Processes of continental water quality degradation stemming from the powerful anthropogenic pressure continue to figure prominently amongst current environmental problems. Particular attention has been paid to groundwater because it has been considered that it may show better quality indices compared to surface water sources. At the same time, rapidly accumulating water chemistry data indicate that such views may need fundamental revision, especially in areas where, due to a variety of circumstances, the natural condition of groundwater formation and factors influencing its quality are disturbed.

The processes of terrestrial water quality degradation linked to strong anthropogenic impact are among the most important of modern ecological problems. It should be noted also that the growing store of medicoecological data indicates an obvious and direct cause-and-effect relationship between the infectious and non-infectious sickness rates in the population and the degradation of water quality in groundwater sources used for drinking purposes.

Even in countries featuring advanced development of municipal water supply systems and effective environmental protection agencies, the role of water factor in the spread of infectious diseases still persists, in particular as a result of the use of contaminated groundwater from the topmost aquifer. For instance, most (76%) of the 34 outbreaks of water-related infections recorded in 1991 and 1992 in 17 states of the USA were associated with the use of water from wells for drinking. A total of 17464 persons were affected. Outbreaks were caused by dysenteric bacteria, hepatitis A viruses, Lamblia or cryptosporidia (Moore et al., 1993). The detection of groundwater infected with cryptosporidia is more and more frequently mentioned in publications. This is of great importance, because this agent causes an infectious disease that undermines the immune system of organisms. Twelve
outbreaks of this disease have been detected in the United States since 1985. The agent of the disease was detected in groundwater sources (Rose, 1997).

The use of poorly protected subsurface water sources can be a cause of outbreaks of viral intestinal infections. An example is the outbreak of acute gastroenteritis (up to 3000 affected persons) that occurred in Finland in 1994 because of use of water from wells infected by adenoviruses A and C, rotaviruses, and SRV viruses (Kukkula et al., 1997). Water-related outbreaks of intestinal infections associated with the consumption of contaminated groundwater are recorded in a number of Russian regions. Substantial viral contamination of drinking water and its supply sources is established: in 1993, 1994, 1995 the average percentage of tap water contamination with enteric viruses was 1.6%; 1.4% and 1.28%, respectively; with hepatitis A virus antigen - 7.6%; 7.8% and 5.8%, respectively; with rotavirus antigen - 3.6%; 3.7% and 7.68%, respectively (On the state ..., 1996).

Investigators pay more attention nowadays to data on medical ecological problems associated with chemical groundwater pollution, primarily with the incidence of cancers.

Studies conducted in the USA by the National Cancer Institute (Cantor, 1997) showed an increased risk of the development of cancer pathology in the population groups consuming groundwater containing elevated concentrations of nitrites, asbestos-containing products, radionuclides, arsenic, and secondary products of water chlorination. Studies conducted in the Argentine confirm a correlation between an increased mortality due to bladder cancer and the presence of inorganic arsenic in drinking water (Hopenhayn-Rich et al., 1996). The importance of this problem for groundwater is noted also in other papers (Haupert et al., 1996).

Japanese researchers (Tohyama, 1996) established a positive correlation between uterine cancer and the fluoride content of drinking water in 20 areas over that country.

Recent publications pay increasing attention to data on penetration of carcinogens into groundwater due to fuel leakage. For instance, in the course of their studies of the risk of cancer due to groundwater contamination with MTBE, M.C. Dourison and S.P. Felter (1997) established that this compound remains toxic when it enters humans from drinking water. The authors pointed out that the effect of MTBE on cancer incidence requires further investigations. At the same time, according to B.R. Stern et al. (1997), nearly 5% of the US population consumes water with high concentrations of this substance (700 to 14 000 ppm).

The risk of an increase in the incidence of cancer is also associated with carcinogenic organic compounds of anthropogenic origin in subsurface sources.