



Pražské vodovody  
a kanalizace



**PVK in 2015**

Pražské vodovody a kanalizace, a.s.

by  **VEOLIA**

# PVK in 2015

## Pražské vodovody a kanalizace, a.s.

### Snapshot

**COMPANY NAME:**

Pražské vodovody a kanalizace, a.s.

**INCORPORATED:**

1 April 1998

**BACKGROUND:**

Pražské vodovody a kanalizace, a public limited company, is the legal successor to the state-owned enterprises Pražské vodárny and Pražská kanalizace a vodní toky to the extent indicated in the privatisation project.

**LEGAL FORM:**

Public limited company (akciová společnost)

**COMPANY NUMBER:**

25656635

**SHARE CAPITAL:**

CZK 483,288,000

**SHAREHOLDER:**

VEOLIA CENTRAL & EASTERN EUROPE S.A. 100%

**REGISTERED OFFICE:**

Pařížská 11, Praha 1

New registered office since 1 January 2016:

Ke Kablu 971/1, Hostivař, 102 00 Praha 10

The Company has no organisational units outside the Czech Republic.

# **Company bodies as at 31 December 2015**

## **BOARD OF DIRECTORS**

**Philippe Guitard** – Chairman  
**Rostislav Čáp** – Vice-Chairman  
**Etienne Petit**  
**Eva Kučerová**  
**Milan Kuchař**  
**Petr Mrkos**  
**Martin Bernard**

## **SUPERVISORY BOARD**

**Květoslava Kořínková** – Chairwoman  
**Ivo Sušický** – Vice-Chairman  
**Marcela Dvořáková**  
**Josef Šverma**  
**Alena Březinová**  
**Marek Dřevo**

## **EXECUTIVE MANAGEMENT**

**Petr Mrkos** – CEO  
**Petr Slezák** – Deputy CEO, Chief Personnel Officer  
**Pavel Novotný** – CFO and Sales Director  
**Petr Kocourek** – Chief Operating Officer  
**Radka Hušková** – Chief Technology Officer  
**Marcela Dvořáková** – Chief Communications and Marketing Officer

## Key figures

Revenue: CZK **6.24** billion

Profit: CZK **532** million

Number of persons supplied: **1.26** million in Prague and **190,000** in the Central Bohemian Region

Number of employees: **967**

Water supplied to the water supply network: **96,756,000** m<sup>3</sup>

Total wastewater treated: **113,852,000** m<sup>3</sup>

Length of the water supply network operated, including supply pipes: **4,324** km

Length of the sewerage network operated, including drainage pipes: **4,623** km

Number of contract customers: **89,168**

## Highlights of 2015

### **Sachet drinking water as an alternative water supply**

One of 2015's flagship projects was a new service for the people of Prague – drinking water in sachets as an alternative means of supply, aimed at improving water distribution during emergency and planned water outages. Arrangements are in place for the Czech Red Cross to assist in the supply of this sachet water, which is intended first and foremost for the disabled, medical and social facilities, schools, nurseries, and rest homes, and is also deployed in large-scale emergencies.

### **Further progress with SWiM**

The SWiM (Smart Water integrated Management) Project, a central integrated system for water infrastructure management and administration that was launched in 2014 to integrate ten areas of water management, was expanded to include a raft of new features, including a system to monitor permanent supply points, run drinking water quality checks, and provide mobile chlorination in the water supply network. Hydraulic models were also integrated. During the year, the project's specialist centre was visited by numerous VIPs from the Czech Republic and abroad who came to learn about the entire system of water infrastructure management and operation.

### **Biodiversity project helps endangered species**

In the spring, a project in support of biodiversity was launched at the Company's complex in Flora which set out to return nature, in part, to those places from which it had been ousted by humans. The areas over the underground water reservoirs were adapted – with the help of the Czech Union for Nature Conservation – to increase the diversity of wild species of fauna and flora. The various areas comprise types of vegetation different, in their characteristics, from the flowery meadow above the reservoirs. A pond with wetlands, a bed of herbs, insect hotels, nesting boxes for swifts and bats, a flowery meadow and a beetle bank have been installed here. Prague's residents can come along and learn about the project on the information boards dotted alongside the pathway.

### **All workplaces inspected during Occupational Safety Week**

In September, an international occupational safety week, underpinned by the motto "Working together, safely", was held with a view to driving down accidents at work to a minimum and eliminating fatalities altogether. Senior employees made sure that operating procedures were being adhered to in the workplace and took an online OSH course. Selected members of staff attended a course on basic hygiene, and all employees had the "Safety first, always" rules explained thoroughly to them on a course. Brochures on occupational safety, homing in on relevant types of work, were dispatched to all workplaces.

### **New methods for the microbiological analysis of drinking water**

The critical situation confronting us in the Dejvice district of Prague persuaded us to trial new methods for the microbiological analysis of drinking water that would enable us to spot the microbiological contamination of such water more quickly than we are able with existing accredited methods. Our earnest research and testing throughout the year bore fruit. Two of the several methods we trialled turned out to be very encouraging. Testing has advanced to the production stage, with both methods undergoing assessment parallel to accredited methods of drinking water analysis in normal operating conditions. As a result, the response time to the microbiological contamination of drinking water has been shortened dramatically.

## **Water infrastructure safety**

The global security situation and the Paris terrorist attacks have again impressed on us the need to rigorously protect critical elements of the water infrastructure. The incidents in the French capital necessitated greater vigilance. A cavalcade of preventive measures was put into action to ramp up the protection of drinking water. A major step forward in this area has been the opportunity to hook our central control room up to the central camera system maintained by the City of Prague.

## PVK's core business

The core business pursued by Pražské vodovody a kanalizace, a.s. (PVK) is the reliable **supply of decent drinking water and the drainage, collection and treatment of wastewater**. The Company also offers numerous other services that are linked to its core business and expand the range of customer services, including online information about water consumption and incidents, the pinpointing of any hidden glitches, official water measurements, sewerage network surveys, laboratory testing and a slew of further services for individuals, housing cooperatives, municipalities and industry.

In its operations, PVK – as a member of the Veolia Group – heeds the fundamental values of customer focus, responsibility, solidarity, respect and innovation. The Company maintains sound supplier, shareholder and customer relations. It delivers an all-embracing water service to customers and has taken it upon itself to provide premium customer services. Every year, it comes up with innovations to improve the services available. In 2015, for example, it introduced sachet drinking water as an alternative means of supplying water.

For the past 10 years, PVK has held a gold certificate for its integrated management system, encompassing quality, safety and environmental services. One new development in the realm of certification is ČSN EN ISO 50001, a standard that sets out to improve the energy performance of the technology and buildings in operation efficiently and economically. A certification audit to examine compliance with the requirements of ČSN EN ISO 50001 was launched at the Company in November 2015.

PVK, much like other Veolia Group companies, observes a code of ethics, a code of conduct for managers, an environmental code and an OSH code.

## DRINKING WATER SUPPLY AND DISTRIBUTION

PVK supplies drinking water to **1.26** million Prague residents and another **190,000** inhabitants of the Central Bohemian Region. PVK operates the water infrastructure in Prague and in the town of Radonice, where it is responsible for **4,324** km of water supply network, including supply pipes, **51** pumping stations, **68** water reservoirs and **110,659** water meters.

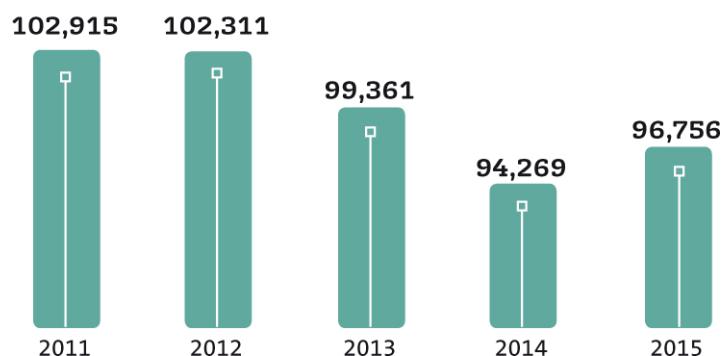
PVK operates water treatment plants in Podolí and Káraný. Besides producing its own water, the Company buys in water from the Želivka water treatment plant (operated by Želivská provozní, s.r.o.) and the Sojovice water treatment plant (operated by Vodárna Káraný, a.s.). The Podolí water treatment plant is a back-up facility in case of emergency and did not produce any of the water supplied to consumers in 2015.

### Water supplied to the water distribution network in 2015

	Indicator	Quantity [m <sup>3</sup> ]
Drinking water	Drinking water produced by PVK	18,605,259
	Water bought in from the Želivka and Sojovice plants	89,798,446
	<b>Total drinking water</b>	<b>108,403,705</b>
	Water transferred (drinking water supplied into the water supply network, for public use, to a person other than the direct customer)	<b>12,674,349</b>
Industrial water	Water produced – industrial water mains	1,026,758
Drinking + industrial	Drinking water and industrial water	109,430,463
	<b>Water for sale supplied to network</b>	<b>96,756,114</b>

In 2015, PVK delivered **96,756,000 m<sup>3</sup>** of water to the water supply network, **2.6%** less than in 2014. The quantity of water billed also rose, climbing by **1.7%** to **1,315 m<sup>3</sup>**. Average per capita water consumption was **106 litres** per day.

Water delivered to the Prague water supply network  
between 2011 and 2015 (in thousands of m<sup>3</sup>)

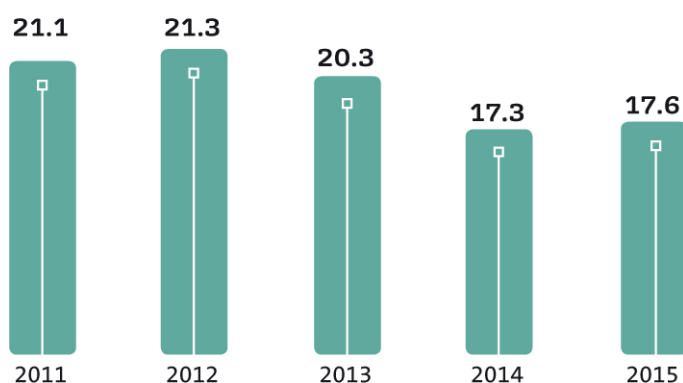


### Water losses

In 2015, the water loss rate was maintained at a level of **17.6%**. These modest losses can be put down to the mild winter, continuous water supply network monitoring, including running evaluations of water losses in supply zones, and regular water system diagnostics.

