Erasmus+ drives moving forward new horizons!

Govshut Shadurdyyev: MSc in Integrated Water Resources Management

There are numerous opportunities for the university staff to grow and evolve in Erasmus+ international projects since professional development prospects in higher education are often limited.

Erasmus+ projects' innovative approaches are ideal sources for fresh and original ideas stimulating participants to build and develop strong professional and personal relations. The joint project activities contribute to reveal the potential of each member, motivate to improve professionally and personally, and, also, open opportunities for professional growth and career goals.

Govshut Shadurdyyev, a geodesist by specialty (a graduate of Belorussian National Technical University), currently works as a teacher at S. Niyazov Turkmen Agricultural Academy and is actively involved in Erasmus+ projects NICOPA and GEOCLIC.[1] In 2021, Govshut entered a Kazakh-German University master's programme in Integrated Water Resources Management. Due to the Pandemic he studied the first year remotely.

[1] NICOPA works to develop innovative curricula on precision agriculture based on the use of smart technologies: global navigation satellite systems data, remote sensing, intelligent sensors, GIS technology and information in the space latest achievements.

GEOCLIC is targeted at modernization and internationalization of BA/MA/PhD studies in coastal ecosystem environment protection and monitoring using innovative geospatial technologies, big data and remote sensing in Azerbaijan, Kazakhstan and Turkmenistan.

Govshut told, that “participating in the NICOPA project, he could look at his profession from another angle."

> “I understood very well the core of the Precision Agriculture methodology, however, the work on the development of Bologna training programs was a completely new field for me.
> Since Turkmen universities take the first steps in this way, I had many questions related to the Bologna process, and I was trying to explore this myself. Having received the answers, I decided to enter the masters. However, the choice of graduate specialty was not made at once.”

Then Govshut took part in another Erasmus+ project - GEOCLIC, and it was this that inspired his future choice:

> “As a specialist in Remote Sensing Measurements, I had to make land-related measurements. The work in GEOCLIC provided a chance for us to study and use geospatial technologies for measurements of water bodies’ characteristics. Then, when I had realized such important things as interdependence of land and water, the idea of integrated approach, not a sectoral one, came to me. And later, I tried to make this idea more specific: I decided to study further an integrated approach for solving problems of land and water. Based on this, I started seeing and, finally, found the IWRM program (Integrated Water Resources Management), and later managed to get a grant.
> Now, I may safely say that it was the work in Erasmus+ projects that strongly influenced my choice of the master's program and research topic.”

The topic of Govshut’s master thesis is "Seasonal forecasting of Amu Darya River flows to monitor and manage the water balance and resources." Forecasting the runoff of the Central Asia largest and vital freshwater river is very relevant for the region as its waters are used by several countries - Tajikistan, Kyrgyzstan, Afghanistan, Uzbekistan and Turkmenistan.
Govshut says:

> “The water flow of Amu Darya varies greatly from year to year: in high-water

> years, the excess of the normal level reaches up to 108 km^3, and in dry or low-water years - up to 47 km^3. Considering that the downstream countries – Turkmenistan, Uzbekistan and Afghanistan use much water for irrigation, therefore, these countries are most in need of accurate forecasting of the water volume in the coming season. All this is necessary for better planning of agricultural operations and, then, for using water in crops irrigation.
> The favorable location of the Kerki hydropower plant (Lebap Province, Turkmenistan) will be used as a forecasting model, so there is no need to build similar models along the entire trajectory of Amu Darya. It will be enough to forecast the water volume at the Kerki hydropower plant in order to obtain data about the water abundance to get in the next season for Turkmenistan and Uzbekistan. Such an approach to solving the problem emphasizes the originality of my thesis."

Govshut explains that the types of often used forecasting simulations require large amounts of data from different hydropower stations. And, since the countries are reluctant to share such information, in this regard, there is not enough data to assess the situation. Therefore, in his master's thesis, Govshut is going to build a model under conditions of insufficient data from gauging stations in combination with remote sensing data. He intends to analyze the obtained data and, afterwards, to build time-series empirical model using QGIS and R/RStudio.

> "Training in master's program stimulates my aspiration to conduct research work, as well as my wish to share the gained knowledge with my colleagues. But for this I still have to achieve a lot. By the way, I also plan to improve my English.
> I think, when I return to my home university, I will definitely share the obtained data with my colleagues and continue to study on my own. And, if I manage to achieve good results, then I would like to continue my education in doctoral or other master's programme."

Participation in Erasmus+ projects opens new horizons for participants: opportunities to discover new countries and foreign languages, to meet new friends and like-minded

people. It is a unique experience that will make you more resilient to stress and changes, and also help you develop communication skills, orientation in an unfamiliar environment, teach you how to cope with difficulties, give interesting acquaintances and knowledge, and, perhaps, even become the first stage to completely new horizons. In a word - your life will definitely change!

National Erasmus+ Office
in Turkmenistan
Visiting Address: 182, 1958 (Andalyp Ave.)
744005 Ashgabat Turkmenistan
E-mail: info@erasmusplus.org.tm
Website: www.erasmusplus.org.tm

DEUTSCH KAZACHISCHE UNIVERSITAT

TURKMEN AGRICULTURAL ACADEMY

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