

# HYDRO INFORMATICS

## Assignment -1

# Drinking Water in OBH

**By**

**K. Sesa Sarath Reddy**

**2020102028**



# Issue to be addressed

- During August and September 2023, an unsettling alteration in the taste and odor of drinking water from the water coolers in OBH was noted by students.
  - Despite repeated attempts by the hostel management to address the issue through temporary measures such as frequent cleaning of the water coolers, the problem persisted.
  - After which Hostel management arranged mineral water from outside of campus for a while for students.
-



# Reason behind the issue

- High TDS levels exceeding 500 mg/litre lead to significant scaling in water pipes and other appliances, including filters. Such scaling can shorten the service life of these appliances.
  - A similar situation arose with the main water filter in the OBH, which was identified later.
  - Once the filter was cleaned and regular maintenance initiated, the reuse of the water cooler recommenced.
-



# Reason behind the issue

- At the time of issue the water inlet is of ground water(bore water) in OBH.
  - But after that water inlet was changed to manjeera water.
  - It was told that just the OBH is using bore water and RO process to filtrate the water.
-



# Current status

- As confidence in the hostel management waned for certain students they opted to purchase water independently.
  - Additionally, some individuals experienced health concerns and were advised to consume mineral water instead.
  - Over time, students gradually resumed drinking water from the water coolers.
-

# Current Temporary Solutions

Regular cleaning of the water coolers and the main filter.

Bought few new water coolers equipped with features including dispensing hot, normal, and cold water.



# Challenges : Students Mindset

Effectiveness of current initiatives:

- Due to the introduction of the new water coolers, some students began utilizing them.
  - However some students with unclear knowledge about the entire situation felt that the main filter remained unchanged; rather, it was regularly cleaned to address scaling caused by high TDS levels.
-



# Potential solutions / Measures

- Making students aware of the entire situation that the management changed the water inlet to manjeera water source.
-



# The analysis Plan

- Demonstrate the correlation between the fluctuations in overall drinking water consumption at OBH and the variations in TDS values of the drinking water during the period of the water issue.