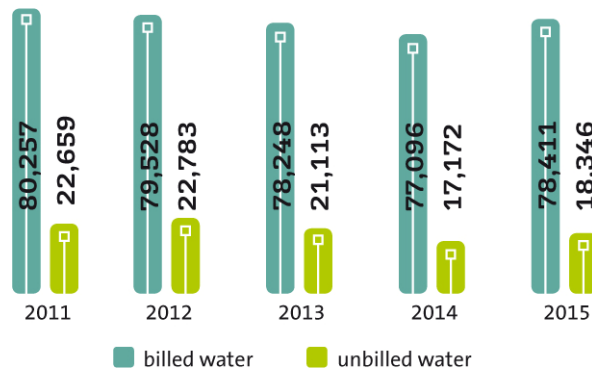
In 2015, employees conducted preventive checks on **2,742 km** of the water supply network, detecting **327** hidden water leaks in the process.

Water losses between 2011 and 2015 (%)





Water billed and unbilled between  
2011 and 2015 (in thousands of m<sup>3</sup>)



Length of water supply network	3,527
Length of supply pipes	797
Number of supply pipes	112,156
Number of water meters	110,659
Number of reservoirs	68
Volume of reservoirs	746,404 m <sup>3</sup>
Number of pumping stations	51

## Water meters

Drinking water consumption was being measured by **110,659** water meters (110,372 in Prague and 287 in Radonice) at the end of 2015.

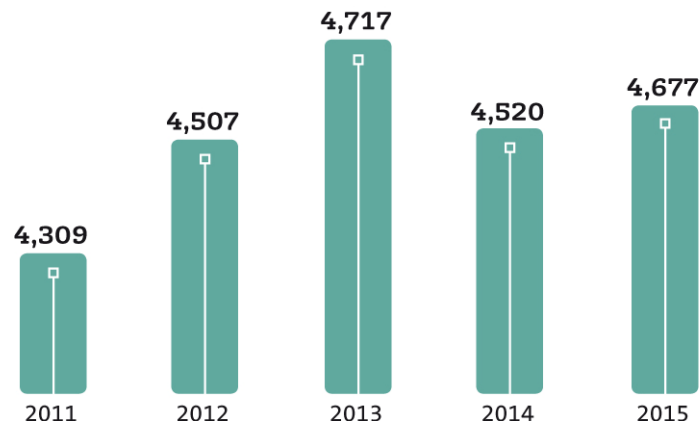
Walk-by meter reading is in place for **3,857** water meters. This system, simplifying meter reading in dangerous shafts and at selected large producers, is applied wherever there is an unreasonable risk of damage to employee health.

There are **1,218** water meters installed for billing purposes where remote readings are made via a PVK web application using fixed telephone lines. Meter readings are radio-transmitted to a concentrator, from where all data are transmitted directly to end users via the internet. Readings are taken online and the data are stored on a server and immediately presented on the site accessible at [www.cem2.unimonitor.eu](http://www.cem2.unimonitor.eu).

Remote radio-transmitted readings offer greater user convenience and lower costs per reading, as well as the possibility of monitoring water consumption online and promptly detecting malfunctioning meters. They also guarantee accuracy. In its remote readings, PVK works with Pražská teplotárenská a.s., Pražská plynárenská, a.s. and PReměření, a.s.

In 2015, **20,309** water meters were replaced by the Company's employees, mostly because their certification had expired. The repair and certification of 9,763 water meters, 1,211 customer-requested official water meter tests and 42 on-the-spot official tests were outsourced to an external supplier.

Number of water supply network incidents repaired  
between 2011 and 2015

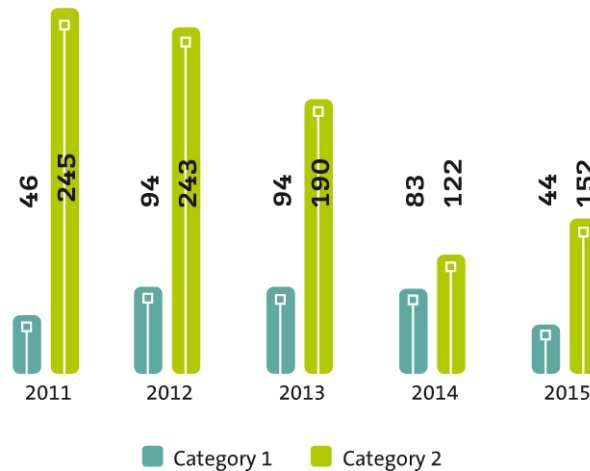


### Water supply network incidents

In 2015, PVK handled **4,677** water supply network incidents, up by 157 incidents, or **3.5%**, on 2014. Of these, 44 were category 1 incidents (39 incidents – equating to 47% – fewer than in 2014). These are incidents where more than 1,000 inhabitants or important strategic facilities are left without a water supply. In contrast, the numbers of category 2 and category 3 incidents (by 30 and 166 incidents, respectively) went up.

The leading cause of the incidents was corrosion (70%), followed by land movement (24%) triggered, for example, by frost. It is Company policy to provide maximum information on each incident while minimising the impact on the consumer. Incidents are reported online on the PVK website. This information clarifies whether drinking water supplies are affected at a particular site, where water wagons have been deployed to provide emergency supply, and the estimated time it will take to complete the repair and restore normal water supply. All this information is also available via Google Maps.

Category I and II incidents between 2011 and 2015



## WASTEWATER COLLECTION AND TREATMENT

Total length of the sewerage network	3,647
Length of drainage pipes	976
Number of drainage pipes	119,719
Number of pumping stations	313
Number of wastewater treatment facilities	20 branch WWTPs + central WWTP

In 2015, **1.24** million people were connected to the sewerage network in Prague.

Its overall length, including drainage pipes, was **4,623** km. The central part of the city has a combined sewerage system in place to drain sewage together with rainwater to the Central Wastewater Treatment Plant (CWWTP). The outskirts of Prague are served by separate sewer networks that divert rainwater separately.

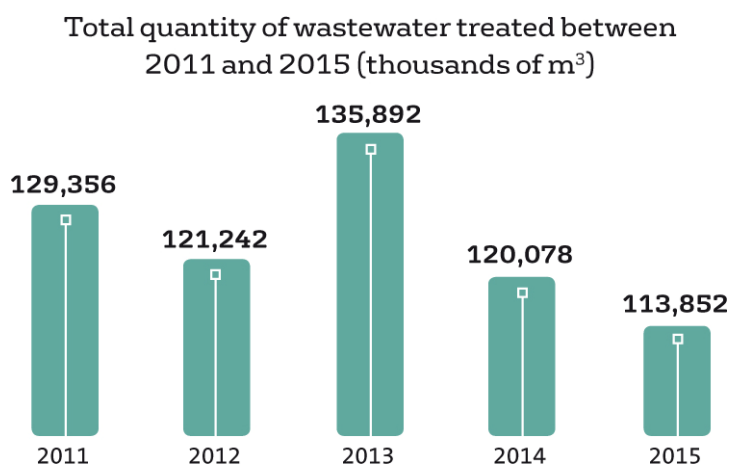
In 2015, PVK also operated 20 branch wastewater treatment plants (BWWTPs) in addition to the CWWTP: in Březiněves, Horní Počernice – Čertousy, Dolní Chabry, Holyně, Kbely, Koloděje, Kolovraty, Klánovice, Královice, Lochkov, Miškovice, Nebušice, Nedvězí, Sobín, Svěpravice, Uhřetěves – Dubeč, Újezd nad Lesy, Újezd u Průhonic, Vínohrad and Zbraslav.

In 2015, in view of the amounts of wastewater flowing in, the CWWTP was the driest it has ever been since being put into service 50 years ago. The wastewater was condensed by the fact that precipitation was so low.

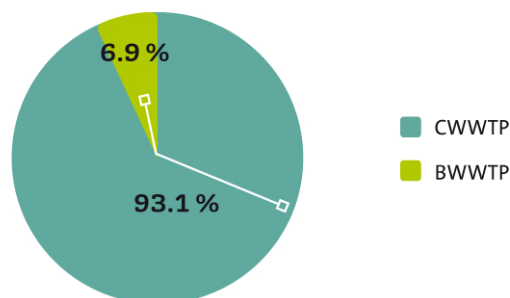
During the year, inflow was repeatedly saddled with highly contaminated wastewater discharged illegally into the sewerage system in the basin where the plant is situated. Nevertheless, the CWWTP reported sterling results and the parameters of the water treated here met all statutory indicators.

### Quantity of wastewater treated in 2015 (m<sup>3</sup>)

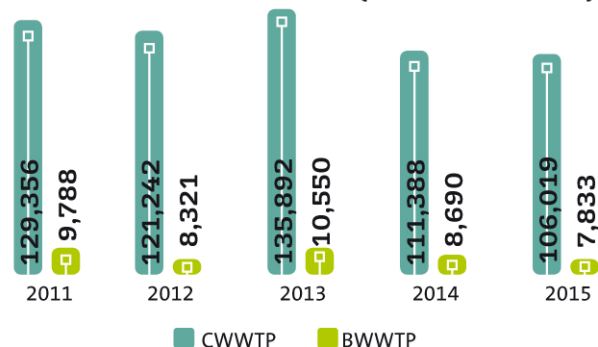
	m <sup>3</sup>
<b>CWWTP</b>	106,019,285
<b>BWWTPs</b>	7,833,187
<b>TOTAL</b>	113,852,472



### Share of wastewater treatment in 2015



### Quantity of wastewater treated at the CWWTP and BWWTPs between 2011 and 2015 (thousands of m<sup>3</sup>)



### Incidents in the sewerage network

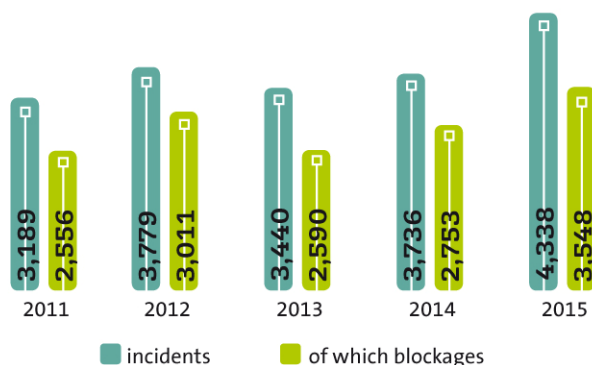
There were **4,338** sewerage network incidents in 2015, up by 602 incidents, or **16.1%**, on the previous year. The lion's share of incidents involved drainage pipes.

