Drinking Water for Vienna
Natural spring water for Vienna

Vienna is supplied with natural spring water. In case of repairs of the mountain spring mains, major pipe leaks or extremely high water consumption during hot spells, groundwater is additionally fed into the pipe network.

Directly into the city without pumping stations

Via underground pipelines that partly cut through rock, the spring water reaches Vienna powered solely by gravity, without one single pumping station. Moreover, the gradient along the pipeline is used for power generation. In all, approx. 60 million kilowatt hours of electricity are produced annually, which is enough to supply a city as big as St. Pölten.

The spring water originates in the Lower Austrian Limestone Alps. The spring zone of the 1st Mountain Spring extends across the Schneeberg, Rax and Schneealpe mountains, while that of the 2nd Mountain Spring water main comprises the Hochschwab massif. The protection zones designated for water resource conservation encompass an area of approx. 700 square kilometres.

Total water volume for Vienna

Facts and figures

- Number of inhabitants of Vienna supplied: 1.8 million
- 1st Spring water main: 220,000 cubic metres/day
- 2nd Spring water main: 217,000 cubic metres/day
- Number of springs: 30
- Available groundwater volume: 142,000 cubic metres/day
- Aqueducts (1st and 2nd MSP): 130
- Number of reservoirs: 30
- Total storage volume: 1.65 million cubic metres
- Pumping stations: 24
- Average daily consumption: 390,000 cubic metres
- Average daily consumption/person: 130 litres
Drinking water power plants

The generation of green electricity from spring water main endows the life resource that is water with an additional, ecologically valuable form of use. In January 2006, a new drinking water power plant with an output of three million kilowatt hours annually was taken into operation in Vienna-Mauer, thus safeguarding the power supply of 1,000 households. Moreover, the Vienna Waterworks operate seven power plants in Wildalpen, and four drinking water power plants are active in the Hirschwang spring zone. This is about the cleanest that energy can get.

Pipeline network data

- Total length of public mains: 3,284 km
- Supply pressure: 3-5 bar
- Number of hydrants: 11,700
- Total number of house connections: approx. 102,000
- Connection rate: 100%

130 litres of water per capita is the average water consumption in Vienna — only three litres are used for drinking and cooking.

Types of domestic water use

Composition of the average total water consumption of 130 litres per day and person in Vienna:

- Showering, bathing: 44 l
- Toilet flushing: 40 l
- Laundry washing: 15 l
- Personal hygiene: 9 l
- Cleaning: 8 l
- Dish washing: 6 l
- Watering plants: 5 l
- Drinking, cooking: 3 l
1\textsuperscript{st} Vienna Spring water main

Its inauguration in 1873 cleared the way for the modern-day water supply of Vienna. Spring water flows through the 1\textsuperscript{st} Vienna Mountain Spring water main over a length of 150 kilometres before reaching the Austrian capital.

2\textsuperscript{nd} Vienna Spring water main

In the late 19\textsuperscript{th} century, it became clear that new water resources had to be tapped. Over 10,000 workers were recruited to complete the 180-kilometre 2\textsuperscript{nd} Spring water main. The water originating in the Hochschwab spring zone takes 36 hours to reach consumers in Vienna.

3\textsuperscript{rd} Vienna Water Pipeline
Moosbrunn Waterworks

The 3\textsuperscript{rd} Vienna Water Pipeline – the Moosbrunn Waterworks – safeguards the water supply of the City of Vienna in peak demand periods and during maintenance of the mountain spring water main. Situated to the south-east of Vienna, this installation disposes of two horizontal filtering wells with a total production volume of approx. 64,000 cubic metres per day. The water is treated and disinfected using state-of-the-art methods to ensure reliable quality. Advanced oxidation (ozone and hydrogen peroxide) is the process of choice.
Lobau

The Lobau Waterworks is situated in the Danube Floodplains National Park. The water produced here is bank-filtered water abstracted from the groundwater flow along the Danube. This water is fed into Vienna’s pipeline network in periods of increased demand, e.g. hot spells. The advantages of this resource lie above all in its short-term availability for the city’s water supply and its high quality resulting from the excellent filtering, and hence purifying, effect of the soil.
Pipeline network

As a result of different height levels, Vienna’s pipeline network presents different pressure zones as well. Drinking water is conducted to the 28 water reservoirs located all over Vienna by means of high-performance transport pipes. These reservoirs store water and, due to their altitude level, ensure the pressure necessary for the supply areas situated below. From the reservoirs, the drinking water is fed into the distributing network before reaching the end consumer.

