature takes lot of effort and arduous contribution of our highly professional staff.

In 2012, the Company continued to contribute to the promotion of environmental activities and raising awareness. Community and environmental projects have become part of the Company's day-to-day operations and it continues to focus on the promotion of environmentally-conscious and sustainable mindset.

CO-OPERATION AND INVOLVEMENT

Company sees its employees as the biggest asset which is why significant attention is paid to the activities connected to work environment and raising awareness of health-related issues among the staff. Also, the Company supports employees' voluntary contribution to community projects in order to make its commitment to the well-being of the community.

- In 2012, a booklet was published containing information about the more important community related actions of the Company concerning our service area. The information has been put together keeping in mind the various target groups, so that a resident in the City, child/teacher, people needing help and certainly our own employee would find interesting or necessary subjects in their work or life generally.
- Company was recognised as gold level company in corporate responsibility index in 2012. This quality award characterises the Company's management style that recognises the impact of its activities on the surrounding social and natural environment, also on its employees, customers and local residents and the Company is looking for solutions which cast an impact as positive as possible responding to the interests of various stakeholders.



CSR mark 2012



Community booklet

- The Company participated in the 2012 EMAS Awards ceremony in Brussels and was a nominee among big companies in private sector. The Company was recognised for great results in environmental area and in implementing innovative water economy solutions.
- The Company renewed its co-operation contract with the Estonian decathlete Mikk Pahapill as well as with the Sports Union of Tallinn University of Technology (TUT). The Company also continued co-operation with the Estonian Union of Sports for the Disabled supporting the swimming team in their preparation for 2012 London Paralympic Games.
- In 2012, the Company continued supporting various outdoor and sports events by providing pure drinking water. The Company offered clean and refreshing drinking water to a charity event of office people Rat Race, Stamina health run and walk event, flower festival, lake run series etc. The Company also gave its contribution to making one of the biggest cultural events in Estonia - Tallinn Black Nights Film Festival - happen.



Tallinn Black Nights Film Festival 2012

- In 2012, under the leadership of a Belgian non-profit organization LEO a campaign of collecting plastic caps was carried out all over Europe. The aim was to collect sufficiently high number of caps, take those to recycling and use the money to buy guide dogs for persons with visual deficiency. The Company's volunteers also participated in that charity project. Total of 31,000 caps, which is approximately 75.5 kg, were collected.
- Our staff responded to the call of the Union of Friends of the Zoo to collect acorns for the residents in the Zoo for winter. It was fed to the wild pigs, deers and bison helping them to build up fat to survive winter. Our volunteers collected total of 16 kg of acorns.
- In the end of the year the Company signed together with 17 other Estonian companies an agreement to form the first union of companies promoting corporate responsibility in Estonia. As a founding member the Company is willing to contribute to improve the awareness of wider public on that subject. Cooperation with policy designers, public sector, media, educational institutions and nongovernmental organisations will be an important aspect.



Members of Estonian corporate responsibility founding: Tallinna Vesi, BaltCap, Coca-Cola HBC Eesti, Eesti Energia, Põltsamaa Felix, Humana Sorteerimiskeskus, Manpower, Tanel Melk & Partners Law Firm, Riigi Kinnisvara, Saku Õlletehase, SEB Pank, Soomaa.com, Swedbank, Terve Eesti Sihtasutus, Toyota Baltic, Villapai, DHL Estonia ning Viru Keemia Grupp.

ACTIVITIES AIMED AT CITIZENS

- The Company wishes to develop an environmentally-friendly mindset and increase its consumers' awareness of the Company's activities. In addition to the investments which allow offering constantly improving services to consumers, AS Tallinna Vesi also supports a variety of water-related endeavours. Putting into practice a socially responsible action plan requires consistent work targeting to combine the existent environmental and community projects with day-to-day activities.
- Traditional Open Door Day at Paljassaare Wastewater Treatment Plant on the 26th of May 2012 brought together approximately 100 visitors who came to see the plant. There was a special children area open, where Pippi Longstocking and the Company's mascot Tilgu introduced environmental-friendly water consumption via a variety of playful activities to children.
- The Open Door Day at Ülemiste Water Treatment Plant took place on the 25th of August 2012. During the Open Door Day, the Company's employees took the visitors on excursions and introduced the operation of treatment processes to them. The Ülemiste Open Door Day coincided with the 40th running competition around Lake Ülemiste that attracted many old and young sports lovers. The run around Ülemiste is popular among Tallinn citizens, partially due to the fact that under usual circumstances the naturally picturesque territory surrounding the lake is closed to the public. The event was attended by approximately 1,300 participants, of which around 200 also came to see the water treatment processes. The children area was also open.
- The Company continued with the social campaign "Cheers to nature - drink tap water" which was started last year in order to draw attention to the very good quality of tap water and in cooperation with Tallinn restaurants and coffee shops to encourage people to drink tap water with their food.