The most common sewerage network incident, in terms of the type of damage, is blockage, accounting for **81.8%**, or **3,548**, of the incidents. The hike in the number of properties was a significant contributory factor to the overall rise in the number of sewerage network incidents. Other causes included missing manhole covers, damaged surfaces, and occasionally destruction, damaged masonry and cracks.

### Number of sewerage network incidents by type of facility in 2015

Type of facility	Number of incidents	%
Sewers	1,224	28.2
Drainage pipes	1,822	42.0
Shafts, chambers, reservoirs, spillways	627	14.5
Other	665	15.3
<b>Total</b>	<b>4,338</b>	<b>100.0</b>

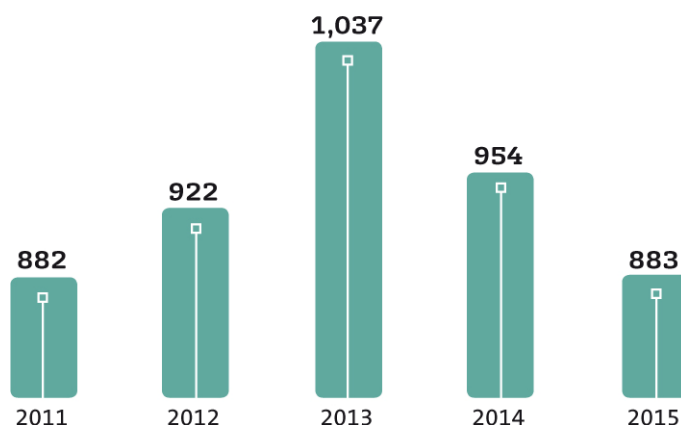
Sewerage network incidents between 2011 and 2015,  
showing the share of blockages



## Equipment breakdowns

PVK tackled **883** equipment breakdowns in 2015, **7.4%** less than in the preceding year.

Number of equipment breakdowns  
between 2011 and 2015



## Sewerage network surveys

PVK periodically conducts preventive surveys of the sewerage network. In 2015, Company employees surveyed **145** km of sewers and inspected **2,485** access shafts and other installations in the sewerage network. They detected 32 defects in the sewerage system during their inspections. To repair the defects detected in the sewer system, they drew up 119 defect repair proposals and submitted them for inclusion in the repair and investment plan.

Sewerage network surveys continued to include inspections of sewers at risk of high-velocity water drainage. Sewerage network surveys were also carried out when tramlines or road services were being repaired, to check whether foul water was draining into surface water sewers and to reduce the ballast water loads on wastewater treatment plants and pumping stations. On the outskirts of Prague, 6 km of sewer system were smoke-tested. New equipment has made it possible to video flow-through sewers using television inspection systems.

## Water quality

PVK's accredited laboratories carry out regular checks on drinking water and wastewater quality. The accreditation covers the entire range of the laboratories' activities: sampling and analysis of drinking, hot, bottled, surface, raw, ground and waste water, water from intermediary process stages (inter-stage water) and sludge, and bathing water, including waste sampling and analyses of process chemicals used in water treatment and purification.

### Drinking water

Prague's drinking water, in its physical, chemical, microbiological and biological properties, complies fully with Czech and European standards. Laboratories check drinking water quality throughout production and distribution, all the way to the consumer's tap.

Drinking water quality is regularly monitored in accordance with Implementing Decree No 252/2004 laying down requirements for drinking and hot water and the scope and frequency of drinking water checks, as amended. EU drinking water requirements are satisfied in this respect. Water quality control also comes into play after water supply network accidents, repairs and other similar works. Under the amended Implementing Decree No 252/2004, non-relevant metabolites of the chloridazon pesticide – desphenyl-chloridazon and chloridazon-methyl-desphenyl – are regularly tracked in the course of water quality monitoring. Other pesticides and their metabolites are also screened to confirm that drinking water is free of extraneous matter.

In 2015, PVK employees took **5,190** drinking water samples. They took 357 samples for post-accident water quality control. In those samples, they determined 9,296 parameters, 99.3% of which complied with the Implementing Decree's drinking water requirements. Scheduled repairs were followed by the taking of 327 samples. In those samples, 8,139 parameters were determined, 99% of which were found to be compliant.

Regular checks are also run on the quality of drinking water exiting the water treatment plants that supply drinking water to the Prague distribution system. The Podolí water treatment plant did not supply any drinking water to consumers in 2015, and analyses only took place as part of its trial operation.

One innovation in drinking water sampling has been "Mobile Sampling", introduced as part of the SWiM project. All sampling records are maintained electronically using a tablet-accessible mobile application. This has streamlined the process of taking samples and delivering them to the laboratory.

### Wastewater

The PVK laboratory regularly monitors wastewater quality throughout the wastewater treatment process. Employees analyse wastewater samples taken from the CWWTP and its process equipment, including sludge and sludge gas, and wastewater from BWWTPs, industrial producers, the sewerage network, and the discharge points operated by PVK. They also check liquid waste delivered to the CWWTP and BWWTPs by outside entities. The scope and frequency of monitoring complies with applicable wastewater legislation. The main reason for wastewater quality monitoring is to ensure compliance with the prescribed discharge limits, with a view to preventing the discharge of contaminated wastewater/effluents and damage to the environment.

In 2015, PVK's laboratories paid particular attention to sewerage network monitoring and checks of compliance with the limit values set out in the Sewerage Operating Rules, mainly in terms of the load and influx of pollutants making their way through the sewerage network to the CWWTP, so that plant operability would not be compromised and the wastewater treatment process would not be impaired. In 2014, this approach had a positive impact on the levels of heavy metals measured in the sludge produced by the CWWTP, in that the limits established for sludge use on farmland were not exceeded.

In 2015, chargeable concentration limits at the Prague CWWTP were not exceeded in any of the indicators. The wastewater laboratories processed **15,097** samples with **101,759** parameters, of which – in relation to the CWWTP – 10,178 were samples of wastewater, sludge, liquid effluent and sludge gas.

## External services

### Cooperation with ČEZ

Having defended its key-partner status in the maintenance and repair of water and sludge management facilities during a tendering process held in 2014, PVK's main objective for 2015 was to build on fruitful cooperation dating back to 2011 and to continue providing water facility care services as a reliable and strategic partner.

In 2015, the power station portfolio included the Ledvice, Mělník and Počeradý (coal-fired and combined-cycle units), Tušimice, Dětmárovice and Prunéřov sites.

In 2015, the contract was worth an aggregate of CZK 44 million (including repairs beyond the scope of routine maintenance). Besides day-to-day servicing, major works encompassed the reconstruction of the HCl storage tank (at Ledvice Power Station, for CZK 1.2 million) and the repair of a demineralisation line by renewing its anti-corrosion protection (at Počeradý Power Station, for CZK 3.2 million).

Under this project, PVK has continued its key partnership with Česká voda - Czech Water, a.s., which maintains and repairs water and sludge management facilities.

### Official water flow measurements

The main services on offer in the realm of urbanised catchment hydrology and hydraulics include official measurements and assessments of the serviceability of water flow measurement systems. Other services comprise the measurement of hydraulic variables in the sewerage and water supply networks, precipitation measurements and mathematical modelling in order to draw up documentation such as general drainage plans, general water supply plans, and rainfall-runoff studies, the measurement of hydraulic variables on the hydraulic paths at wastewater treatment and purification plants and pumping stations, and the mapping of facilities and assessments of their hydraulic functions.

Measurements of hydraulic and hydrological variables were made in relation to numerous projects in 2015:

update of the general drainage plan of Klatovy, Frýdlant nad Ostravicí – general sewer plan, sewer monitoring for a sewer reconstruction and completion project in Brno – 2015, City of Prague general drainage plan, second detailed stage covering the cadastral communities of Stodůlky, Jinonice and Třebonice, general drainage plan – Stodůlky: supplementation of topographical data on the network, arrangements for the emergency precipitation monitoring of the Vinohradská and Mlýnská sites, measurements of hydraulic variables in the sewerage network in the Praha – Suchdol catchment, etc.

### Cooperation in remote readings

PVK's metrology-related services include the repair and verification of prescribed metering instruments, and the design and delivery of devices for remote readings of billing/subsidiary meters. In 2015, the projects implemented included remote readings of billing water meters for Sokolov, Cheb and Mariánské Lázně, as well as remote readings of secondary water meters for the Prague site of PVS, a.s., etc.

### Technological supervision

During 2015, wastewater engineers were responsible for supervising 20 branch wastewater treatment plants operated by PVK, as well as 35 plants run by 1. SČV a.s. and a further three external trial operations. They also put their experience to good use at industrial partners by providing technological advice for a wastewater treatment plant operated by the LE-CO meatpacking plant and at a fish farm. Technological supervision of the floating wastewater treatment plant at the site of a meatpacking plant

in Příbram meant that the water quality required at the outlet was successfully achieved and maintained.

As for drinking water technology, engineers contributed to the performance and evaluation of model GAC (granular activated carbon) testing at the Želivka water treatment plant. During those tests, they verified efficiency in the sorption of pesticides and metabolites thereof on GAC after ozonisation, and assessed water biostability in the treatment and transportation of water to the Prague distribution network.

### Testing of flood control pumps

In periodical tests at pumping points with fixed pumps, PVK successfully tested the connection of a backup power supply to a mobile genset. One test, held on October 2015, concerned the pumping point at the outflow from the OK1B section in Za elektrárnou Street. The backup power supply was a mobile genset from the pumping point at the Zlíchov rainwater sedimentation tank. The test simulated the surface on an engine or electricity generator. If there is a malfunction, two gensets are interconnected with power cables so that the immersible pumps can be brought back under control by means of frequency inverters on the unit that is malfunctioning.

### Smoke testing of sewers

Preparations for the provision of comprehensive water supply and wastewater services in the complex of the Třeboradice CHP Plant included a smoke test of the complex's sewers, with a particular focus on rainwater inflow into the separate sanitary sewer. This survey detected that six street drains had been connected directly to the separate sanitary sewer. All of these sources of rainwater flowing into the complex's sewers have been removed. This has slashed operating costs and considerably reduced the chances of an emergency situation in these sewers.

### Laboratory services

The PVK laboratories are responsible for taking and analysing samples for external customers on the basis of a contract or purchase order. In 2015, the laboratories carried out 13,429 drinking water and 960 wastewater analyses.

#### External samples

	Želivská provozní, a.s	Vodárna Káraný, a.s.	Veolia	Other	Total
Drinking water	7,237	1,764	2,288	2,140	13,429
Wastewater	324	34	253	349	960
CWWTP total	7561	1,798	2,541	2,489	14,389

### Pest control

In their sweeping rodent control in the Prague sewerage network, PVK employees used a total of 13,430 kg of rodent control bait at 13,437 sewer entry points. Besides this blanket approach, disinfection was carried out at 79 facilities and disinsectisation at 36 structures for external customers.



