ASSOCIAZIONE PRO MOLTRASIO

Comune di Moltrasio
Assessorato al Turismo

Microturbine and ancient watermill

Following the smallpox and typhus epidemics in Moltrasio between 1881 and 1885, the Municipal Administration initiated a study in order to know the causes that made the village so exposed to the plague. The provincial health committee stated that it stemmed from the water wells used by the inhabitants which was not pure. Despite few financial resources, immediately began the procedures to build an aqueduct to bring water from the Vesporina natural spring to the inhabitants. In fact, the spring water, after the analysis carried out by Municipal Chemistry laboratory of Milan, turned out to be excellent for characteristics of chemical and microbiological purity. The natural spring, property of Carlo Del Vecchio, was ceded to the Municipality at a cost of 300 lire, a modest amount.

Above the Vesporina spring water

On the side, the two waterfalls characterizing the territory of Moltrasio: on the left, Cam's waterfall, on the right, Pizzallo stream's waterfall, along this stream there were, anciently, the watermills

Microturbine and ancient **watermill**

The project was approved on 7th August 1887, with a decree of King Umberto I. Despite were planned two years of construction, the enthusiasm and the need were such that the aqueduct of Moltrasio was inaugurated on 15th August 1888. It brought water to the Vighinzano, St. Roch, Crotti and Borgo areas. A memorial plaque was affixed where took place the inaugural speech, the then Vittorio Emanuele's Square, today's St. Roch's Square.

From that day "the water to drink and cook" began to be drawn from the numerous small fountains (today there are still nearly 30 of them) built in the different areas of the village, with the warning not to waste the precious resource for other uses.

Until the 1920s, the water coming from the Vesporina natural spring, with its two tanks, was enough not only to run through the aqueduct, but also to activate a microturbine that produced enough energy to power the public lighting. In fact, with the entry into force of the Law of 29th March 1903 in relation to the municipalization of public services, the Municipal Administration had to provide for the system and the exercise of public and private lighting. Therefore, it was decided to exploit the pression generated by the waterfall: a 170 meters fall between the natural spring and the collection tank in the locality of Cam.

Microturbine and ancient watermill

The functioning of the aqueduct and the quality of water were not changed because the water flowed from the spring into the tanks through the turbine, which was perfectly closed as if it were part of the tubing. This way, the Municipality significantly reduced the general expenses.

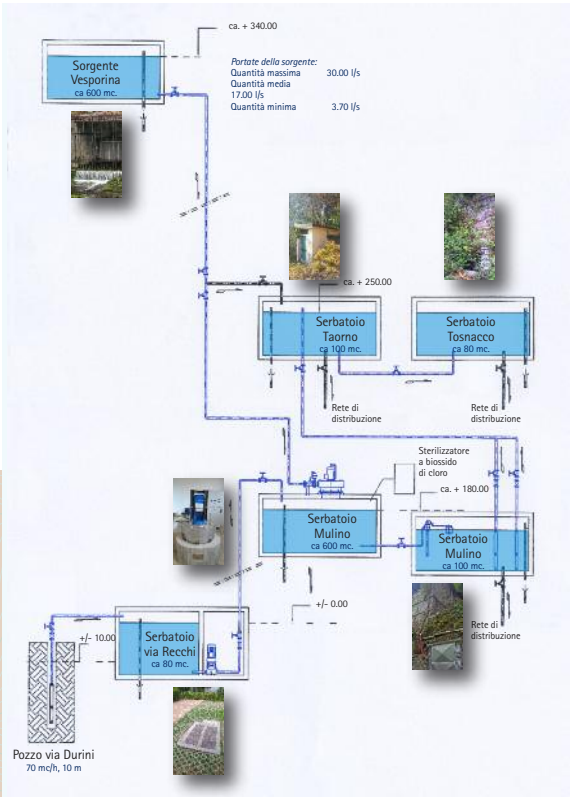
In 2012, it was installed a new 25 KW microturbine with a renewed system, capable of taking advantage of the 170 meters waterfall. At the same time, the water purification system was also renewed and improved.

