

**PETRA PARTY****LILI KENÉZ****ALMA MÓRITZ**

World Water Prize Competition – National Final – Hungary

PETRA PARTY has been studying in the Boronkay György High School since 2011. She goes to an environmental specialized class. Her favourite subjects are biology and chemistry. She reached the second place in a national competition on environmental protection in 2013. She took part in the Stockholm Junior Water Prize.

ALMA MÓRITZ attends the Boronkay High School in Vác. She has been going to a biology and chemistry class and has studied English for 12 years. She would like to be a veterinary surgeon and will apply to a veterinary university next year. She participated in the Stockholm Junior Water Prize.

LILI KENÉZ, student of the Boronkay György High School, has been studying in a specialized biology and chemistry class. She would like to study and work in the field of natural sciences in the future. Lili wants to do research abroad, so she has been studying English and Japanese. She has participated in national finals such as the Georgikon Biology Competition and the Conference of Scientific (TUDOK).

"Disappearing Water - The Decrease of Groundwater in Mount Naszály region"

An excerpt from their research paper:

A decline in groundwater levels can be experienced worldwide due to global warming. We browsed through related literature available in Hungary, and we realized that nobody had ever paid attention to our region. We looked for a place not yet largely influenced by urbanization to find out if this problem exists in our surroundings, too. We chose the outskirts of Vác, which stretches around Mount Naszály.

Our original idea was to measure the decline in groundwater levels in the region by the monitoring of the dug and drilled wells, and with the data acquired, we wanted to draw a conclusion. During our research, we made interviews with local people. Their observations served as a basis for our project. With our research, we wanted to confirm or refute these observations. In most of the cases we could support our hypothesis comparing data downloaded from CarpatClim. We collected data from 1961 to 2010. We also did research in the Archives of Vác to find

earlier descriptions and pictures.

Then we recognized that we have to deal with a more complex problem. Here, it is not only global warming that has caused the decline. Mount Naszály is still a mining site. This activity is considered the primary reason for the change in microclimatic conditions negatively impacting groundwater levels.

The first problem is that the barren rock surface absorbs and emits heat. Therefore, there is a large difference between temperatures measured at the mountain

and in the city. Consequently, the effect of global warming is augmented. According to a local resident, during the last 20 years the temperature has risen approximately by 15 degrees. We could verify the rising tendency in air temperature with data from CarpatClim, but probably it is mostly due to the global climatic change.

Secondly, the changed wind and air flow conditions are believed to have caused the 'hot-eye' above the mountain. The rising hot air mass, created by the vast barren surface of the stone pit, disturbs the Foehn wind



carrying precipitation over the mountain. Due to this phenomenon, the type of the precipitation has changed. According to the data of CarpatClim, the snow water equivalent values of this area have decreased. This means snowfalls have been replaced by quick, heavy rainfalls. The problem is complex because water cannot be retained.

Moreover, due to an apparent absence of flora that disappeared from the area, precipitation simply pours down to the foot of the mountain, as there are no plants that could halt its flow.

The slopes of the mountain have been inhabited since the Middle Ages, and people have always been engaged in subsistence agriculture. In the previous century, fruits grown here were traded all across

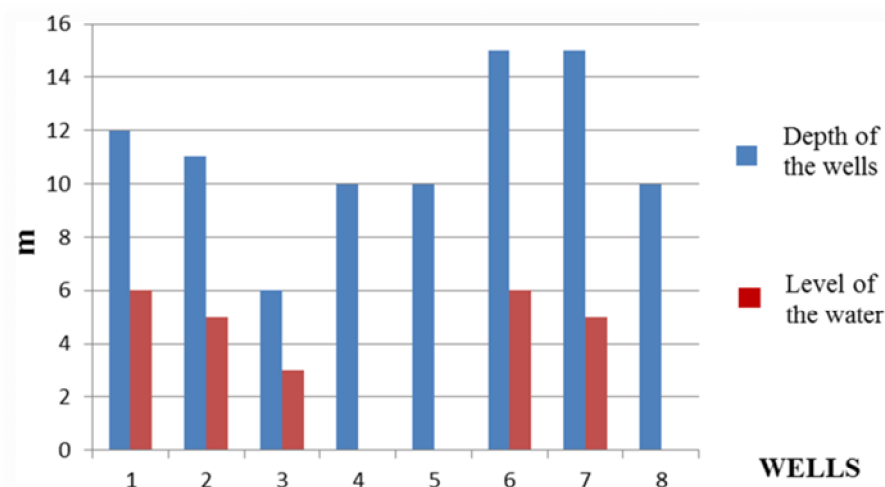
Europe (e.g., Munich, Vienna). Besides this, growing flowers also used to be significant. With the opening of mines, these were gone and farmers looked for other subsistence activities. In this way the fruit-trees and vines, which could absorb the water, disappeared too. The situation has even been aggravated by the decline in groundwater levels. The only place where there is enough water is the foothill region, which is called Well Valley.

We propose that the only viable way to solve issues related to Mount Naszály is to recultivate and revive the region. Locals have to face huge difficulties like frequent landslides on the steep slopes and financial problems. Moreover, it is not just an environmental and

agricultural problem, but also a cultural one. Due to the huge and constantly growing generation gap between our generation and our grandparents' one (who are maybe the last farmers here) we probably will not replace them.

We did this project for an international competition for high school students, the Hungarian sorter of the Stockholm Junior Water Prize. We heard about the groundwater level problems in Hungary so we started to study an enormous amount of literature. We saw experts about the problem and then found the perfect topic, the decrease of groundwater in Mount Naszály. We would like to help with improving the situation in our region in an economical and environmental way and draw the inhabitants' attention to the local problems.

After the fieldwork we started to write our twenty-page-long essay. We sent it to the organizers of the competition and after a month we had the result; we were in the best six from 33 competitors. Then we had to make a presentation



and a poster. We summed up the essence of our work and made diagrams and photos to make our poster interesting. The English language played a very important role during our work. First, we wrote our essay in Hungarian and then we had to translate it, but it contained many geographic and hydrographic technical terms. Our class mates and teachers helped us too. We owe a lot to our willing lector, a geography and English teacher in our school. For the final we had to study it in a shorter form and practice a lot because of the pronunciation. We never thought that the most difficult word would be "water". Finally, we did our best and made a great presentation. Our opponents were very well prepared; we heard some fantastic ideas. The judges were fair, and the atmosphere was very friendly. Of course, we are a little bit



frustrated that we came second; it was a really close contest.

All in all, we really enjoyed it, and it was a great challenge to us. In our opinion everybody of our age who wants to make something worthwhile in the future should make no scruples and start practicing right now. It is important to get used to the taut situations and teamwork.

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