Water quality analysis in the district of Kosovska Mitrovica

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Abstract: Water is extremely important for the continuation of life. Water is life. Water is an essential substance not only for humans but for all living things. The demand for water, whose usage areas are expanding with the change in living conditions, is increasing day by day. Water, soil, and air, which are the basic components of the earth, constitute the basic components that ensure the continuity of life. Using and protecting the natural composition of soil, water, and air without disturbing it is an absolute necessity for sustainable living and the natural environment. In addition, for a sustainable natural environment, economic decisions and natural environment decisions should be evaluated together and together in accordance with the purpose of sustainable development. As a matter of fact, in order to protect the natural environment and transfer this value to future generations in the same way, all the elements that make up the natural environment should be considered as an inseparable whole and the perception and awareness that the negative effects that may occur in any of them will affect the other elements in sequence. Since ensuring the sustainability of water and resources is very important for life, benefiting from water resources in various fields should be seamlessly sustainable in the future as in the past and today.

Keywords: water analysis, environmental, drinking water

1. Introduction

Water covers more than two-thirds of the planet, but readily available freshwater – found in rivers, lakes, wetlands, and aquifers – accounts for less than 1 percent of the world's water supply. As the global population grows, so do the demands for water – for drinking, sanitation, agriculture, and energy production, among many other uses. At the same time, human activity and climate change are disrupting natural water cycles, putting the source of our water, our freshwater ecosystems, under pressure. [1]

Pollution, infrastructure development, and exploitation of resources represent additional challenges. Poor water management, pollution, infrastructure development, and resource extraction further exacerbate the negative impacts on our freshwater systems.

Water, as an irreplaceable foodstuff, occupies a special place among environmental factors, on which the life and health of people, as well as the economic and cultural development of society, depend [2]. Water is a good of general interest, it represents the wealth of every country, it is socially owned, and it serves to satisfy general and individual needs [3]. Water is essential for maintaining life in general and makes up 60-70% of body weight [4].

From a hygienic point of view, water is important not only as a basic foodstuff and an environment in which complex biochemical processes take place but also because the causative agents of many infectious diseases and chemical toxic substances can be transmitted with it.

The epidemiological importance of water is great, every year around 3 million people die worldwide due to the use of improper drinking water [5]. Due to the importance of water and its multipurpose use, it enjoys special protection and is used in the manner prescribed by law. Water of unsanitary quality can endanger health in several ways.

2. Water analysis

The beginning of the organized supply of drinking water in Kosovska Mitrovica dates back to 1938. The basic raw material for providing drinking water is the Ibar Lepenac canal, water intake from Lake Gazivode.

Water quality control was carried out from the central and city water supply systems in the north and south of Kosovo and Metohija: 988 samples for physical and chemical analysis and 989 samples for bacteriological analysis. The percentage of defective samples is 3.64% in physical-chemical testing and 5.86% in bacteriological testing of water quality. Since the end of 2019, Kosovska Mitrovica has been supplied with water from the new water supply system and the old water supply system located on the south side of the city. Drinking water in the municipality of Kosovska Mitrovica is chemically correct and safe for health, and the percentage of defective samples in the 2022 physicochemical test was 1.62% and in the bacteriological test 3.24%. Increased turbidity, the presence of $KMnO_4$, and the presence of E. coli bacteria are the causes of defective water samples.

Tests were conducted in accordance with ISO standards JUS ISO 9001 and JUS/ISO/IEC 17025 in the accredited laboratories of the Institute for Health Protection of Kosovska Mitrovica.

Table 1. The results of testing the hygienic correctness of drinking water and other waters presented as an annual cumulative report.

	Chemical correctness of water			Biological correctness of water		
	Total number of samples	Correct	Defective	Total number of samples	Correct	Defective
Kosovska Mitrovica central water supply	431	424	7 (1.62%)	432	418	14 (3.24%)
Kosovska Mitrovica surface, waste, and other waters	30	29	1 (3.33%)	30	29	1 (3.33%)

Comparing the number of correct samples in relation to the number of defective ones, which is very small, indicates a high level of drinking water quality in the area of Kosovska Mitrovica.

3. Conclusions

Water is one of the most essential needs for life. Water shortages already exist in many regions, with more than one billion people without adequate drinking water. This situation is one of the most important indicators of why we should be very sensitive and conscious towards our water resources. As the world population increases, the need for water also increases. However, as a result of different effects and especially human activities, water resources are decreasing, polluted and still used unconsciously. Therefore, it is necessary to take and implement measures as soon as possible and we have to use water resources carefully. We must act in the awareness that the lives of future generations are in our hands. The prerequisite for this is to leave potable water and a livable environment to future generations.

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