New technology, fewer construction sites

Recent years saw a significant improvement of pipe-laying technologies. The new methods of trenchless pipe-laying entail many advantages: fewer construction sites, less dust and noise. Moreover, roads, parking lots and sidewalks continue to function during the rehabilitation work.

Rapid relief in case of leakages

On an average, the stand-by repair teams are called to remedy defects and leakages ten times per day. Whenever a defective pipeline is identified in the public water network, these experts are prompt to arrive and repair the damage. If you have spotted a damaged water hydrant or burst pipe, please call the Vienna Waterworks at 599 59.
Lead-free pipelines
For several decades now, the use of lead pipes for Vienna’s drinking water system has been discontinued. What is more, a special budget was earmarked to finance the ongoing replacement of lead pipes. Practically all lead pipes of the public water system were replaced before the end of 2007. However, the Vienna Waterworks are not responsible for house pipes. Should your house pipes still contain lead pipes, please contact your building manager.

Pressure zones
The pipeline network is composed of several pressure zones resulting from the different height levels of the supply areas. The 1st Vienna Mountain Spring Pipeline delivers water to the areas situated at lower altitudes, here shown in BLUE and VIOLET. The 2nd Vienna Mountain Spring Pipeline supplies the higher zones marked in RED, GREEN, ORANGE, BROWN and YELLOW in the western part of Vienna. Those YELLOW areas where natural water pressure is insufficient need to be supplied via pumping stations. In all pressure zones, a constant water pressure of 3 to 5 bar is maintained.

Control centre
Balancing the natural water supply with the varying demand is a key task of the control centre in Vienna. The 28 water reservoirs distributed across the city have a storage capacity roughly equalling a three-day demand. Two more reservoirs are located at the Moosbrunn Waterworks and in Neusiedl am Steinfeld alongside the 1st Vienna Mountain Spring water main.
Top quality – strictly safeguarded

Vienna's inhabitants are proud of their city’s drinking water. Abstracted in the Lower Austrian and Styrian Limestone Alps, its quality is unique. No other metropolis is supplied as comprehensively with fresh water directly tapped from mountain springs. While inhabitants of other cities have to purchase water in plastic bottles, the Viennese simply turn on the tap and quench their thirst with cool, clear Alpine water.

Vienna’s water is a high-quality natural product that flows, near-unchanged and untreated, from the heart of the mountains directly into consumers’ flats.

Along this journey, all key quality parameters are continuously monitored. Even minimal changes in water quality are immediately registered, which enables the Vienna Waterworks to respond promptly.

Online quality monitoring

Along the entire course of the two Mountain Spring Pipelines from spring zones to Vienna, key quality parameters are captured around the clock and transmitted online to the nearest control centre.

Always on the safe side

Before being introduced into the pipeline network, Vienna’s drinking water is disinfected with chlorine dioxide. The Vienna Waterworks are bound by law to implement this measure for the benefit of satisfactory hygienic conditions, as the city’s pipeline network is over 3,000 kilometres long, and this technique offers reliable protection against contamination. The chemical is added in minimal doses; it is absolutely odourless and does not affect the taste.
The vast spring protection zones of the 1st and 2nd Vienna Mountain Spring Pipeline are under special protection to prevent any contamination of the water in the spring catchment areas. For this reason, these zones may be exploited only to a very limited degree.

Hygiene checks

The Institute for Environmental Medicine of the City of Vienna is charged with verifying whether Vienna’s drinking water corresponds to all legal provisions. For this purpose, regular tests are carried out to determine whether the water contains pollutants or any other noticeable changes in its physical-chemical composition.

Quality checks for newly laid pipes

The sight of a construction site blocking traffic without any workmen around should not be misinterpreted as an abandoned lot with nothing going on here. Before any new pipeline can be taken into operation, it must be flushed, followed by an inspection of the water for compliance with specific quality criteria. While the construction site is thus indeed left unmanned, solid work is being done to ensure that residents of the area will be supplied with top-quality spring water from the tap – precisely as they are used to.
Vienna’s “watermarks”

Vienna Water Tower

In the autumn of 1999, the Water Tower on Wienerberg hill celebrated its 100th birthday. Before the 2nd Spring water main was built, the tower supplied the high-lying areas of the 10th and 12th municipal districts with drinking water. It was taken out of operation in 1956. Today the building, placed under monument protection, serves as an exhibition venue.

