"The extension of the wastewater treatment plant and its positive effects on the water quality of the Danube was a milestone in the protection of waterbodies." - EBS (Operator of Vienna Wastewater Treatment)

"By optimising domestic technical systems, we were able to halve the power consumption for heating and reduce water usage by two thirds." - MA 44 Public Baths

"Thanks to comprehensive water resources management and ecological measures, the water quality of the Old Danube is superb and the visibility is excellent" - MA 45 Water Engineering
State-of-the-art wastewater treatment at Vienna's sewage treatment plant

Vienna’s wastewater treatment plant has been extended by a second biological treatment stage that has been operative since summer 2005. The extended wastewater treatment plant is an integral part of the water protection programme in Vienna.

Along with the increase in the clarification output for carbon to 98%, the extension allows for a biological clarification of nitrogen with an efficiency of more than 80%. In this way, compliance with the minimum efficiencies specified in the emission regulations and with the emission limits is ensured.

The wastewater treatment plant is designed for 4 million population equivalents, during stormy weather conditions a maximum of 18 m³/s of wastewater can be handled.

Over the course of one year, a wastewater volume of approx. 200 million m³ is purified in accordance with current technological standards and is fed into the Danube channel. The sludge of approx. 69,000 tonnes resulting thereof is supplied to the combustion plant for thermal disposal.

The effects of the extended wastewater treatment plant on the water quality of the Danube are very positive. In the measurement station at Mannswörth, situated 5 km downstream of the sewage treatment plant, a significant reduction of ammonium has been registered since the second biological treatment stage was put into operation. A comparison with the measurement station at Nussdorf, upstream of Vienna, shows that the water quality of the Danube does not suffer as a result of the clarified wastewaters of the now extended main clarification plant for the 1.7 million inhabitants of Vienna - the Danube leaves Vienna with the same quality it has when it enters the city. By extending Vienna’s main clarification plant, EBS (Operator of the Vienna Wastewater Treatment) has set a milestone for the water protection of the Danube.

The voluntary implementation of an integrated management system (IMS) – up to now the first clarification plant in Austria to do so – and the certification of the same in 2007 ensure that all activities related to wastewater clarification comply with the international quality standards regarding the management of a company (ISO 9001), sustainable environmental protection due to reduction of environmental effects (EMAS respectively ISO 14001) and occupational safety (OHSAS 18001).

Objectives have been specified in the environmental management system for the relevant environmental aspects and these have been implemented by corresponding measures. Optimisations in the field of process technology have resulted in savings of 6.6% as regards energy consumption. The maintenance has reduced the lubricant consumption by 30%, while 130,000 m³ have been saved in the area of ground-water consumption (that is 13%).

The replacement of the turbine in the drain-
Summer, sun
Open-air bath

Public baths are the most important recreational facilities of the city; nearly all inhabitants relate unforgettable memories from their youth and mostly even from later points in life to experiences at public baths. In order to operate the baths, high expenditures are required - first and foremost for energy and water. Thus there is the necessity of using the available means economically.

In past years, achieving savings on the basis of energy savings contracting agreements has proved to be a good option. The first contracting project of the MA 44 - Public Baths was the indoor and outdoor swimming pools in Simmering in 2000.

On the basis of this success, energy savings contracting agreements have been concluded for 9 municipal baths up until now, while for a further bath the awarding procedure is still open.

On the basis of these contracting agreements, measures to optimise existing building technology facilities, among other things, have been implemented. Furthermore, building technology components have been renewed, heat recovery systems and solar systems have been installed, and water treatment systems (swimming pool filters) have been modernised.

By means of the contracting measures, the heating energy consumption has been reduced by half, while improving the comfort, and the water consumption has been reduced by two thirds, while improving the water quality. The required investments (approx. € 18 million) are provided by targeted savings which amount to approx. € 2.4 million annually (expenses excl. turnover tax).

The contracting projects of the MA 44 - Public Baths have also received international attention: For example, the contracting project for the indoor swimming pool in Brigittenau was awarded with the "European Energy Service Award 2007" in November 2007 in Brussels.

