

Determining The Salinity of Groundwater in K.Male', Maldives

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Abstract

Due to the low elevation and small surface area for the island in Maldives, groundwater resource are under threat(1). This study aims to determine the salinity of the groundwater in K.Male' obtained various households and wells. The samples were analysed by comparing it to water quality guidelines provided by the World Health Organization and other published research to determine if the ground water samples in Male' are low saline, brackish, highly saline or fresh.

Introduction

The groundwater resources of the Maldives is one of the two fresh water sources found in the country. Extremely low ground surface elevations, small land surface area and the fresh water lens being only 10 m thick increases the chances of contamination.



Method: The samples were mostly taken using piezometers and taken in varying depths and EC, pH, temperature and TDS measurements are taken on site.

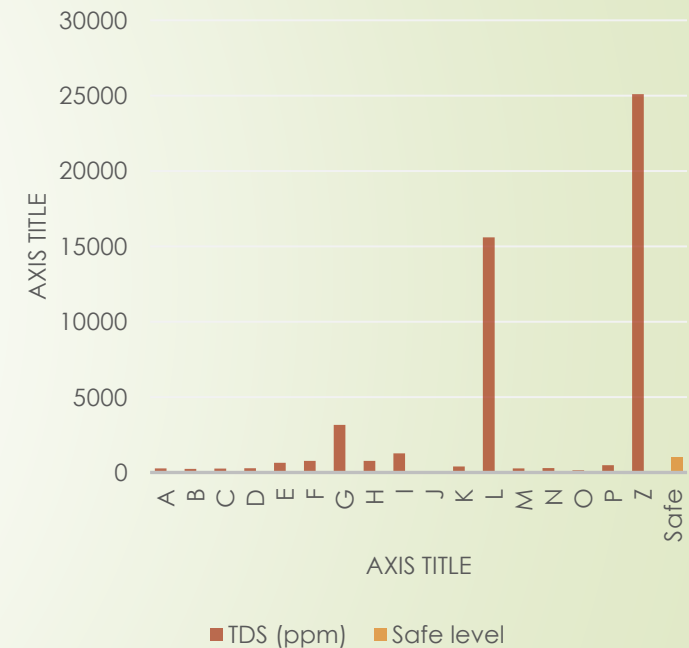
A total of 16 samples, each with a specific location were taken from the wells of mosques and households. One additional sample were taken from boreholes located approximately 40 m in depth to observe any correlation between salinity of groundwater and depth.

Reference

1.Deng, C., & Bailey, R. T. (2017). Assessing groundwater availability of the Maldives under future climate conditions. *Hydrological Processes*, 31(19), 3334–3349.

Result: A total of six parameters were measured in this study which includes temperature, EC, TDS, pH, DO and BOD. To achieve better readings the EC and TDS of all the samples were recorded several times in two different days and the mean value was recorded in a table and analysed.

No	Name of the places where samples were taken	Assigned letter
1	Hukuru miskiy	A
2	Dharumavantha Rasgefaanu miskiyy	B
3	Bandaara miskiy	C
4	House 1	D
5	House 2	E
6	House 3	F
7	House 4	G
8	Eed miskiy	H
9	Masjidhul Shaheedul Abdul Rahman	I
10	House 5	J
11	House 6	K
12	House 7	L
13	House 8	M
14	House 9	N
15	House 10	O
16	Bihuroaz miskiy	P
17	RO Feed water	Z



Conclusion: The results did not show an alarming level of salinity for majority of the areas. However, the EC of only 3 out of 17 samples stayed in range as per safe drinking standards according to WHO.