Study of Physico-Chemical Parameters of Water Quality in the Lumbardh Deçani

Ecohydrology

Kewords: physico-chemical, parameters, Lumbardhi, water analysis, quality.

Xhelal Këpuska | **Regional Water Company "Radoniqi", Gjakove, Kosova.**

Abstract

This study deals with the monitoring of physico-chemical parameters of water Lumbardh Decani which is the leading supplier of Radoniq accumulation lake. The said water has multiple uses as irrigation of agricultural lands on the part of Prizren Has side and serves also as the drinking water supply of about 220000 residents of Djakovica, Orahovac and some Prizreniti villages after treatment.. This study presents monthly changes of parameters during 2012. Physico-chemical parameters analyzed were: water temperature, pH value, turbidity, total hardness, chlorides, nitrates, phosphates. This study was conducted from January 2012 to December 2012.Water analysis results showed that all parameters are allowed under the standard limit for surface waters, however, in areas where population is larger, there is no change of water quality due to uncontrolled spill made.

1. Introduction

Water is a natural resource with limited and uneven distribution in time and space. All forms of life and all human activities are dependent on water. Water resources are of great importance to human life and economy and are the main source of meeting the demand for drinking water, for irrigation of lands and industries. Lack of water is considered as a limiting factor of socio-economic development of a country.

Modern industrial development and urbanization have resulted in the formation of large urban areas, industrial zones and the development of intensive agriculture. This has increased the need for water, but also the growth of urban and industrial discharges into rivers without any prior treatment, thereby reducing the possibility of self-purification (auto purification) of water.

The need for clean water, today is considered as one of the biggest problems the global environment. Currently, more than 1.2 billion people worldwide have no access to drinking water while some 3 billion people (half the world's population) do not have adequate sanitation services. More than 200 diseases are originating from contaminated water and about 6,000 people a day lose their lives just by diarrheic diseases.

According to the World Health Organization, an estimated 5 million people die each year from the consumption of contaminated water. Considering the current trend of urbanization in the world by 2025, nearly 3 billion people will need water supply and more than 4 billion for access to sanitation. In Kosova, as in many countries, human health and meeting their needs is increasingly threatened by the poor quality or lack of clean water.

It is estimated that Kosova has limited water resources, thus protecting, maintaining and monitoring their quality is one of the greatest environmental challenges in the society. Sustainable

management of water resources, water protection and improvement of water quality require special commitment by all actors responsible.

In this study, physical and chemical parameters of water of Lumbardh-Decani in 2012 are presented, and from the results, the researchers inferred that water from the inhabited parts is of very good characteristics, but in habited areas along Lumbardh, the water quality starts to deteriorate as a result of uncontrolled spill. This water supplies Lake Radoniq, which after treatment, is used for human consumption.

2. Material and Methods:

Water samples were taken at several different points along the river Lumbardh Decani. The water samples were taken in 500 ml polyethylene bottles which were previously cleaned. The received sample was maintained at 4 ° C in refrigerator of terrain. In the place of sampling, these parameters were set: water temperature, pH value, electrical conductivity, turbidity, etc., while the rest of the analysis were made in the immediate Prime laboratory water treatment facility which is part of KRU "Radoniq "in town.

For laboratory analysis of water, standard methods were used as described by APHA standard. Through UV spectrophotometer HACH, 1500 Spectraquant T-Turbidimeter Merck Regulation , methods titrimetric, conductometric, pH-metric etc, were also utlized.

Table 1. Values of the physical parameters of water Lumbardh

Months	Temperature °C	Turbidity Ntu	pH	Conductivity $\mu S/cm^2$
Jan	5.8	1.05	8.01	260
Feb	5.3	0.98	7.88	255
Mar	6.1	2.12	7.98	260
Apr	6.6	3.45	8.02	268
May	6.8	3.88	7.89	255
Jun	7.2	3.2	7.7	245
Jul	8.2	1.25	8.01	248
Aug	8.8	0.99	7.68	252
Sep	8.6	1.19	7.82	248
Oct	8	2.32	7.66	244
Nov	7.7	1.22	7.72	246
Dec	7	2.33	8.01	255

