

The Freiberg Mines Water Management System



The Upper Mines Water Management System

Four artificial lakes belong to the Upper Mines Water Management System: Upper Grobhartmannsdorf Lake, Obersaida Lake, Dittmannsdorf Lake and Dörnthal Lake. They are all drinking water dams. Construction of Rauschenbach Dam in 1968 resulted in damming the Flöha water divider – the original starting point of the Freiberg Mines Water Management System. Since then, the drinking water dam has been the main reservoir of the system. From there, the water for the Chemnitz water supply is piped via Dörnthal Lake to Saidenbach Dam.

In addition, water can be piped from Upper Grobhartmannsdorf Lake to Lichtenberg Dam via a pressure pipeline built in 2001. From there, the regions of Freiberg and the greater Dresden area can be supplied with drinking water.

The Lower Mines Water Management System

Six artificial lakes – Berthelsdorf Mining Lake, Konstantin Lake, Rothbacher Lake, Erzegler Lake and Middle and Lower Grobhartmannsdorf Lake – belong to the Lower Mines Water Management System. They supply Freiberg's industry with process water and serve as flood protection. Some of the lakes are also used for fish farming or as fishing waters, others are developed for tourism. The Erzegler and Middle Grobhartmannsdorf Lakes, for example, are for swimming. Other lakes, however, are located in nature reserves and are habitats for rare animal and plant species.

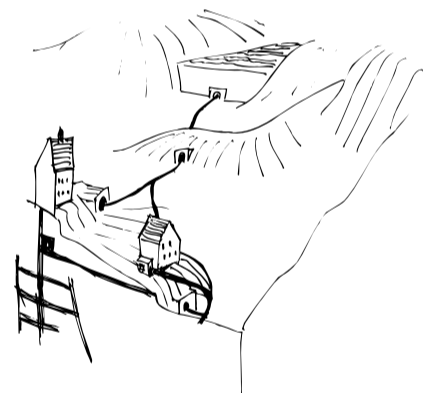
Lower Grobhartmannsdorf Lake

UNESCO World Heritage Ore Mountains/Krušnohoří

The Mines Water Management System has been a listed site since 1980, and since 2019 it has been a UNESCO World Heritage Site as part of the Ore Mountains/Krušnohoří Mining Region.

Freiberg's mining industry produced many technical and scientific achievements that influenced mining worldwide. These include innovative technologies for water lifting. However, the formation of a state mining system also left its mark on society. Mining created a unique cultural landscape in Saxony and Bohemia, which is still visible everywhere in the Ore Mountains. Many historic buildings are still in use today – such as the dams of the Freiberg Mines Water Management System. The cross-border character of the World Heritage sites is also unique: 17 of the 22 parts are located in Saxony, Germany, five in Bohemia in the Czech Republic.

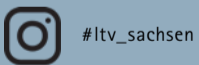
UNESCO protects and preserves unique cultural and natural assets of outstanding universal value as the heritage of all mankind. The World Heritage Convention was adopted in 1972.



Freiberg mine with artificial lake, artificial channel, gullet, opening and sewer shaft

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Obersaida channel with lake dam in background, 1926

Around 1900, however, silver mining became unprofitable due to the introduction of the gold mark as the official currency and imports from overseas. It was completely shut down by 1914. The Freiberg Mines Water Management System was given new tasks: from then on, it was operated for drinking and process water supply, fish farming and energy production.

Two hydro powered cavern power plants were set up in the "Three Brothers Shaft" and "Konstantin Shaft". The 272-meter-deep power plant in the "Three Brothers Shaft" continued to supply energy until 1972. Today, the Mines Water Management System supplies the regions of Freiberg, Chemnitz and Dresden with drinking and process water. It is part of the dam system "Middle and Eastern Ore Mountains".

The end of Freiberg's mining

The Freiberg Mines Water Management System

The Freiberg Mines Water Management System is a water supply system that has evolved over several centuries. It consists of a widely ramified network of gullets (water-bearing galleries) and water channels, which are altogether about 70 kilometers long and connect ten lakes. Construction of the facilities began in the 16th century between Freiberg and Neuwermsdorf near the Czech border and are still in operation today.

The system has its origins in Freiberg silver mining. In 1168, silver was discovered in the Freiberg area. Immediately, a silver rush began, bringing many miners to the previously almost unsettled Ore Mountains. Initially, the silver ore near the surface could be extracted without considerable technical effort. From the 15th century, however, the miners had to dig deeper and deeper to find mineral resources. In the process, they encountered groundwater. At first watermen drained the pits by hand. Later, pumps driven by water power were used for this purpose.



Upper Grobhartmannsdorf Lake








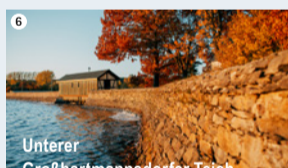

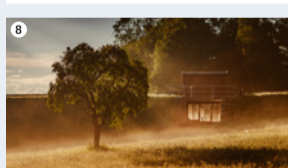
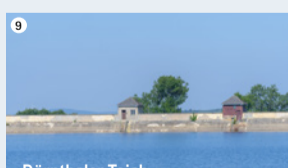

Dittmansdorf Lake

The Electoral Gallery and Gullet Administration

However, hydropower was also used to extract and process mineral resources, which increased the demand for water immensely. Due to a lack of water, Freiberg's mining industry was threatened with extinction in the 16th century. By order of the Elector, the planned development of a water storage and supply system for Freiberg's mining and metallurgy began in 1558. After the Thirty Years' War (1618–1648), the Elector's Gallery and Gullet Administration was founded in 1684 – the predecessor of the Freiberg Mines Water Management System. As a central authority it was to harmonize the water needs of the mining industry and the city population.

Gradually, existing lakes were upgraded for mining or new ones were created. These included the Berthelsdorf Mining Lake, which had already been created before 1555, as well as the Rothbächer and Erzengler Lakes on the Münzbach stream. From 1562, the construction of artificial channels and gullets took place concurrently on the advice of mine master Martin Planer. The system was finally completed in 1882.



 <p>Konstantin Lake Construction period: 1921 to 1922 Main use: process water Content: 35,000 m³ Feature: youngest lake</p>	 <p>Berthelsdorf Mining Lake Construction period: 1558 to 1560 Main use: process water Content: 385,000 m³ Feature: oldest lake</p>
 <p>Rothbächer Lake Construction period: 1564 to 1569 Main use: process water Content: 82,000 m³ Feature: nature reserve</p>	 <p>Erzengler Lake Construction period: 1567 to 1570 Main use: process water Content: 121,000 m³ Feature: EU bathing water</p>
 <p>Middle Grobhartmannsdorf Lake Construction period: 1726 to 1732 Main use: process water Content: 464,000 m³ Feature: longest reservoir dam</p>	 <p>Lower Grobhartmannsdorf Lake Construction period: 1567 to 1568 Main use: process water Content: 1.8 million m³ Feature: largest lake</p>
 <p>Upper Grobhartmannsdorf Lake Construction period: 1591 to 1593 Main use: drinking water Content: 1.1 million m³ Feature: transfer to Lichtenberg Dam</p>	 <p>Obersaida Lake Construction period: 1728 Main use: drinking water Content: 150,000 m³ Feature: pre-dam of Saidenbach Dam</p>
 <p>Dörnthal Lake Construction period: 1826 to 1828 Main use: drinking water Content: 1.4 million m³ Feature: highest reservoir dam</p>	 <p>Dittmansdorf Lake Construction period: 1826 to 1828 Main use: process water Content: 528,000 m³ Feature: highest Lake</p>