## CUSTOMERS

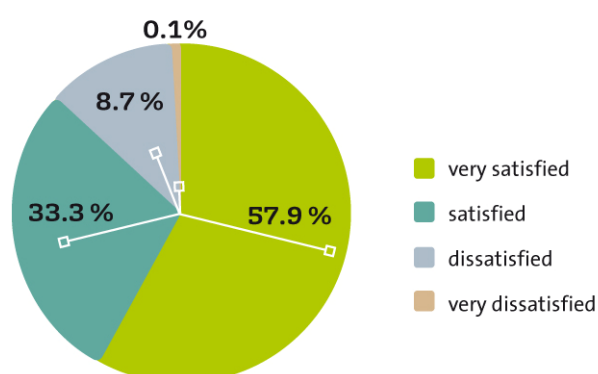
Our business relations with customers are built on a strategy of maintaining long-term partnerships. We strive to be a steadfast, staunch and trustworthy partner listening to customers' needs and requirements and meeting their expectations on the ground.

It is here that PVK capitalises on the wealth of know-how it has accrued over many years' operation on the market in the Czech Republic. The Company's unflagging innovation sets it apart from the competition and yields efficient new solutions for partners. It harnesses all channels of communication in its efforts to keep customers and all consumers fully abreast of the situation in water supply and waste water drainage.

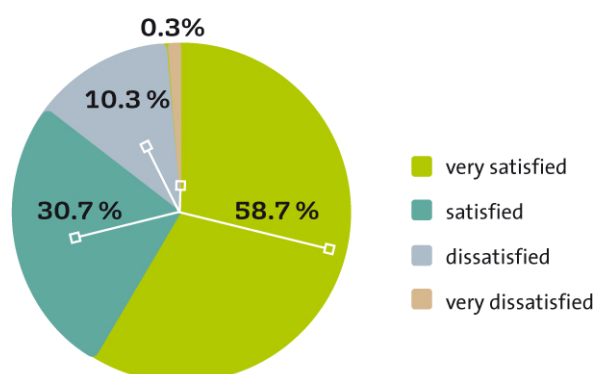
Since 2003, our customer services have been certified under the international standard ČSN EN ISO 9001:2001. PVK again retained this certification in the 2015 annual re-audit, testifying to its highly professional, utmost-possible customer care.

In September and October 2015, the Company ran its traditional satisfaction survey. The poll was conducted for PVK over the phone by IBRS - International Business and Research Services s.r.o., the independent research agency. More than 91% of respondents said they were happy with the services offered by PVK. Over 95% of respondents are satisfied with the professionalism of the Company's frontline employees. Some 96% of respondents are happy with the continuity of drinking water supply. The research involved the participation of 700 customers from Prague, comprising a mix of single-family building owners, multi-family building managers, housing cooperatives, industrial customers and corporates.

How satisfied are you in general with the level of services provided by your drinking water supplier?



How satisfied are you with the drinking water quality?



## Contract customers and invoicing

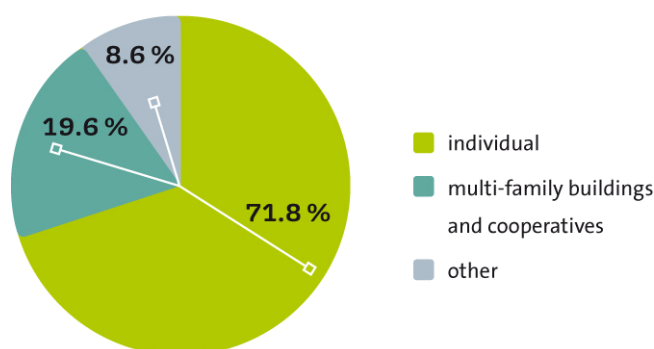
PVK provides services to **89,169** customers (a rise on the 88,254 reported in 2014, fuelled by higher numbers of customers in the category of housing cooperatives and multi-family buildings). PVK supplies these customers with drinking water and drains and treats their wastewater on the basis of a contract. Contract customers include individual customers (63,943), multi-family buildings and cooperatives (17,494) and corporates ("other" – 7,732). As certain customers may have more than one contract in place, PVK recorded 112,902 customer contracts at the end of 2015.

In 2015, PVK issued **131,513** bills. More than 19,000 customers took up the offer to have their bills emailed to them. At the end of the year a new service was rolled out for these customers – online payments, enabling them to use their VISA or MasterCard or, alternatively, a payment button, i.e. a link to internet banking with a pre-filled order. Contract customers who opt for the payment button simply select the bank where they have their online account. Since January 2016, the following financial institutions have been involved in this project: Česká spořitelna, a.s., Komerční banka, a.s., Raiffeisen Bank, a.s., mBank S.A., Era and Československá obchodní banka, a.s.

Customers were also able to pay their bills via the terminals of SAZKA, a.s. Customers find the barcode on the bill, and the terminal can read the payment information contained in the code and issue a receipt confirming the customer's cash payment. The broad terminal network (at newsagents, petrol stations, convenience stores, etc.) and extended opening hours allow customers to pay their bill as it suits them. Customers are charged a uniform CZK 15 for this service regardless of the amount paid. In 2015, **18,225** customers used Sazka terminals to pay water and sewage bills aggregating CZK **52.63** million.

Since 2013, another avenue open to customers has been QR-based mobile payments. This involves a special QR payment code for banking applications on smartphones, printed by PVK on its billing documents. Customers install their bank's app to simply read the information contained in the QR code shown on the bill. The payment order in the banking app is then automatically filled in with the correct data. All the customer has to do is confirm the payment. This way, customers avoid the errors that could crop up were they to fill in their bank's payment order manually. Even customers who do not own a smartphone with a banking application can use the QR code. This option is available with Česká spořitelna. Customers holding an account at Česká spořitelna can pay using the QR code at any of the bank's payment terminals. In 2015, customers paid for more than CZK **6.3** million of services using a QR code.

Customer structure



## Contact centres

### Call centre

In 2015, the PVK customer service line fielded **95,674** calls, 15,921 more than in 2014. The service level climbed to **93.86%** (2014: 85%). Enquiries tended to centre on drinking water supply, rising from 29,322 the year before to 34,544. Billing and claims were the subject of 15,694 enquiries and involved 12,646 contracts. Customer service line operators also respond to customers' emails. In 2015, they processed 37,625 customer emails and 5,932 active forms. Besides handling customers' calls and

emails, operators also help to promote service provision, register customers for the SMS INFO service, and offer email billing, the activation of online customer accounts, the Moje voda mobile application and other services.

The PVK contact centre's organisation is in the hands of Solutions and Services, a.s. (the provider of ICT services within the Veolia Group). In addition to its contact centre management, Solutions and Services, a.s. has also taken over the reins of billing and debt recovery.

	2014	2015
Number of calls	79,753	95,674
Service level	84.6 %	93.8 %
Number of calls on drinking water supply	29,322	34,544
Number of customer emails handled	30,244	37,625

### Customer service centre

The customer service centre in Dykova Street, in Prague's Vinohrady district, had **26,786** visitors in 2015, over a thousand more than in the year before. Customers mainly came here to discuss their contractual relations or to pay for their water and sewage bills. In 2015, **15,304** new contracts were made at the centre.

At the customer service centre, customers can pay for water and sewage bills and for water analyses, hydrants, etc., over the counter. More than CZK **39** million was paid in this way. At the centre, visitors were able to sort out everything to do with their contractual relations and tackle all of their technical requirements, including technical documentation.

### Modern customer services

#### New service for contract customers – Home assistance and refunds in case of water leaks

At the end of 2015, PVK devised emergency insurance for its contract customers covering water leaks beyond the water meter. This free service has been available to customers since January 2016.

The assistance service is on hand round the clock, 365 days a year. Assistance service technicians respond to emergency situations at customers, where they carry out two hours' professional work. Customers paid nothing for the callout or essential works. A PVK customer is entitled to make use of three such assistance services per supply point free of charge every year.

Customers can reach the assistance service at 212 812 212. Assistance services also include refunds of water leaks. This is partial compensation for any outlay on water supply caused by a water leak stemming from a demonstrable emergency, provided that the customer's share of the water leak is 10 m<sup>3</sup>, which is the minimum limit for refunds; the maximum water leak refund limit is CZK 15,000 per supply point per year. PVK's partner in this project is UNITED ASSISTANCE, the reputable assistance service provider.

#### Moje voda mobile app

In 2013, as part of its aspiration to offer customers advanced technology, PVK launched two Moje voda mobile applications, intended for the owners of iOS and Android smartphones. One is Moje voda<sup>Plus</sup>, giving customers non-stop secure access to their electronic customer account. The other application, Moje voda, is intended for the general public and offers, among other services, topical information on water supply shutdowns and current incidents directly on maps, showing the estimated water supply resumption time. To date, more than 7,300 users have downloaded the mobile apps.

## SMS INFO

A full **30% (25,200)** of PVK customers have signed up for the SMS INFO service to receive important text messages about emergencies, shutdowns, the estimated downtime, etc., free of charge. Since the service was launched, **832,000** text messages have been sent to customer phones.

In 2015, PVK received and handled **391** complaints; only 24.8% of them (97) were found to be justified. There were 734 claims, of which 30.5% (224) were upheld.

Number of contract customers	89,168
Number of contracts	112,902
Number of people registered for SMS INFO	25,200
Number of SMS INFO text messages sent	832,000
Number of justified complaints and claims	321

## Services beyond the water meter

The “Services Above and Beyond the Water Meter” project, which first saw the light of day in 2011, continued in 2015. PVK offers to build, reconstruct and repair supply and drainage pipes used by domestic distribution systems. Under the scheme, there were **1,857** applications, resulting in **1,787** repairs.

## Website

The PVK website ([www.pvk.cz](http://www.pvk.cz)) has emerged as one of the Company’s main information channels. On average, it attracts more than 49,000 visitors per month. The website has been optimised for the whole gamut of devices (mobiles, notebooks, tablets, etc.), enabling customers to find the information they need anywhere, any time. News on incidents and water supply shutdowns generates some of the highest traffic. The people of Prague can find all relevant information about water supply shutdowns online here. In the “water incident” section, they can find out about the incident site, the implications for water supply, the availability of substitute water sources and the estimated repair completion time. All of this – along with shutdowns scheduled for the near future – is also shown on Google Maps. This is the go-to place for Prague residents who need to know exactly where they can find emergency drinking water supplies. Another subject that is frequently looked up is the quality of water supply. In addition to complete monthly summaries of all water quality parameters, PVK’s website offers overviews of certain indicators in supply zones – visitors can find their street on the map to learn about the local water hardness, the iron, nitrate and chlorine content in the water, and the water pH.