- In 2012, the Company started an awareness campaign “Tap water = drinking water”. The campaign encourages people to drink tap water and draws people’s attention to a responsible environmental behaviour. Within the campaign, the Company installed drinking water taps in the corner of Harju and Kuninga streets, Tammsaare park and Tallinn Zoo so that people would have the opportunity to refresh themselves with tap water. It also gave people a chance to be convinced of its good quality by trying it out themselves.
- In 2012, the Company thoroughly renewed its e-service environment, where it is convenient to do anything related to billing. Now each customer has an opportunity to contribute to a sustainable use of water resource as lots of pure drinking water is used when producing paper.



Tap water campaign in 2012

CHILDREN AND EDUCATION

Water is one of the most valuable natural resources upon which the activity of all living organisms depends. AS Tallinna Vesi’s activity affects the environment as well as the quality of life of almost one third of Estonia’s population which is why the Company deems it important to give its contribution to the population’s education on nature and environment. In 2012, the Company continued cooperation on environmental education and awareness with various age groups.

- Within the environmental education programme, the Company’s specialists organize water-related discussions in kindergartens. Children are explained how natural water circulation and water treatment process work. Also, tips are given on how to save water, experiments are made, a movie is watched and water-related games are played. In 2012, the Company’s employees visited nearly 30 Tallinn kindergartens and with this activity they promoted environmental awareness among more than 2,200 children.
- In addition to visiting kindergartens, the Company’s employees participate almost every year also in school classes and in the “Back to School” programme during which they distribute relevant information and experience in various fields of business. The Company wishes to establish interest in a more environment-friendly and sustainable development among the youth thus educating future clients and consumers. In 2012 our staff visited approximately 10 basic and upper secondary schools in Tallinn by improving the environmental awareness of over 170 children.
- In April and May the Company organised information days of environmental education at Ülemiste Water Treatment Plant for the primary school teachers and teachers of natural sciences of both Estonian and Russian schools, during which the new study material on natural sciences “Blue Classroom” was introduced. Over 100 Estonian and Russian teachers from 50 educational institutions in Tallinn and Harju County participated in the introduction of a study material which supports the national curriculum. “Blue Classroom” is meant to support the new national curriculum in the natural sciences of the II stage

of study. It covers a very high proportion of water-related subjects, from the conditions and characteristics of water to pollution and protection. The Company aims at helping the teachers to bring the environmental subjects closer to children's hearts.

- An EU funded project "Business in the Nordic and Baltic Countries" was carried out in autumn 2012 in cooperation between the Company and Tallinn College of Tallinn University of Technology for the students studying economy. The treatment plant was introduced to 27 foreign students, who were given an assignment to be solved in 48 hours and they had to present it to a jury. The best papers were recognised by the Company.
- In cooperation with Junior Chamber International GO Koda and Puppet Theatre a TV play "Prügihunt ja superjanes" (*Waste Hunt and Super Rabbit*) was made in autumn 2012 aimed at teaching children through TV to act in a more environment-friendly manner and value the nature more. The puppet play talks adventurous stories about wild creatures and their fight against trash. Among other things the play is about tap water and saving water as well as invites children to visit and learn about the water treatment plant of our capital city.
- On the occasion of the World Water Day on 22nd March, the Company co-operated with the children of Ristiku Basic School. In the class our specialists talked about "hidden water" through which they drew the youngsters' attention to their eating habits – how much water is used when laying a table etc. The drawings of the children studying in Ristiku Basic School on the World Water Day could also be seen in the same week in the canteen of the Company.
- Besides our main assignments - production of drinking water and treatment of wastewater - the Company's plants also fulfil an important role in raising the awareness of people. Excursions at Ülemiste water treatment plant as well as in Paljassaare wastewater treatment plant continue to be carried out in order to introduce the treatment processes as well as the lab work to those who are interested. In 2012, the Company's plants were visited by altogether approx. 2300 people from schools as well as from other companies.



Study material "Blue classroom"



Ülemiste lake running



Open Door Day in WTP

EMAS verification

DNV Certification Oy/Ab has an accredited verifier (FI-V-0002) examined the environmental management system and the information given in the 2012 environmental report of Tallinna Vesi. It has been verified on 24th of April 2013 that both the environmental management system and the environmental report fulfill the requirements of EU Council Regulation 1221/2009 of Eco Management and Audit Scheme EMAS. The environmental report is available on the website at www.tallinnavesi.ee. Next report will be published before the end of August 2014.

