

THE STUDY OF THE ENVIRONMENT AND HEALTH OF CHILDREN IN THE ISSYK-KUL REGION OF THE KYRGYZ REPUBLIC AND GIS TECHNOLOGIES

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The state of the environment is known to be a major determinant of human health. Water supply and provision of quality drinking water to the population of the Kyrgyz Republic is one of the key problems of environmental health. The GIS on environmental health is practically absent in the republic. There are considerable data sets executed on paper and only in recent years computerization of data has begun.

This study is conducted within the project “Creation of the environmental health GIS of the Issyk-Kul Region, Kyrgyzstan” under the Swiss Programme SCOPES 2000-2003. The aim of this research is to create GIS for the Issyk-Kul Region on the relationship between the environment and health of the population.

The assessment of environmental conditions and the health of the population of the Kyrgyz Republic is being carried out in one of the 7 regions of the republic. The study area is 41,300 square km with a population of 419,708 (including 211,849 women) as per 2003. Environment and health data were collected for 5 districts and 2 cities of the Issyk-Kul Region during 3 field trips. The assessment of water quality, primarily drinking water quality, was carried out. The assessment of the health of the population was done using the International Classification of Diseases, 10th Revision. Data on water quality were gathered from the records of local sanitary and epidemiological stations, Kyrgyzhydromet, the Ministry of Environment and Emergencies of the Kyrgyz Republic. Data on infectious, noninfectious morbidity of the population and medico-demographical data for the study region were collected at local hospitals, the Republican Medical Information Centre and the National Statistics Agency. The information collected covered years 1999-2001. For mapping, data from the State Agency of Geology and Mineral Resources, Goscartography were used. The data were compiled in computer databases with such softwares as Microsoft Excel and Access. Modern methods of data analysis are used: multivariate statistics, geostatistics, Arc GIS 8.3 etc.

The results of this work by the present time are: creation of databases in MS Access on environmental and population health parameters, including data on the health of children of the Issyk-Kul Region. For the first time versions of electronic maps on gamma radiation and noninfectious morbidity (iron-deficient anemia, endocrine diseases, including endemic goiter, neoplasms) for the Issyk-Kul Region have been produced.

The collaborative work of Swiss and Kyrgyzstan teams has enabled to create for the first time the geographical information system on the state of the environment and the health of the population for the Issyk-Kul Region. The experience in epidemiological and environmental GIS production for the Issyk-Kul Region can be used as a model for other Central Asian countries and other regions.