Customers will also find a “personal customer account” on the website, giving them continuous access to information and control over their expenses. Consequently, they can keep tabs on their property’s water consumption, bills and water meter readings, and can also notify changes in their contract details, the amount of advance payments, their own meter readings, etc. The website even serves as a booking station for customers to make appointments at the customer service centre to discuss contractual and technical matters. In 2015, 216 customers made use of this service.

## PVK service promotion

In 2015, PVK published a raft of new informational materials and brochures for customers and the general public, including Sachet Water (*Dodávka vody v náhradním balení*), Water Supply and Wastewater System Incidents (*Havárie vodovodů a kanalizací*), and Unsafe Drinking Water (*Hygienické závady pitné vody*). In late 2015, the Voda pro Vás (*Water for You*) customer magazine was published (450,000 copies) and distributed together with all the major daily newspapers. It was accompanied by a desk calendar. PR and advertising campaigns on the radio, in the printed media and on news websites also helped to promote PVK’s services.

### **Packaged water takes to the streets**

In the second half of 2015, PVK launched a pilot project for the substitute supply of drinking water in two-litre sachets in collaboration with the Praha 6 Borough and the Czech Red Cross. The original idea was to supplement emergency water-cart supply by delivering drinking water to the addresses communicated by registered disabled persons at a time when the city's water supply network was down and it was forecast that the drinking water supply would not be resumed for at least five hours. Over time, this packaged water was made available directly on the streets during everyday incidents as a means of supplementing the supply provided by water carts and wagons. Water can be collected from the boxes set up for this purpose.

A packaging line has been installed at the Káraný water treatment plant. The entire process of packaging water in sachets, including the plastic film used, is consistent with Act No 258/2000 on the protection of public health and related regulations. The requisite details on the quality of the drinking water, including the use-by date, can be found on the sachet. The quality of the water in sachets is checked on an ongoing basis by an accredited laboratory.

The packaging line, offering capacity of eight sachets per minute, is mobile, energy-independent and hence can be transferred in a steel container to the point of a quality source of drinking water.

### **SWiM improves efficiency**

In 2015, work continued on the SWiM (Smart Water integrated Management) project, a central integrated system for the management and stewardship of the water infrastructure. This system, integrating ten areas of water management, was expanded to include a raft of new features, including a system to monitor permanent sampling points for drinking water quality checks, and provide mobile chlorination in the water supply network. Hydraulic models were also integrated.

The system to monitor permanent sampling points for water quality checks provides engineers with real-time information – via GIS hooked up to the laboratory system – on fundamental water quality indicators at a particular site. Now that the OptiChlor project has been incorporated into the GIS system, where necessary mobile chlorination can be deployed directly into the network and the most appropriate place to connect the chlorination device can be selected on a flexible basis. Hydraulic modelling and simulations of the main distribution system reinforce, among other things, the central control room's decision-making process when a qualitative issue (e.g. turbidity) is detected in the main distribution system, and speed up the necessary response measures.

### **New technology delivers improvements**

Better organoleptic properties of water, reduced safety risks and scaled-down by-products of chlorination have been prompted in part by a change in the method to ensure the safety of drinking water at the Flora water reservoir and pumping station. This was part of an extensive overhaul of the entire pumping station supplying public drinking water in the Vinohrady district.

The new technology to ensure the safety of drinking water relies on the production of sodium hypochlorite in situ by means of the electrolysis of brine. This technology is much safer because, when it is in operation, the chlorine gas generated does not accumulate, but instead is immediately converted into liquid sodium hypochlorite. This has significantly mitigated the risk of possible leaks – and health hazards and other dangers – compared to the situation where cylinders had to be delivered and stored. Disinfectant is produced in situ, thereby lessening the stress on the environment that would otherwise have been caused by transportation. Other advantages of the new technology, called Chlorinsitu III, are that the quantities of chlorination by-products in drinking water are reduced and the sodium hypochlorite solution remains fresh because it is being made continuously. This guarantees the high quality of the disinfectant and of water disinfection because a freshly prepared disinfectant has better inactivation properties, helps to eradicate biofilm from the piping system and generates smaller quantities of disinfection by-product.

## **Precipitation measurement system**

In 2015, PVK continued to develop Prague's permanent rain gauging network. Feedback from operations indicates that the existing rain gauging network has come up against certain restraints, especially in detecting the actual spatiotemporal distribution of precipitation and the coverage of measurements on the city outskirts. In response, the Company is working with the Hydraulics and Hydrology Department of the Faculty of Civil Engineering at the Czech Technical University, under a Czech Science Foundation project, to explore the use of rain-generated signal attenuation over the length of a microwave link as a new source of precipitation data with high spatiotemporal resolution.

## **Refurbishment of pumping stations and branch wastewater treatment plants**

Facility refurbishment increases operating reliability, enhances efficiency, stabilises and optimises the pressure conditions in the area supplied, reduces energy intensity and improves employees' working conditions.

Besides the refurbishment of the Flora pumping station, work was also started on the reconstruction of the Uhřetěves pumping station and water reservoir, which includes the construction of a new two-chamber water reservoir with an overall volume of nearly 9,000 m<sup>3</sup>.

At the Barrandov and Řepy pumping stations, the high-voltage substations were given a general overhaul in a move that saw the obsolete switchboards and the transformers themselves replaced.

At the Ovčín water reservoir, the damaged waterproofing of the accumulation chambers was repaired.

At the Koloděje branch wastewater treatment plant, reconstruction work focused on sludge management and an increase in the facility's capacity. A project to scale up the Uhřetěves – Dubeč wastewater treatment plant was completed, paving the way for its capacity to be increased by more than 4,500 population equivalent. In the general refurbishment of the Miškovice wastewater treatment plant, construction stage I was completed in 2015. Here, new sludge management was set up with a sludge concentration and drainage station.

As for the Company's wastewater pumping stations, technology used to transport wastewater from Letňany and part of Čakovice and Dáblice was retrofitted at the Čakovice I station, and the general refurbishment of the Nedvězí wastewater pumping station was completed.

## **Refurbishment of water supply and sewerage installations**

Clarifiers at the Podolí water treatment plant are being overhauled. This involves the complete reconstruction of structural elements and the replacement of plant and machinery where maintenance-free materials are used. Late 2015 saw the completion of one stage of the group refurbishment, in which the steel structural components (the central mixer, overflow troughs, excess sludge scraper, fittings and railings) were completely renewed, the concrete structures of the tanks were decontaminated and the electrical wiring was completely replaced. In 2016, the Podolí waterworks will be supplying water to the distribution network while the Želivka water treatment plant undergoes a scheduled shutdown.

Refurbishment of the gate chamber at the outflow from the OK1F ZOO section was also completed. The old cast-iron penstock DN 1500, to which there was no direct access from the inspection shaft, was replaced by a new stainless steel SAFOX-G penstock with AUMA actuator, and a stainless steel check valve was added. New fittings were mounted on the dividing gate chamber with two access shafts. The floodgate is equipped with a walkway and a check valve can be lifted from the surface using a chain winch with worm drive.

During the year, a second television inspection system was equipped with a satellite camera capable – from a trunk sewer – of detecting defects in connecting pipes and identifying facilities that have been connected to the public sewer system unlawfully. We also purchased a special camera which, in connection with the systems in use, is able to shoot video of large-section flow-through sewers. All of the inspection systems set up to inspect sewers are fitted with devices to measure the inclination and roundness of the pipes.



## **Refurbishment at the CWWTP**

In 2015, numerous large- and small-scale investment projects were carried out. The most significant projects to reach completion were the renovation of digesters VN 11 and 12, sand trap redevelopment, and an increase in drainage and sanitation capacity, which saw new dewatering centrifuges put into service along with the most extensive installation of odour management units ever seen at a wastewater treatment plant in the Czech Republic. This investment benefits the air quality in and around the CWWTP.

Work also began on a general overhaul of the electrical wiring in the CWWTP's office building. Electricity distribution systems that are not up to par will be replaced in a move designed to enhance employee comfort in offices and laboratories, especially as regards the lighting facilities. The project is also expected to make electricity savings.

## **New water pipeline**

The long-awaited construction of a new water pipeline for the Prague CWWTP started at Císařský ostrov once the building permit and water management decision entered into force on 9 October 2015. This was a pivotal stage in an overall set of eight stages under a large-scale City of Prague investment project – General Reconstruction and Extension of Císařský ostrov Central Wastewater Treatment Plant. The new water pipeline's contractor is a consortium called Sdružení ÚČOV Praha, which comprises four companies: SMP, a.s., Hochtief, a.s., and DEGRÉMONT WTE WASSERTECHNIK GmbH, with Sweco Hydroprojekt, a.s. responsible for the design work.

The new water pipeline construction project – including the initial trial operation – is due for completion in April 2018. The CWWTP's new water pipeline has been designed to be fully buried, with chemical or biological deodorisation of process air discharged into the air from the plant. Commissioning the new water pipeline will improve the quality of the treated wastewater that is discharged into the Vltava, especially from the perspective of nitrogen and phosphorus. In this respect, when the CWWTP's new water pipeline is put into service it will have a highly positive environmental impact.

## **New information technology**

In 2015, PVK continued to cooperate with the Veolia Group's Solutions and Services, a.s., which provides IT services to the Company.

The Helios Green ERP system (which includes the ZIS technical information system), the Company's basic economic and operating system, underwent broad-based development. PVK was actively involved in the HEPR harmonisation preparation project as a pilot company. This project sets out to harmonise the Helios Green setup and processes throughout the Veolia Group in the Czech Republic and Slovakia (to deliver a harmonised economic information system). It encompasses, in particular, processes in financing, logistics, master data administration and follow-up controlling.

One fundamental change in the past year was the migration to a new version, Helios Green 44, supported by the complete replacement of the server and database fields. Under the transport optimisation project, a system for the electronic registering and approval of vehicle logs was put into operation and a vehicle booking system was trialled. Other major development projects included the optimisation of the systems for procurement approval, the approval of the release of materials, asset classification, attendance approval, and document management.

There were also extensive developments in the TIS integrated system, particularly in relation to emergency management. Here, the development of sewer system control, supporting the management of sewerage network operations, including the management of sewer system surveying, was completed, along with the module for the management of planned shutdowns and emergencies. Technical records also underwent further development, especially as regards the registration of investment projects prior to commissioning, as did planning, where a system for the planning, approval and management of investments in PVK assets was devised.