# Data

## ➤ **Water Supply Data**

- ❖ By Aakash Terala
- ❖ Lab: SPCRC
- ❖ Advisor: Dr. Sachin Chaudhari

## ➤ **Water TDS data**

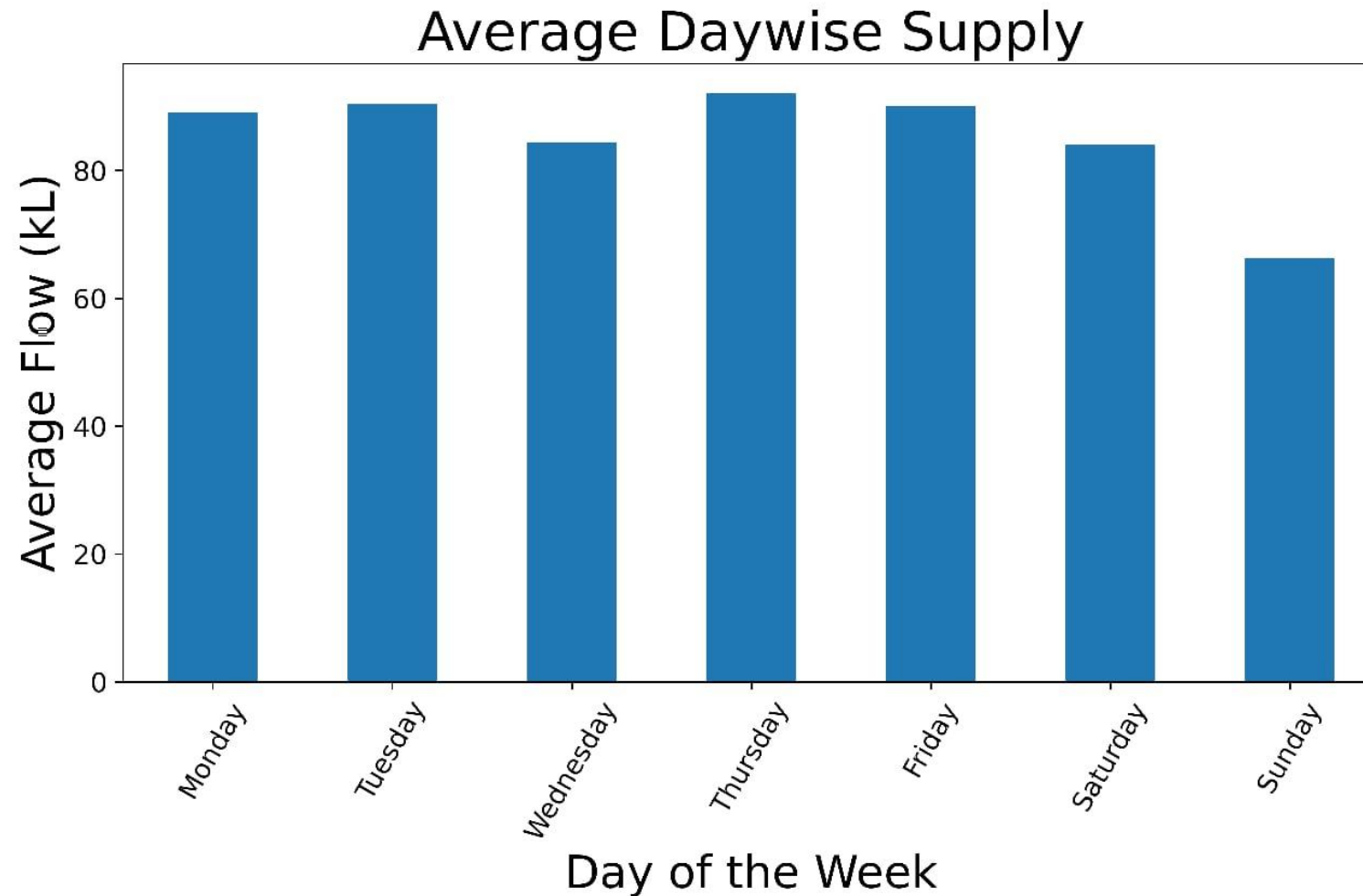
- ❖ Hostel Manager (Bhanu Sharma)
- ❖ Multiple OBH Water Coolers TDS data

## ➤ **OBH Students Responses(Form/Survey)**

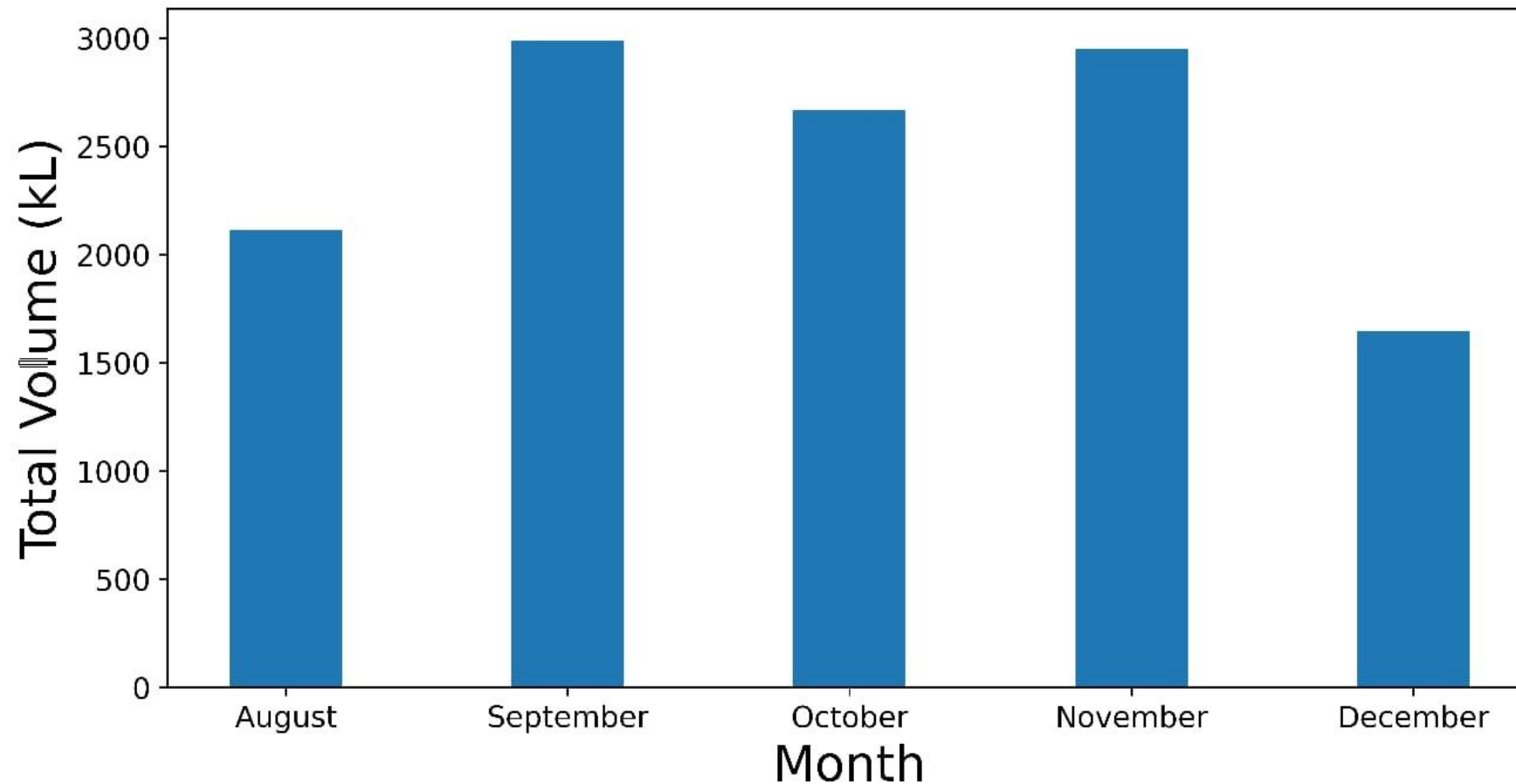
- ❖ A survey conducted by me
- ❖ Students view on OBH drinking water

