

Metka Petrič

**INTERNATIONAL SYMPOSIUM "KARST-FRACTURED AQUIFERS
- VULNERABILITY AND SUSTAINABILITY"
(KATOWICE - USTRŃ, POLAND)**

From 10th to 14th June, 1996 the international symposium "Karst-Fractured Aquifers - Vulnerability and Sustainability" was held at the health resort UstrŃ by Katowice in Poland. It was organized by the Department of Hydrogeology and Engineering Geology of the University of Silesia in Sosnowiec; it was held under the patronage of the International Association of Hydrogeologists (IAH). There were 61 participants from 13 countries (China, Croatia, France, Germany, Ireland, Italy, Israel, Poland, Russia, Slovakia, Slovenia, Switzerland and the USA). The Slovenian colours were represented by me, Metka Petrič from the Karst Research Institute ZRC SAZU in Postojna.

The symposium started with the opening ceremony on June 10th, 1996, in the morning. The participants were greeted by introductory speeches by the chairman of Scientific Committee prof. dr. Andrzej Rożkowski, by the rector of the Silesian University prof. dr. Andrzej Jankowski, by the representative of the Ministry of Environment Protection, Natural Resources and Forestry dr. Jacek H. Jezierski, by the president of IAH prof. dr. John Moore, and by the president of the Karst Commission at IAH prof. dr. Heinz Hötzl. After the official introduction the professional part of the symposium began.

The presentations were divided into five topical themes. The first one was dedicated to the groundwater protection in karst areas, and to systems and methods of preserving the karst aquifers in various countries. The second theme treated the human impact on the karst environment. The authors tried to answer to the question what the consequences of the intensive exploitation of underground water on the state of aquifer systems are - from the qualitative as well as from the quantitative point of view. Discourses in the session on groundwater management in karst areas presented practical researches how to solve the problems of water supply. Also with these speeches a special attention was given to the protection of water sources against pollution. More general problems regarding karst hydrogeology were included in the fourth group. There were shown characteristics and specialities of numerous karst aquifer systems in different parts of the world. In the fifth group research methods in karst-fractured aquifers were spoken about. Among others the use of hydraulic and geophysical methods in karst hydrogeology was shown. I spoke about the study of the rainfall - runoff relations in the experimental karst basin.

The organizer offered also the opportunity to illustrate the themes with posters. So on six panneaus there were primarily presented the pollution problems and the quality of underground water in Upper Silesia. The

afternoon of the 11th June was filled locally, too. For this day was preserved for the visit of the health resort complex at Ustroń. The hosts informed us first with the basic hydrogeological characteristics of the area, then with the methods of draining the used medicinal salty water back into the aquifer. Eventually we visited the most important resort premises, and the computer guided pumping station for the underground water.

During the symposium there were held various meetings of the Karst Commission at IAH. Most of the time was dedicated to the preparation of a new book on the karst hydrogeology, one of the next IAH publications.

The second part of the programme was reserved for excursions. On Wednesday, 12th June there were two all day long excursions. The main destination of the first one was the lead and zinc mine Olkusz, lying 30 km east of Katowice. I took part, however, in the excursion to the territory of Tarnowskie Gry in the northern part of the Upper Silesia. We first visited the lead, zinc and silver mine where the ore was excavated from the 12th to the beginning of the 20th century. The consequence of the years long mining is a dense network of galleries, shafts and drainage system in the Middle Triassic carbonate rocks. Very interesting are also the hydrogeological conditions, for two of the aquifer zones are separated by an intermediate layer of poorly permeable rocks. The upper aquifer part is equipped with horizontal drainages which drain water to the near river, while the water from the lower zone is pumped. We went to see also Staszic, the oldest of the pumping stations in Upper Silesia. Here a relatively pure water is pumped. But a much greater ecological problem is represented by the outflows of 65 coal mines in the area. About 500 m³ of waste water from these mines flows into rivers every minute. Because of that the rivers are very polluted. Another unpleasant consequence of the years long mining is the subsidence of the surface above the mines. According to the quantity of the excavated material the surface subsides from some centimetres to one meter a year.

The afternoon excursion of 13th June took us to the hilly area Beskidy, which is built with Cretaceous and Tertiary flysch sediments. We visited the spring area of two rivers, Visla and Sola which together with their tributaries represent the main source of drinking water for the provinces Katowice and Bielsko-Biala. Of a really great interest were the wells of salt water with a high concentration of Na, Cl, J and Br in the surrounding of the town Sol. In the evening the symposium was officially closed. The next morning I took part in the post-congress excursion to Krakow and to the salt mine Wieliczka.

The given lectures have been collected in the final publication. In the introductory part of the book it is written that the purpose of the symposium was to offer the participants possibilities to exchange opinions and ideas on the characteristics of the karst-fractured aquifers, the presentation of their studies, and their protection. The majority of the participants would certainly agree that this purpose was completely achieved.