The mobile GIS application for the Android platform was upgraded to facilitate the use of vector data documentation on networks. This reduced the volume of data required by a factor of seven and increased data readability.

A web application for detailed records of sludge discharged at the CWWTP and an application to promote the Packaged Water project were launched.

IT employees carried out the groundwork ready to replace the application for engineers at the CWWTP. Representatives from the water quality control unit have also contributed to this application. Work commenced on the implementation of ITAM (IT Asset Management) for detailed records of all IT resources.

In the realm of security, a new CISCO WSA central proxy server to protect the internal network from the internet was launched. The capacity of the three main data transmission links was increased and the technology used by certain data links was replaced.

## Responsibility towards employees

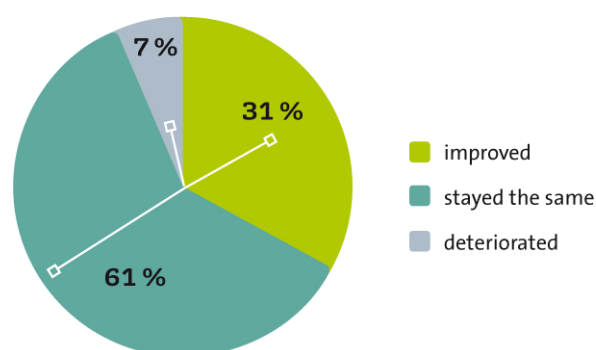
It is a matter of priority for PVK to create a working environment where as much energy and talent as possible can be channelled into the pursuit of common corporate objectives and customer satisfaction. With this in mind, PVK nurtures exceptional working conditions for its employees, provides interesting benefits, and prioritises professional advancement, employee training and occupational safety.

As open social dialogue and cooperation with the trade unions and the team as a whole are essential factors for PVK, collaboration and respect between Company management and the trade unions is crowned by the conclusion of a collective agreement every year.

Periodic employee satisfaction surveys, which tend to elicit a large response, are an important way of garnering feedback from staff. A survey was conducted in late 2014 and evaluated in 2015. Of the **959** questionnaires dispatched, 731 were returned for evaluation (531 electronically, 200 on paper). This is a response rate of **76.2%**.

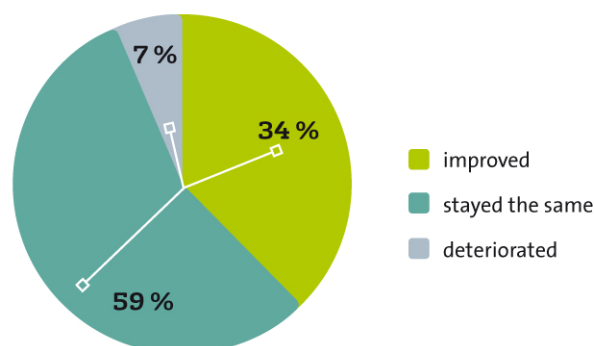
The question as to whether employees view PVK as a company with good prospects perhaps most comprehensively addresses their relationship towards the Company itself. In the survey, **97%** of employees gave the answer of “definitely” or “quite”, which goes to show that the overwhelming majority of employees have a positive view of the Company. Likewise, almost 90% said that they thought good prospects lay in store for them at PVK in the future. This result is important for the stability and further development of PVK as a whole.

Corporate governance





### Corporate awareness



### Human resources

As at 31 December 2015, **967** employees worked for PVK. The average number of employees (FTE) in 2015 was 958. During the year, a total of 86 employees left and 98 joined. Turnover, then, stood at **9%**, on a par with the previous year.

Nevertheless, this is the first time in many years that the number of employees actually rose year on year. This increase was prompted in particular by developments associated with the rollout of new technology (remote readings and other services) as PVK moves forward with its plan to expand activities beyond the framework of its principal business.

Of the total 967 employees, **708** were men (73%) and **259** were women (27%). The Company employed 17 part-timers, 42 temporary staff, 16 persons with disabilities (1.65%) and 76 pensionable staff (7.8%).

Of the total number of employees, 189 were degree-holders (19%), a significant hike by **19** employees, and **373** had attained full secondary education (39%).

The average employee age in 2015 was 46. The relative ageing of the workforce will be an important aspect for the Company to tackle, in particular in connection with the transfer of operating know-how.

Despite the low inflation rate, average wages went up by **3%**, equating to more than CZK 900 per month, in 2015.

Despite the high demand for service provision outside operating hours, the overtime hours of **22,165** remained on a par with the previous year. This implies an average of 23 hours' overtime per employee per year.

### Employee benefits

For PVK, employees have long been a crucial factor in the provision of a high standard of services, as well as in technical and technological development. With this in mind, employee care is a focal point on all management levels.

CZK **32.3** million was spent on both tax deductible and non-deductible social benefits in 2015. This accounted for 5% of total personnel costs. Of that, CZK **1.5** million was provided for trade union activities, CZK **1.2** million for sports and cultural activities, and CZK **0.6** million for major personal and professional anniversaries. In addition, funds of CZK 0.15 million were made available for social assistance and CZK 1.5 million for employee loans.

Personal pension plans and life assurance are an important part of employee benefits and are used by **88%** of employees. The employer's average monthly contribution to these policies amounted to CZK **1,050**, with the Company contributing almost CZK **12.1** million altogether. Employees were able to draw on a raft of other benefits, including subsidised meals (meal vouchers), and take part in Sequoia, the employee savings programme.

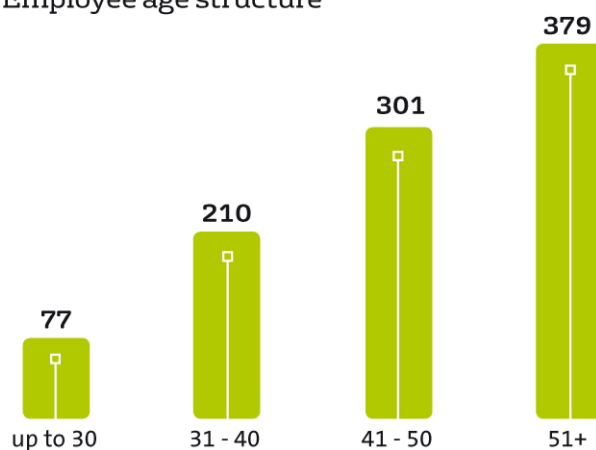
## Employee training

PVK has long been committed to improving employees' qualifications and training, which it views as a priority. This is integral to corporate culture and a major factor in making the Company stand out from the crowd. A systematic approach to education brings a number of advantages and enhances employees' motivation and stability.

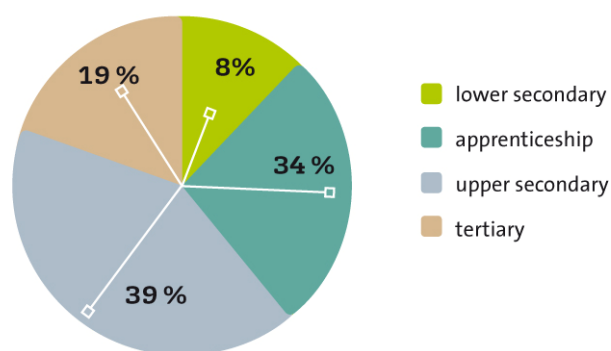
PVK's training costs totalled CZK **5.3** million. The largest share (77%) of these expenses was spent on increasing professional qualifications, 18% was earmarked for mandatory training and special skills training, and 5% was spent on improving employees' language proficiency.

Training for the employees of PVK and other companies of the Veolia in the Czech Republic Group is mainly provided by the Group's own company, Institut environmentálních služeb, a.s. (IES), with its broad-ranging courses and training programmes, many of which are accredited by the Ministry of Education (MŠMT): general courses, seminars and practical training, including a number of special periodical training sessions; tertiary and secondary education programmes; and vocational training. IES is an important part of the international network of Veolia Group training centres, known as Veolia Campuses.

Employee age structure



Employment structure by level of education



## Occupational safety

Occupational safety stands alongside employee training as a strategic element established internationally for the entire Veolia Group, including PVK. The Veolia Group is committed to guaranteeing a healthy and safe working environment. OSH ground rules contained in the Labour Code and ISO standards are also conveyed by the internal Code of Occupational Safety. Above and beyond their mandatory training, all employees take a hands-on first-aid course once every two years. In recent years, two PVK employees have saved lives with the first-aid basics they learnt on these courses. Occupational safety also plays an important role in internal communication. The company has held a ČSN OHSAS 18001 safety certificate since 2007. In 2009, PVK was successfully recertified under ČSN OHSAS 18001:2008. In November 2015, the Company successfully retained its integrated management system certificates in a recertification audit.

One of the long-term objectives pursued in occupational safety and health is to bring down the number of occupational accidents. The criteria for the prevention of occupational accidents and for the protection of employee health are assessed on a regular basis. This approach has kept the occupational accident rate at an encouraging level. In 2015, there were **four** minor occupational accidents resulting in **156** working days of incapacity, i.e. two accidents fewer than in the preceding year. The occupational accident rate was a mere **0.42%**. Long-term OSH targets are to drive down accidents at work to a minimum and eliminate fatalities altogether.

In September, PVK – much like other Veolia Group companies – was involved in the International Safety Week, underpinned by the motto “Safely, Always”.

The following materials and measures were prepared in order to safeguard and promote the “Safely, Always” rules:

- Posters propagating the “Safely, Always” rules and OSH Week;
- Brochures to be used in training on OSH Rules in six key areas (working with loads, work over open depths, working shafts, etc.);
- The IES education portal opened an OSH Library, encompassing all training, brochures, films, etc., on OSH;
- All employees received a Safe Bag containing the basic compulsory OSH documents and special OSH-related documents required for their position;

All employees were acquainted with the “Safely, Always” rules on a course at the e-campus – IES.

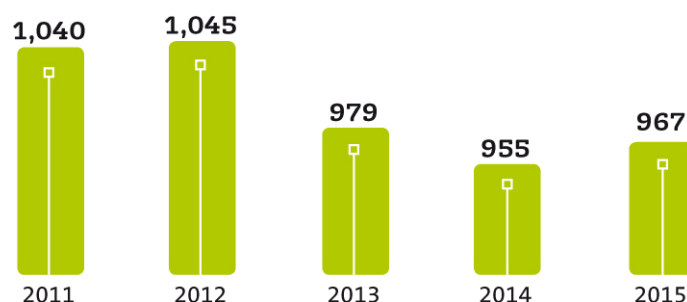
## Occupational medicine services

In 2015, the staff sickness rate was maintained at a level of **2.2%**, helped by the fact that PVK arranges for employees to undergo periodic medical examinations beyond the scope of mandatory checks. In cooperation with an occupational medicine contractor, SALUBRA s.r.o., medical examinations were arranged for employees, including the vaccinations set out in the collective agreement and other statutory examinations. A general practitioner's surgery serves employees and their family members in the Hostivař complex.