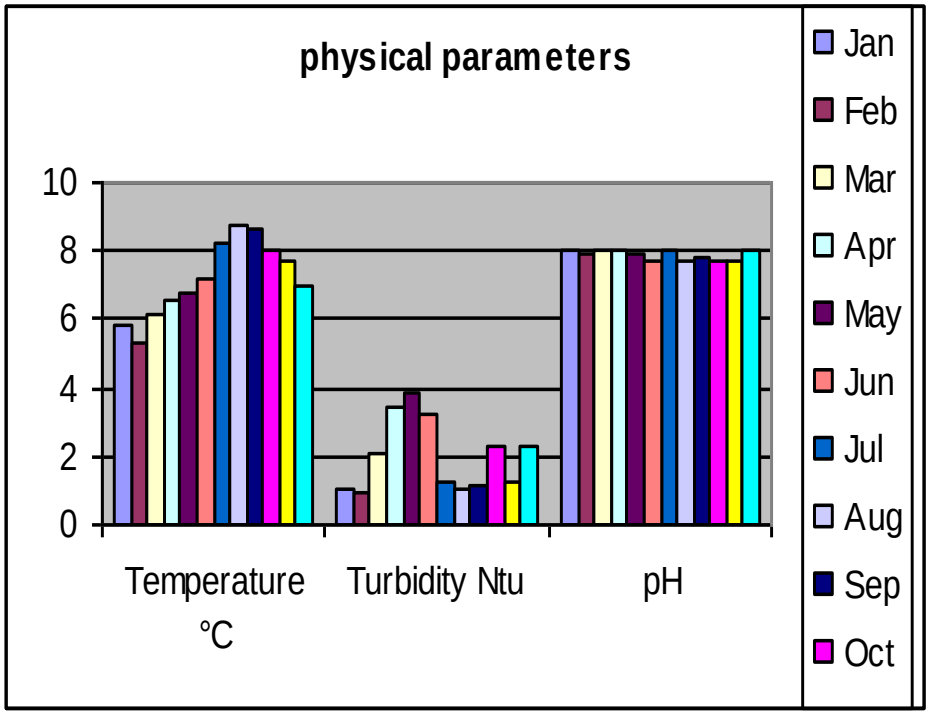

Figure 1. Physical parameters of water Lumbardhi

Table 2 The values of parameters Lumbardh Dry water.

Months	Hardness ° dH	Chloride Cl^-	Nitrate NO_3	Expense KMnO4	Phosphate PO_4^-
Jan	7.28	4.6	0.6	3.18	0.546
Feb	7.2	4.25	0.66	4.02	0.52
Mar	7.12	4.22	1.2	5.12	0.58
Apr	7.28	4.25	2.2	4.26	1.68
Maj	7.46	5.12	2.8	6.4	1.08
Jun	7.32	4.6	1.6	5.8	0.88
Jul	7.21	4.25	0.98	4.62	0.79
Avg	7.25	4.6	1.7	4.12	1.02
Sep	6.88	4.25	1.9	3.86	0.76
Oct	7.02	5.12	2.02	4.64	0.66
Nov	7.24	4.25	0.88	3.16	0.72
Dec	7.12	4.6	0.77	2.24	0.50

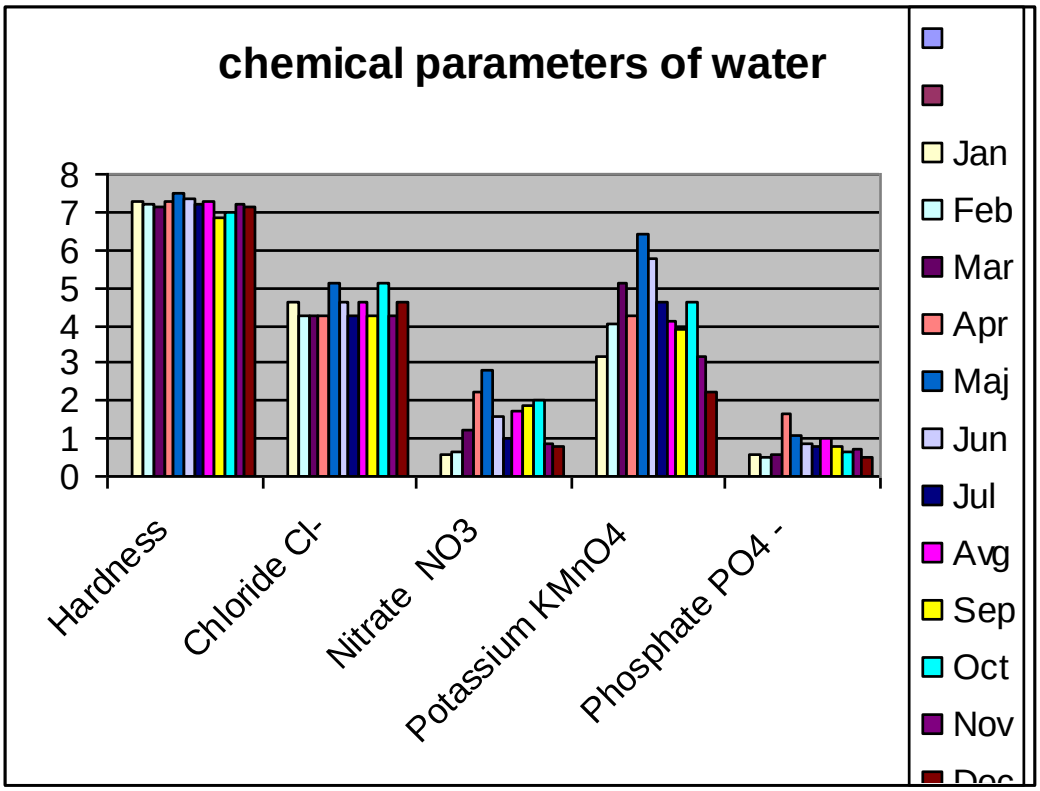

Figure 2.Chemical parameters of water Lumbardhi

3. Results and discussion:

The results of water analysis made in 2012 in the Decani Lumbardhi showed an increase of chemical parameters, especially on the part where it is populated, Thus, causing water pollution with uncontrolled spill. Temperature varies in each month. The water temperature is normal in February and January when there is a decrease the temperature, while in other months, there is a gradual increase. Turbidity increases during April, May, June, when there is a discharge of large amounts of water, as a result of melting snow. PH value is reduced from 7.66 to 8.01. This indicates that the water belongs to the category of moderately soft water.

Nitrates and Phosphates appear with gradual increases especially during the months of April and May when fertilizers in lands around the river are used and accidentally spill into water. There was an expense of KMnO4 because of the large flows of water and uncontrolled spill made in Decani Lumbardhi which eventaully increases organic matter in populated parts.

4. Conclusions

On certain analytical data from water samples, it concluded that water Lumbardh Decani is of very good quality, but the population living along the river and canal should be made aware of environmental protection of Lumbardh as a single supplier of Lake "Radoniq". Permanent control of water quality along the flow Lumbardh is required.

5. References

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