Old Valve Chamber

When today’s Meiselmarkt shopping mall was still a water reservoir, it was accessed via this valve chamber. In addition, the chamber contained inlet and outlet pipes and shutting-off devices (”valves”). Today, the valve chamber has been transformed into a modern conference venue. Among other architectural features, the entrance gate and windows were reconstructed in keeping with historical plans.

Facade and interior views of the Old Valve Chamber
Wienerberg Reservoir

Another big project is the reconstruction of the Wienerberg Reservoir. The existing reservoir was built between 1873 and 1889. It will be replaced by a reinforced concrete structure with a storage capacity of approx. 41,500 cubic metres. The area above the reservoir will be rendered partly accessible to the general public in the form of a new park.

A drinking fountain for UEFA EURO 08™

Since summer 2008, modern drinking fountains are a welcome new feature of Vienna’s cityscape. A stainless-steel drinking fountain that is mountable on water hydrants was developed for the European Football Championship 2008. This idea met with great acclaim and showcases the quality of drinking water in tourism metropolis Vienna.
A history of Vienna’s water supply

100 – 200 A.D.
Vindobona
Already the ancient Romans had spring water channelled and transported from the area south of today’s Vienna to their legionary camp Vindobona. At the time, the minimum daily delivery volume was approx. 5,000 cubic metres. A remnant of the Roman water pipeline was discovered near the village of Atzgersdorf in 1905 (photo).

1565
Hernals Water Pipeline
The Hernals Water Pipeline transported 1,500 cubic metres of water from today’s 17th municipal district of Vienna to the well-house in Hoher Markt square. In addition, water from public wells was sold out of big wooden barrels by “water-men” and “water-women”.

1804
Duke Albert Water Pipeline
The Duke Albert Water Pipeline led from the village of Hütteldorf to the city and supplied four suburbs with fresh spring water.

12 July 1864
Resolution to build the 1st Mountain Spring Pipeline
On the basis of an initiative by the geologist Professor Eduard Suess, the City Council passed a resolution to build the 1st Mountain Spring Pipeline.

1869 – 1873
Construction of the 1st Spring water main
After a four-year construction period, the 1st Vienna Spring water main was officially taken into operation by Emperor Francis Joseph I on 24 October 1873. Over one hundred years later, in 1998, the spring Pfannbauernquelle was fed into the 1st Vienna Mountain Spring Pipeline, making the 1st Vienna Mountain Spring Pipeline fully 150 kilometres long.
1900 – 1910
Construction and inauguration of the 2nd Spring water main
On 2 December 1910, the 2nd Spring water main was inaugurated by Emperor Francis Joseph I with a solemn ceremony at Vienna City Hall. For the first time, spring water from the Hochschwab massif was conducted to Vienna via a 180-kilometre pipeline.

1964 – 1966
Construction of the Lobau Waterworks
Today the high-quality water from this facility is mainly used during repairs of the mountain spring pipelines or to absorb peak loads.

1965 – 1970
Construction of the Schneealpe Gallery
The 9,680-metre Schneealpe Gallery was constructed to tap the Sieben Quellen (Seven Springs) in the Karlgraben area.

As of 1970
Pipeline network rehabilitation
A rehabilitation campaign by the City of Vienna made it possible to reduce water losses from 25% to 10%. Approx. 30 kilometres of the pipeline network are rehabilitated annually.

1998 – 2006
Moosbrunn Waterworks
After protracted consideration of various legal issues, the Moosbrunn Waterworks finally obtained a license under water law in spring 1998. The installation of a state-of-the-art treatment plant safeguards sustainable drinking water quality. The facility was taken into operation in 2006.

Ongoing
Reservoir rehabilitation
The Vienna Waterworks operate 30 reservoirs with a total storage volume of 1.65 million cubic metres of drinking water. The different construction periods and technical appointments of the reservoirs, some of which boast protection-worthy architecture, render their maintenance very costly. The building stock per se must be preserved while at the same time bringing the reservoirs up to contemporary technical standards.
International activities of the Vienna Waterworks

Natural hydrological cycles do not stop at national borders and comprise much more than drinking water supply. The Vienna Waterworks meet their far-reaching responsibility for this element of nature by participating in research projects and engaging in national and international cooperation.