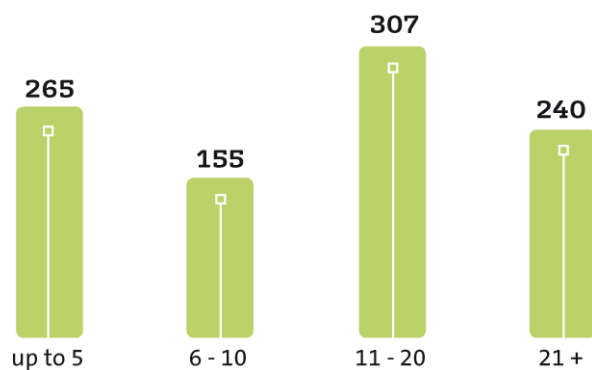
Last year, workplaces also underwent medical surveillance, primarily to identify potential workplace risks and come up with corrective measures to remedy any unsatisfactory working conditions. Findings were compared with the relevant legislation in force and no infringements of applicable laws were discovered. The surveillance only turned up minor shortcomings relating to the working environment that, for the most part, were cleared up before the surveillance procedure came to an end, otherwise relevant measures were proposed in the surveillance report. The system in place for processing and covering all high-risk work in the workplace is in excellent shape. Surveillance was carried out within the framework of occupational medicine services by the SALUBRA s.r.o. healthcare facility in the presence of OSH and fire protection specialists and an employee from the organisational unit in question. Checks were conducted at 20 workplaces in 2015.

Last year, the medical certificates of employees engaging in activities of epidemiological importance also underwent general review and supplementation.

Number of employees by year



Employee structure by length of service



## Internal communications

The sharing of information between the Company management and employees, collaboration on joint projects, and management/employee meetings bolster the relationship that employees enjoy with PVK and have a bearing on their conduct.

Information is streamed to employees through various communication channels. The main information channel continues to be the intranet, which disseminates information in real time. Here, employees will find important messages, operational data, statistics, and information on events.

Magazines also raise staff awareness. The Pěvákáčko in-house magazine is printed five times a year so that those who have no access to the intranet can also receive it. Besides regular columns and operational information, a new section on OSH has been incorporated into the magazine. The Naše Veolia ezine, emailed to all employees, and the hard-copy quarterly Planeta regularly report on the latest news within the Veolia Group.

Good relations within the Company are fostered by various social gatherings regularly organised by the trade unions, events for employees' children and sports activities. In 2015, regular days of support were held. PVK can take a large share of the credit for ensuring that the 42nd Water Fifty went ahead because, at the beginning of the year, no water company had made a move to organise the event. Employees, with the management's backing, organised pedestrian and cycling routes in Prague and the surrounding area. The event drew 500 walkers and cyclists from **32** companies.

PVK holds regular corporate volunteering days, which are attended by individuals and entire work teams alike. This is an opportunity for employees to provide assistance – during normal working hours – to those people who need it, or to play a role in improving the quality of life in a particular place. In 2015, in particular employees helped seniors and, overall, put in **188** hours as volunteers. Examples of the volunteering carried out by employees included gardening at a retirement home in Praha 9 and the seniors' club in Prosek, and the organisation of a visit to a museum for seniors and a group of disabled persons.

## Corporate social responsibility and environmental protection

Corporate social responsibility (CSR) is part of the Company's strategy and figures among the intrinsic values to which PVK adheres. The Company engages in activities that are conducive to sustainable development and seeks equilibrium between the environmental, social and economic dimensions of CSR.

PVK's activities are closely linked to environmental protection. The Company also guides the public and children towards environmentally responsible conduct through its projects. It promotes the drinking of tap water, sponsors children and young people, engages in corporate volunteering, and works with the Veolia Foundation to implement numerous projects. For several years now, the Company has collaborated with the Czech Union for Nature Conservation. In 2015, a meadow, wetlands, a beetle bank, and insect hotels were created over the underground water reservoir in Flora to increase biodiversity in PVK's operations.

## Education

PVK works with primary schools, providing them with teaching aids such as workbooks and the Secrets of Water kit, a mobile laboratory enabling children to conduct experiments that will help them to learn about water through play. Schools also go on regular excursions to the Prague Water Management Museum. In some schools, particularly those with an environmental focus, lectures are held on water supply and wastewater treatment, accompanied by a demonstration of how to work with a Water Kit.

For more than 15 years now, PVK has organised a Water Custodians' Club for children aged from 6 to 16 who are interested in water and nature. The club has its own website ([www.vodnistrazci.cz](http://www.vodnistrazci.cz)), publishes a magazine twice annually, and holds club meetings for members. In 2015, meetings were held in Toulcův dvůr, a Prague environmental centre, and at Podolí Waterworks, where a lecture was

delivered by celebrity angler Jakub Vágner. Children take part in play-based activities to learn about water, biodiversity and environmental protection.

## Public awareness

The Company sponsors a plethora of sports, cultural and social events. With some of them, it works in tandem with city boroughs, notably Praha 6 (the Ladronka Fest free-time event, Walpurgis Night, etc.). In 2015, the company continued its traditional sponsorship of the Primátorky rowing races. In the social arena, PVK sponsored an international wheelchair tennis tournament, wheelchair accessible cars, Asistence, Hestia, Ostrov čtení, etc.

At summer events in particular, PVK lays on a water bar to promote tap water and inform the public about water and its quality, the protection of sources of water, and conservation. Tap water is promoted at events such as Mikroklima, Bike Prague, Běh pro Paraple, and European Mobility Day.

## Fresh tap water? Just ask!

The “Fresh tap water? Just ask!” green project was launched in 2009. By the end of 2015, some **560** restaurants in Prague alone had joined the scheme. The project sets out to promote tap water drinking in restaurants and cut down on plastic bottle waste. A list of participating restaurants can be found at [www.kohoutkova.cz](http://www.kohoutkova.cz). Carafes are distributed to restaurants free of charge that they can use to serve water.

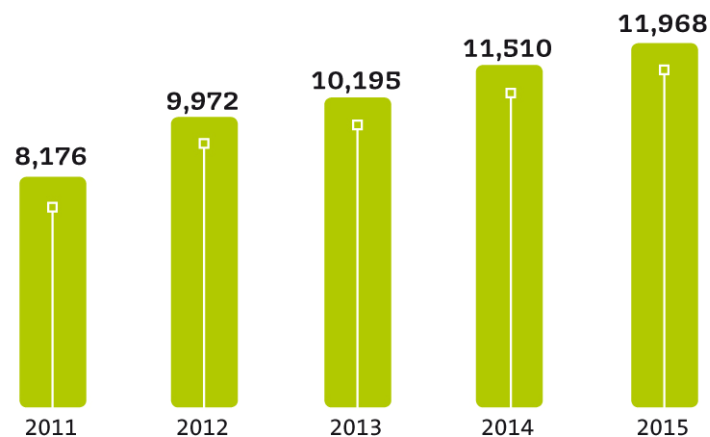
Smartphone users can use an application that will direct them to the nearest restaurants offering tap water. This “tap water” scheme also has its own Facebook profile.

## Prague Water Management Museum

The Prague Water Management Museum at Podolí Waterworks is a place where visitors can come to grips with the history of drinking water supply. It also plays host to various social events for employees and their children. Interest in the museum continues to rise. In 2015, it had **11,968** visitors. The museum holds open days to mark World Water Day in March, the Primátorky rowing event in June, and then in the autumn. Outside of open days, schoolchildren (accounting for almost 50% of visitors) and experts from other countries (France, Slovakia, the US, Germany, the UK, Japan and Russia) visit the museum. The museum was visited by **522** visitors as part of experiential tourism. In addition to the museum, they took in the pumping station, clarifiers and the water tower of the Podolí Waterworks.

In September, PVK, in collaboration with Prague City Hall and the Old Town Hall, opened the “Outsiders’ Entrance” – the sewers under the Old Town Square – to the public.

Prague Water Management Museum – visitor rates



## Environmental protection

Pražské vodovody a kanalizace is a company with a responsible approach to environmental issues, a company responsible for action to tackle global warming and other changes associated with climate change.

### Supporting biodiversity at our complexes

Since 2011, PVK has worked with the Czech Union for Nature Conservation to enhance biodiversity at the water management complexes that it operates. PVK's first move in this area was to install birdhouses at pumping stations.

In 2015, the grassed areas above the underground water reservoirs in the PVK complex at Flora were adapted, in cooperation with the Czech Union for Nature Conservation, to increase the diversity of wild species of fauna and flora.

A path made of three types of materials was created here, and alongside it areas were established that represent types of vegetation with characteristics different from those of the flowery meadow emerging in the surrounding area. A pond with wetlands, surrounded by plants such as the caltha, iris, forget-me-not and typha, has been created.

Flora comprising the basket-of-gold, saxifraga and thymes blooms on rock. A bed of wild herbs, including tansy, flax and sage, has been created, as has a herb garden with St John's wort, mint, oregano and other herbs.

The Czech Union for Nature Conservation focused mainly on the flying species of animals – insects, birds and bats, because they have a chance of finding a new home quickly. This gave rise to insect hotels and a beetle bank, or logger. People in the vicinity can read about this new natural oasis on information boards on the fencing of the complex. In total, 19 insect hotels have also been established at other sites in Prague operated by PVK, such as the water reservoir in Modřany.

### CWWTP energy self-sufficiency

Good-quality wastewater treatment helps the environment. The quality of treated wastewater discharged into the river Vltava was in accordance with the limits set by the applicable water management decision throughout the year. In 2014, a total of **16,318,000 Nm<sup>3</sup>** of biogas was developed in the CWWTP's digesters, which the Company used for electricity and heat generation. It burned biogas surpluses in tail gas burners.

The CWWTP in Prague has long been fully self-sufficient in process heat generation and consumption for its operations. The CWWTP's own electricity generation from biogas totalled **29,293 MWh** in 2015, and all of this electricity was immediately consumed directly at the plant. This equates to 66.2% self-sufficiency in electricity demand at the CWWTP.

