



# ASAREL-MEDET JSC IMPLEMENTS TECHNOLOGIES OF THE FUTURE UNDER THE INTERNATIONAL X-MINE PROJECT

*A research consortium develops new sustainable mining sensor technologies and sets an innovation trend in mining*

Asarel-Medet is the only Bulgarian company which forms part of the large-scale research X-Mine project coordinated by VTT, Technical Research Center in Finland. The international innovation consortium unites scientific institutes, equipment manufacturers and mining companies from various European countries. The X-Mine develops new geological exploration sensor technologies and implements digital applications for deposit modeling and more efficient ore processing.

„These are the technologies of future and we are among the first European countries in which they undergo a pilot implementation. Since this year, we use a sensor scanner for drill cores from specialized geological exploration, automated mineral sorting equipment and a new specialized software for result assessment and analysis. This improves ore mining and processing efficiency and has a favorable environmental protection impact“, Desislav Ivanov and Stanislava Milusheva who are part of the Mine Engineering department team at Asarel-Medet comment its advantages.

The new sensor technologies are based on X-ray fluorescence (XRF), X-ray transmission (XRT) and 3D visualization technologies. All of them are incorporated to mineral sorting equipment as well as ore deposit modeling and mining operations planning software systems.

Project equipment underwent its pilot implementation in two mining companies in Sweden and Greece in 2018 and this year this occurred in Cyprus and Bulgaria where the partner is Asarel-Medet. Thanks to X-Mine, the mining companies are anticipated to achieve up to 20% reduction of their transportation costs, 7% reduction of handled waste, from 10 to 30% lower power consumption and carbon emissions reduction. The schedules envision that the products would be commercialized within two years after the project completion when other companies will have access to these technologies as well.

The X-Mine research project has a total budget of 12 million Euro and it is funded under Horizon 2020 program of the European Commission. It is believed that in a long-term plan the new methods will revolutionize the exploration and characterization of existing and new deposits since they will optimize the entire value chain of mining operations. By applying them, the mineral grain size, their distribution and the entire structural, geological, geochemical and mineralogical information will become known even at the geological exploration stage. Thus, mining will not only become more efficient, but the environmental impact will also be reduced. One of its significant advantages is that less mining waste will be generated and mining locations will be more accurately selected. Simultaneously, the consumed electric power, transportation costs and carbon emissions will be reduced as the researchers summarize. The X-Mine project will make the development of smaller and complex deposits feasible from economic perspective and will potentially increase the European mineral resources. High environmental protection and mining sustainable development standards are set in it as well.

*Ana FINDZHKOVA,  
Communications Department Manager*

# THE PROFESSION OF GEOLOGIST

*Desislav IVANOV:*

**Geology was the only major which I applied for at the university**



There are two types of teachers. The first inundate you with abundant information, a small part of which you manage to remember, but the second inspire you just with a slight incentive. Such a teacher at the elementary school became the reason for Desislav Ivanov, a geologist at the Mine Engineering department, to choose his future profession.

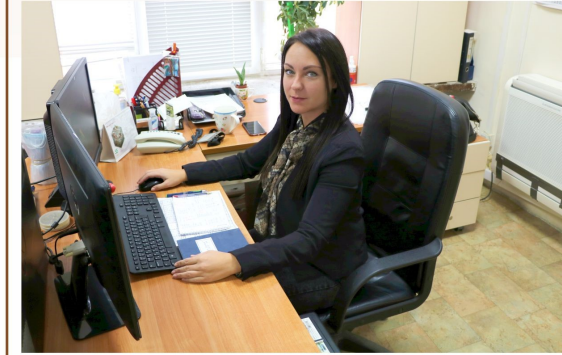
„Our Geography teacher was an elderly person who told us that Geology used to be a compulsory subject at high school when he was a student,“ Desislav who joined the team of Asarel-Medet JSC as a participant in the company’s internship program ten years ago says.

„Many of our Geography classes at that time were full of fascinating and detailed geological stories. Even then, I knew that Geology would be the only major that I would apply for at Sofia University. On the other hand, it would not have been exciting, if I had become an economist like my brother and sister. Our work is rigorous, challenging and satisfying. The difficulties we face are diverse and numerous and are related both to the activity itself and people who are involved in the process. I overcome them with professional qualities and moderate calmness,“ Desislav shares. A clear mind and a healthy body are mandatory for this profession which constitutes the basis of mining. Visiting Sperrgebiet, the national park of Namibia where one of the world’s largest diamond deposits is located is among the young geologist’s dreams. Tourist access is prohibited to 95% of its territory and visits are allowed only to organized visitor groups entitled to a special access. However, both visitors and vehicles are thoroughly checked for diamonds and anyone who is caught with a precious stone might be sentenced to up to 15 years imprisonment.

„There are thousands of discovered and undiscovered geological phenomena in Bulgaria and all around the world, but I personally have a purely professional interest in visiting Sperrgebiet“, Desislav Ivanov admits.

*Stanislava MILUSHEVA:*

**All difficulties are easy to overcome with a smile and positivism**



The internship program paved the way to Asarel-Medet JSC to another geologist from the Mine Engineering department as well, Stanislava Milusheva. She joined the company’s team in 2013.

„Our work is dynamic, diverse and interesting. Geology is an exclusively comprehensive science and I believe that more adolescents could become familiar with it, get impressed and continue their development with it“, Stanislava Milusheva says.

„My geological journey began in St. Ivan Rilski University of Mining and Geology. Having completed my first year as a student there and the internship program at Asarel-Medet, I already knew that this was the area in which I would like to continue accumulating knowledge and experience. In this job, like many others, the satisfaction of the well done work is accompanied by overcoming various challenges. However, one’s willingness to work and succeed, the team’s professionalism and last but not least one’s smile and positivism make all difficulties easy to overcome. For me, as a geologist, it would be interesting to start mapping and exploration in proven or estimated areas of significant hydrothermal alterations or lithological anomalies, participate in designing the first drill holes, ditches and mining works where the anticipated final outcome would be the identification of a new cost effective mineral deposit“, Stanislava shares and then she adds: „The source of each person’s resilience is their closest people. I wish I would continue to be as happy as I am with my loving family and continue my professional development in geology“.

*Hristo PAEV,  
Communications Specialist*

