



## **Risk assessment of surface water and groundwater pollution through agricultural activity on the catchment area of the Shelek River**

Bulat Zubairov (1) and Assel Dautova (2)

(1) Institute of geography, Kazakh-German University, Almaty, Kazakhstan (zubairovbulat@gmail.com), (2) Kazakh-German University, Almaty, Kazakhstan (asselyaa@gmail.com)

Agricultural activity in rural areas of Kazakhstan can create a potential risk of surface and groundwater pollution. In our contribution, we will focus on the risk assessment of surface water and groundwater pollution in the catchment area of the Shelek River basin in southeast Kazakhstan. Since soviet time, in the research area an intensive cultivation of tobacco was performed which means to use a big amount of pesticides during the growing-process. Therefore, this research was conducted in order to receive reliable data for management decisions justification and for practical testing of approach which is recommended by WHO for drinking water supply based on risks mapping.

For our study, the soil and water samples from tobacco fields, artesian spring, and surface water source were taken for analysis on pesticides content. The samples were investigated in laboratory of Centre of Sanitary and Epidemiological Expertise of Almaty city (CSEE) according to approved methods from the national standards which are accepted in Kazakhstan.

For the first time, in artesian spring small amount of nitrate pollution was found whose groundwater is one of the drinking water supplies of the region.