At almost all Group wastewater treatment plants, operations were optimised to harness all biogas generated as efficiently as possible.

### Waste management

In 2015, PVK produced **147,463 tonnes** of waste. Of this amount, 18 tonnes (0.01%) was hazardous waste, similar to 2014. The share of hazardous waste at the Company has long been negligible. The Company is not only a producer of waste, but also operates a facility to process selected types of waste. This service is offered to the municipality and businesses for the transparent handling of their waste, and facilitates the transfer of the waste produced for reuse. The CWWTP processed the largest quantity of waste in 2015 – approximately 11,000 tonnes. In addition to buying out selected waste, PVK also runs the mobile collection of waste from grease traps at schools and nurseries, hospitals and other institutions. PVK continued to extract sludge from the Káraný water treatment plant's sludge lagoon; it hauls the sludge to the CWWTP. The technological and operational measures introduced at



the Káraný water treatment plant, along with the continuing extraction of sludge, have extended the theoretical capacity of the Káraný lagoon's supply area for use for up to 36 years.

In previous years, the company set up a reservation system for the acceptance of liquid waste at the CWWTP. Thanks to this system, it knows the quantity and types of discharged waste prior to actual discharge. The application also monitors the validity of the documentation required for waste discharge, corrects the daily waste quantities received at the CWWTP, and helps certain PVK employees in requesting samples of incoming waste. Customers delivering waste to the CWWTP in Prague have successfully switched to this system. In 2015, successful cooperation within the Veolia Group with Severočeské vodovody a kanalizace, a.s. continued and broadened with respect to the sampling of waste produced by PVK and complete arrangements for the analysis of these samples.

In 2015, within the Veolia Group pilot cooperation was initiated between PVK and 1. SčV, a.s. in the provision of consultancy services for waste management. There are plans to continue and develop this in the years to come.

### **Fuel savings**

Fossil fuel consumption is directly proportional to the size of the carbon footprint we leave behind us. In 2015, PVK managed to save almost 22,000 tonnes of diesel compared to the previous year. Software-controlled optimisation of routes for operating vehicles, the GPS tracking of fleet vehicles and the personal motivation of individual employees made it possible to cut diesel consumption by **11%**. Proper utilisation of the entire fleet and correct logistics deliver economic savings and have a significant and highly appreciable effect on the environment.

### **Chemical savings**

Chemicals are part and parcel of the drinking water and wastewater treatment process. The Company has long aspired to cut the quantities of chemicals used in the treatment of drinking water and wastewater, driven not only by efforts to save operating costs, but also by the need to scale down the negative impacts that our operations have on the environment.

In the Czech Republic, as far back as 2012 a comprehensive system for the quality control of process chemicals was introduced. This ensures that the content of active substances and impurities is monitored in the most commonly used chemicals, such as sodium hypochlorite, ferric sulphate, aluminium sulphate and lime. This system makes it possible to optimise chemical consumption and prevent potential secondary environmental pollution.

One example of a successful intervention in this area of control that has resulted in major savings of chemicals, specifically of ferric sulphate (which is designed to precipitate phosphorus at a wastewater treatment plant), is the system introduced by engineers at PVK's branch plants. At these plants, the system used to control the running of the pumps was modified so that the sulphate dosage would reflect changes in flow-through at the plant and limit the dosage during rainwater flow-through. In this way, for example, Čertousy wastewater treatment plant saved more than 5 tonnes of sulphate in 2013, while the Kbely plant cut its sulphate dosage by up to 6 tonnes per month.

### **Carbon footprint**

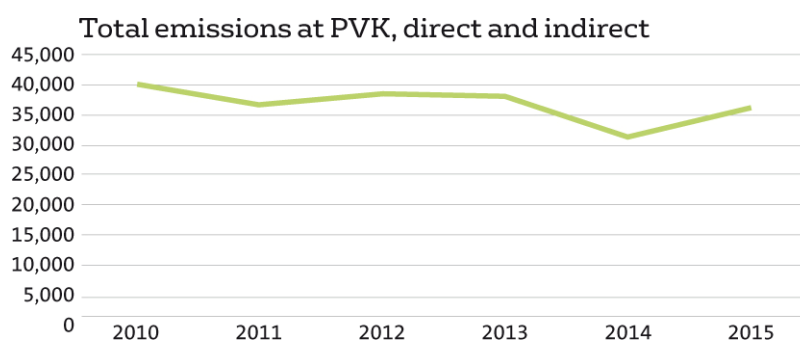
The carbon footprint is one of the gauges of the impact of human activities on the environment and the climate. Most of the carbon footprint comprises electricity consumption (usually 70-80%), followed by the consumption of thermal energy, represented by natural gas, light fuel oil and coal. Energy and heat produced from biogas reduce the carbon footprint because CO<sub>2</sub> emissions released during biogas combustion are not fossil-based and therefore do not contribute to the globally increasing concentration of CO<sub>2</sub> in the atmosphere.

PVK first signed up for an evaluation of the impacts of its operations, in the form of its carbon footprint, in 2010. This is when the first evaluation of the management of Veolia Group companies in the Czech/Slovak zone was carried out by the carbon footprint method for 2010. Projects targeting



electricity and thermal energy savings, an increase in the generation of energy from renewable sources, greater plant self-sufficiency, and the optimisation of chemical and fuel consumption have triggered a progressive reduction in the overall carbon footprint. PVK's overall carbon footprint for 2015 was 35,700 tonnes of CO<sub>2</sub>eq. Total direct and indirect greenhouse gas emissions (electricity and heat) for the collection and treatment of wastewater at PVK amounted to 14,180 tonnes of CO<sub>2</sub>eq; emissions associated with drinking water production and distribution were 20,940 tonnes of CO<sub>2</sub>eq. Ratios, potentially carrying greater informative value, indicate that, at PVK, 534.3 g of CO<sub>2</sub>eq were generated per cubic metre of drinking water produced and 112.67 g of CO<sub>2</sub>eq were generated per cubic metre of water discharged.

The figure below records how overall emissions have evolved. PVK has successfully kept to a more or less downward trajectory, making consistent reductions in the Company's carbon footprint. It should be borne in mind that the constantly increasing demands placed on the quality of the wastewater treated also necessitates the higher consumption of chemicals and energy, hence the carbon footprint cannot be reduced indefinitely. This makes the enduring situation derived from the graph all the more valuable.



### Cooperation with the Veolia Foundation

PVK has long collaborated with the Veolia Foundation on a number of social projects and activities geared towards the environment.

#### Mini Grants – lending a helping hand for eight years

There are many volunteers among PVK employees. The Company and the Veolia Foundation have been supporting their activities for eight years. Every year, PVK employees may apply for a contribution of up to CZK **50,000** in support of a community project in which they themselves are involved in their free time. In 2015, 26 PVK employees were granted **CZK 720,000**. These contributions were used, for example, to provide weekend stays for severely disabled children, to support disabled skiers, to cover care services in the field, to provide aids for the disabled, to organise various forms of therapy, and to hold camps for the socially disadvantaged. One of the green projects was the renewal of bee colonies. Over an eight-year period, the Mini Grants awarded by PVK and the Veolia Foundation have supported over 100 projects with almost CZK 4 million.

#### Water for Africa

Another project covered by PVK in tandem with the Foundation is the Water for Africa charity project, which sets out to improve the availability of drinking water for people in Ethiopia. The sale of a limited edition of cut-glass carafes in a benefit event raised CZK **700,000** in 2015, which will be used to build and repair water wells in Ethiopia.

#### “Always with a Smile” even in old age

In 2015, a new foundation programme was set up that focuses on seniors. “Always with a Smile” aims to promote an active old age and create conditions for seniors to live in a home environment. In 2015, Buena Vista Vinohrad and Praha 9 Social Services Centre were beneficiaries under this scheme in Prague.

## **Institut environmentálních služeb, a.s.**

### **IES shareholder structure:**

Campus Veolia France 40%

Pražské vodovody a kanalizace, a.s. 30%

Veolia Energie Česká republika, a.s. 30%

### **Highlights for 2015**

Sales revenue: CZK **30,448,000**

Number of employees: 13, most of them part-time

Number of educational events held: **1,128**

Number of training sessions: **7,633**

Number of training hours: **116,623**

Number of lessons (of 60 minutes each): **22,213**

Number of participants in educational events: **15,997**

In 2015, compared to the previous year, Institut environmentálních služeb, a.s. (IES) generated a steep **15.9%** hike in revenue, while there was an increase in the number of training participants by **41%** and in the number of hours of training by **45.5%**. The distinctly positive economic performance reported by IES was helped by the fact that it kept a firm lid on costs, including payroll expenses.

Through its educational products, IES made a significant contribution in the process of switching Veolia companies in the Czech Republic and Slovakia to Google Apps. In 2015, 1,526 employees underwent basic and/or specialised training, of whom 313 were from Pražské vodovody a kanalizace, a.s. (PVK) and 66 were from Česká voda – Czech Water, a.s. IES was heavily involved in the Veolia Group's worldwide OSH Week. In the "Safely, Always" campaign, it issued Safety Bag instructional material, posters and four concertina books focusing not only on the Veolia Group's OSH policy, but also on first aid, OSH principles and the rudiments of hygiene, with an overall print run of 32,000 copies. This project also benefited hugely from eCampus – the IES e-learning portal. IES prepared three e-learning courses: "Safely, Always", "Rudiments of Hygiene" and "Managers and OSH". In the autumn, 331 PVK employees attended the Rudiments of Hygiene seminar for workers from the water sector.

The ever-increasing importance of eCampus as a pivotal IES project is borne out by the fact that, in 2015, 9,654 Veolia Group employees – of whom 1,050 were from PVK – took part in e-learning courses on OSH. One useful eCampus innovation was the "OSH Electronic Library", containing a wide range of documents and materials on this subject. New e-learning courses on compliance were attended by 1,261 Veolia Group employees. Additionally, thousands of employees from the Veolia Group, including PVK, took a practical first-aid training course in 2015. The number of documented cases where persons have been rescued by this project's participants rose to 10.

In 2015, IAS opened another study group for its Business Economics and Management bachelor-degree programme in cooperation with the Moravian College, Olomouc (Moravská vysoká škola, Olomouc). In addition, a study group for a follow-up master's degree was opened in collaboration with the University of Entrepreneurship and Law (Vysoká škola podnikání a práva). Another highly successful project was the Veolia Trainee Programme in cooperation with the Civil Engineering Higher Education College (Vyšší odborná škola stavební) in the town of Vysoké Mýto.



**Pražské vodovody  
a kanalizace**

**Headquarters:**

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