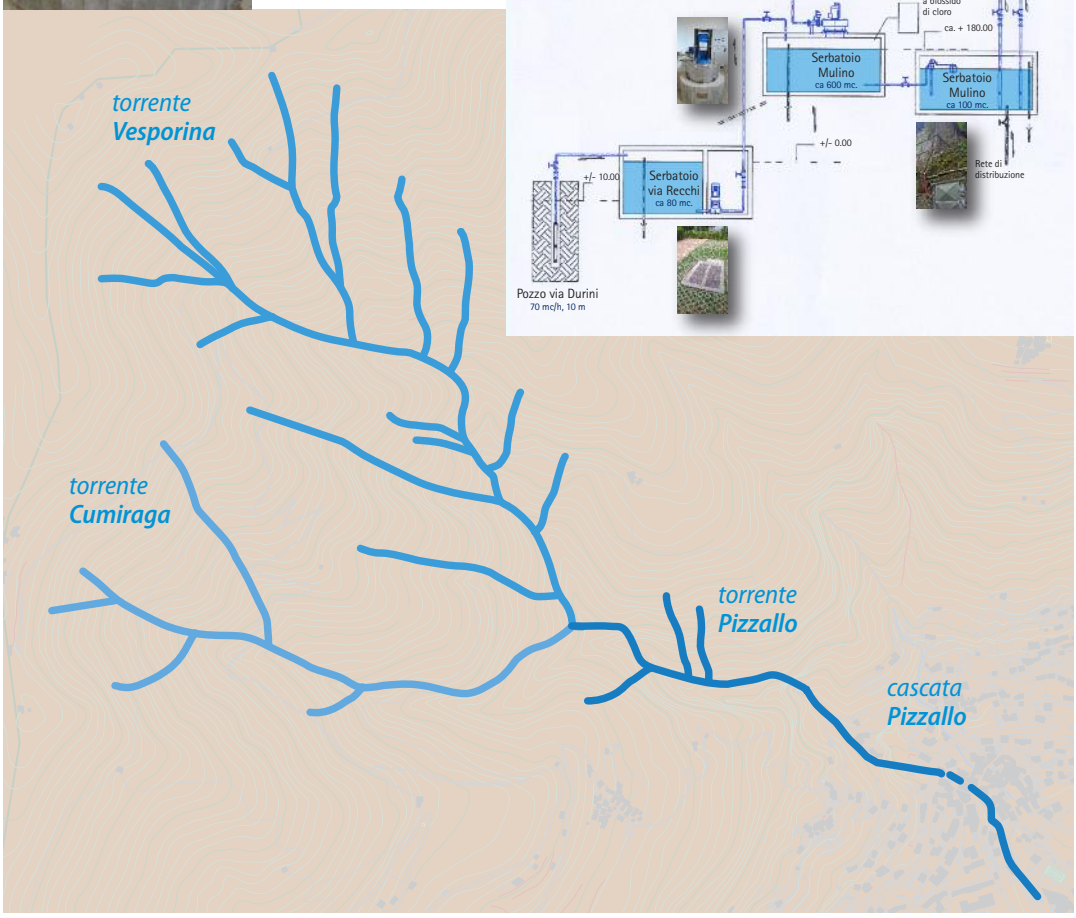
It produces almost 110.000 kWh of energy every year, which is then sold to the electric power industry. Moltrasio's microturbine contributes to a yearly reduction of nearly 84000kg of CO2 emissions.

On the left, the new microturbine

On the right, an illustration of the municipal aqueduct

Below, the orography of the Vesporina, Cumiraga and Pizzallo streams



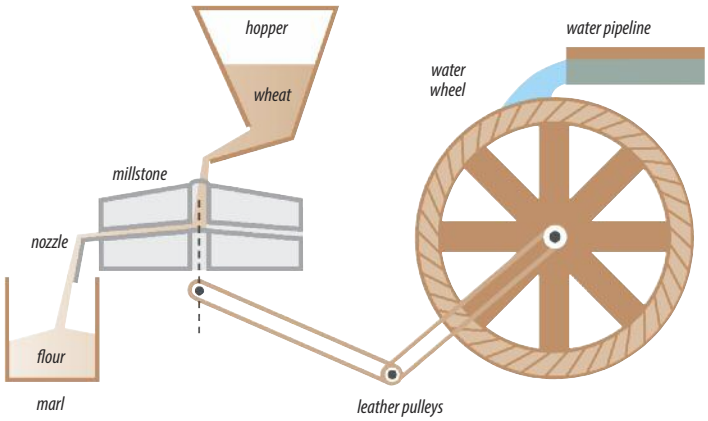


Microturbine and ancient **watermill**

In 2013, in the building where the microturbine is installed, was located an ancient watermill – donated by the last owner Giuseppe Porro – that was in operation in the area of Rungia, present Durini Street.
The watermill, powered by the water of the Pizzallo stream, was already in operation in 1806 and was the last to cease activity, in 1947, under the ownership of Maria Porro.
It produced wheat and chestnut flour; it was also equipped with a grindstone for pressing olives.
The water, which flows rapidly, did not impact directly on the wheel; it was diverted through a flume that channeled and collected the water in small boxes placed on the wheel. This structure helped to control the speed of the rotation and ensured a constant motion. The movement was transmitted through a pulley system that started running the millstone in the inner part. The wheat was pured in the hopper, hence passed to the millstone (in the local dialect, *möla*), composed of two granite blocks. One, circular, smoothed and hollowed like a plate and tilted toward the nozzle, was used as a base; the other one, with a half-spherical form and a hole in the middle, received the wheal and, rotating horizontally, ground it by weight and friction, turning it into rough flour. The flour, passing through the nozzle, was collected in a container called marl. Therefore, it was sifted with sieves made of robust silk to remove the bran, up to get very fine white flour.

The images on the left show the watermill where it operated; the image on the right at the bottom shows the watermill where it is located today

One the right at the top, the scheme of operation of the watermill



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Another watermill wheel was located along the course of the Pizzallo stream, in proximity to St. Martin's Square. Here, there was also a winepress for pressing grapes and shelling walnuts. The winepress, powered by a wooden wheel propelled by foot – there was a person who ran in it –, crushed the walnut kernles that would be later toasted on a tile made of stone of Malenco and pressed for walnut oil. This watermill ceased its activity in the late twenties and the last owners were Sperindio Peduzzi, postman, and his sister Pasqualina, miller.

The so-called "Watermills valley", situated along the course of the Pizzallo stream, was composed of 11 watermills, according to the documents. These mainly worked during the night, when was available a greater quantity of running water. The only expense that the owners had to pay, in addition to the maintenance, was the charge for water usage.

The Watermills valley represented in a map from the land registry. It is possible to see the most recent watermills, marked in blue, and the most ancient ones, marked in red.