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<tr>
<th>Contracting MA 44, guaranteed values</th>
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<tr>
<td><strong>TOTAL</strong></td>
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<tr>
<td>PROJECT COSTS 1,664,865 €</td>
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<tr>
<td>SAVINGS 201,342 €</td>
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<tr>
<td>AMORTISATION TIME 8.27 years</td>
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<tr>
<td>REPAYMENT (201,342 x 8.27) 1,664,865 €</td>
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<tr>
<td>SAVINGS ON USEFUL LIFE: 2,361,742 €</td>
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<tr>
<th>CONSUMPTION</th>
<th>SAVINGS</th>
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<tr>
<td>(Reference value)</td>
<td>(guarantee)</td>
</tr>
<tr>
<td>WATER m³ 75,992 €</td>
<td>44,711 €</td>
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<tr>
<td>ACTIVE CURRENT MWh 732 €</td>
<td>34 €</td>
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<tr>
<td>REACTIVE CURRENT MVArh 145 €</td>
<td>145 €</td>
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<tr>
<td>DISTRICT HEAT MWh 2,181 €</td>
<td>1,322 €</td>
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<tr>
<td>SUM € 405,042</td>
<td>201,342</td>
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As at: October 2007
Surface waters and ground water

Maintenance and restoration of the water quality Prevention and renovation

The legally specified measures to maintain and restore the water quality, the water monitoring, and the water status monitoring measures, as well as the collection of the hydrological basics have been implemented.

Revitalisation of streams and rivers

The renaturation of the Wien river in the area of the retention tanks at Auhof and the confluence areas of the Rotwassergraben and the Grünauer Bach with the Wien river were completed and revitalised until 2006/2007. The same is true for the Mauerbauch - from the Laudonbrücke to the confluence with the Wien river - as well as the Lainzerbach - in the section downstream of the Lainzer Teich up to the Glawischnigweg. The revitalisation comprised a section of 100 m for the Alsbach, in the area of the Hanslsteich, and 200 m for the Petersbach, in the area of the Wildagasse. In doing so, a significant improvement of the flood protection has been achieved.

Liesingbach

In 2006, the Liesingbach was revitalised from the city border at Kledering up to the clarification plant at Blumental. Furthermore, comprehensive revitalisation measures were implemented in the retention tank in the area of the Willergasse. The renaturation measures were possible on the basis of the establishment of the Liesingtal collection relief channel in the course of the Liesingbach. The hard ground has been removed, the banks have been extended, and the ground support has been replaced by soft ground sills over which fish can pass.
Wienerwaldstausee
In 2007 the MA 45 took over the Wienerwaldstausee as flood retention tank. Comprehensive construction works such as the increase and the renovation of the dam have been implemented. In the left bank area – upstream of the dam – an old brick wall could be removed and in the course of the same a hibernation place for the strictly protected dice snake could be designed that lives in this area. Quarry stones, stools, and sand could be used to build piles and water-near structures. In the area of the tributary to the Wienerwaldstausee, downstream of Tullnertbach, a second ditch has been dug into the silted area, which ensures another tributary to the Wienerwaldstausee from Mittelwasser. In order to not to disturb or influence the animals living there - mostly beavers - and the territorial relations of the same, the course of the ditch had to be selected extremely carefully and ecological conditions had to be taken into account. The task was to design lakes and pools and to excavate small bank scars in order to design breeding areas for kingfishers and to vary the width of the river strongly. Already in summer 2007 the river had been integrated completely into nature.

Renovation Unteres Heustadelwasser
Along with a strong haze and an ugly green colour caused by algae flowers during the summer, the shallow water body and significant lacks of oxygen repeatedly resulted in dying fish and people complaining in the winter months with ice cover. The MA 45 implemented a long-term water-ecological monitoring programme to obtain a basis for the development of a renovation project. The finally selected procedure "Neptunanlage" basically consists of a floor filter in combination with a phosphor filter in the return to reduce the contents of nutrients and particulate material. In 2007 this system has been built by MA 45 and commissioned successfully. In 2007 the ongoing monitoring results showed a significant improvement of the water quality in the lower Heustadelwasser.

Brownfields
At the end of 2007, the renovation of the brownfields Gaswerk Leopoldau and Zentraltanklager Lobau nearly had been and of the brownfield Shell Pilzgasse had been completed. Thus, Vienna already secured or renovated all war brownfields.

Measurements in the Danube area
Water networking in the Lobau
The continuation of the dotation of the Lobau with water from the new (respectively old) Danube from the Obere Lobau to an extent of maximum 1,500 litres per second into the Untere Lobau has been prepared by submitting a water-economic test with the water rights authority.

Within the framework of the development of the submission documents, numerous ecological tests for the approval of the test from the nature protection and national park rights point of view in the Lobau have been implemented (e.g. studies on the distribution of the animal and plant species). The water networking measures also have been continued in 2006/2007.

Old Danube
On the basis of comprehensive water-economic and ecological measures, an extraordinary water quality of the Old Danube could be achieved, with sight depths extreme for rivers like the Danube.