Protecting the Danube – Cooperation of Waterworks along the Danube

The International Association of Water Supply Companies in the Danube River Catchment Area (IAWD) is an association of waterworks in the Danube countries. This region extends from the springs in the German Black Forest to the river delta in Romania, where the Danube debouches into the Black Sea. It is a key task of IAWD to improve the water quality of the Danube and its tributaries. Over 30 members do their utmost to carry out joint studies in the 14 riparian countries. The results are continuously compared, and important findings are exchanged.

Management:
IAWD
c/o Vienna Waterworks
Grabnergasse 4-6, A-1060 Vienna
Phone: 01/599 59-31070
e-mail: office@iawd.at, www.iawd.at

Know-how exchange
To make sure that the water-related know-how accumulated over time will be optimally used and further developed, the Vienna Waterworks participate in numerous national and international specialised bodies:

ÖVGW
Austrian Association for Gas and Water
This lobby of Austrian water companies develops technical guidelines and organises events for experts. www.ovgw.at

ON/CEN/ISO
International Committee for Standardization
Development of national and international standards that serve as a basis for the construction and operation of water supply installations. www.on-norm.at, www.cen.eu

EUREAU
European Federation of National Associations of Water and Waste Water Services
Represents the interests of water suppliers vis-à-vis the institutions of the European Union. www.eureau.org

IWA
International Water Association
This worldwide association of water supply and wastewater management companies organises international and regional specialised events and congresses. www.iwahq.org

ÖGL
Austrian Society for the Trenchless Laying and Maintenance of Pipelines
Dedicated to the improvement of trenchless pipeline laying and maintenance, ÖGL was established in 1991 as an independent association under the Associations Law. www.oegl.at
Museums of the Vienna Waterworks

The history of water supply to Austria’s federal capital is instructively documented by the water pipeline museums of the Vienna Waterworks at Kaiserbrunn and Wildalpen.

Opening hours of the Kaiserbrunn Museum:
1 May to 1 November, Saturdays, Sundays and holidays from 10 a.m. to 5 p.m.
Plant management in Hirschwang
Phone: 02666/52548, fax: 02666/52548-7100
A-2651 Hirschwang 67

Opening hours of the Wildalpen Museum:
1 May to 26 October, Mondays to Fridays from 10 a.m. to noon, 1 to 3 p.m., Sundays and holidays from 10 a.m. to noon
Plant management in Wildalpen
Phone: 03636/451-31871, A-8924 Wildalpen 24

Against prior appointment, both museums offer guided tours for groups of 10 or more persons, also outside regular visiting hours.

Water School

Employing a playful, fun approach, the Water School was set up to teach children aged 8 to 14 years everything to do with water. Situated in the immediate vicinity of the Vienna Water Tower, the school uses multimedia and illustrative material from the spring protection zones to present this information in a child-oriented, exciting manner to young audiences eager to learn more. Every school day, one form is welcomed and gets acquainted with hydrological cycles, water supply, wastewater disposal and water consumption, resulting in a total of around 3,000 schoolchildren annually involved in the programme.

Address: Windtenstrasse 3 (entrance at corner with Triester Strasse), A-1100 Vienna
For appointments: call 599 59-31077 on school days (Mondays to Fridays); please leave a message on the answering machine.

Experience water and nature

In 1998, the Vienna Waterworks inaugurated the 1st Vienna Water Pipeline Trail. The route leads from Kaiserbrunn to Gloggnitz as well as from Bad Vöslau to Mödling, and can be comfortably completed in a two-day hike.
Water is humanity’s most important natural resource.

The drinking water supply system of the City of Vienna relies on fresh natural spring water which is piped into the city from strictly protected limestone mountain ranges in the Alpine regions of Lower Austria and Styria. For a city of Vienna’s size, providing water of this outstanding quality to its millions of inhabitants is no small feat.

Protecting and preserving our precious water resources for future generations is an essential task of environmental policy in Vienna.

Ulli Sima, Executive City Councillor for the Environment

Contact

The Vienna Waterworks are at your disposal for all questions relating to water supply in Vienna.

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