## ➤ **Oral Survey with maintenance staff**

# Avg Day-wise Drinking water in OBH (2022)



# Monthly water consumption in OBH (2022)



## TDS Level Chart for Drinking Water

TDS in Water (measured in PPM)	Suitability for Drinking Water
Between 50-150	Excellent for drinking
150-250	Good
250-300	Fair
300-500	Poor, not good for drinking
Above 1200	Unacceptable

# Palatability of drinking water

- A Background [document](#) for development of WHO Guidelines for Drinking-water Quality
- Water with extremely low concentrations of TDS may also be unacceptable because of its flat, insipid taste.

Level of TDS (milligrams per litre)	Rating
Less than 300	Excellent
300 - 600	Good
600 - 900	Fair
900 - 1,200	Poor
Above 1,200	Unacceptable

# TDS data of Multiple OBH Filters of March month

Date	3rd floor E block	WC/2F-3	WC/ 3F-4	5 WC/1F - 5	E WC/ 1F - 7	WC / 1F - 2	WC/GF - 1	D WC/ 1F - 6		Avg	Standard Deviation	
				3rd floor D block	D block			E block				
3-1-2024	139	136	146	142	132	128	139	138		137.5	5.606119106	
3-2-2024	156	127	130	126	127	140	142	142		136.25	10.59312445	
3-3-2024	192	142	136	131	136	136	134	127		141.75	20.76225972	
3-4-2024	126	134	130	97	135	130	129	99		122.5	15.39016383	
3-5-2024	137	125	125	120	116	116	118	111		121	8	
3-6-2024	129	121	122	110	112	115	118	112		117.375	6.412877669	
3-7-2024	124	124	124	120	112	118	113	126		120.125	5.356904757	
3-8-2024	111	116	129	91	118	134	123	112		116.75	13.13392554	
3-9-2024	141	133	140	107	128	134	125	101		126.125	14.75937958	
3-10-2024	121	142	126	131	130	129	135	113		128.375	8.749489781	
3-11-2024	146	130	125	100	140	127	128	102		124.75	16.28978646	
3-12-2024	133	130	136	90	122	129	117	97		119.25	17.08591734	
3-13-2024	121	110	108	89	103	116	104	92		105.375	10.95363606	
3-14-2024	123	114	107	91	123	108	111	78		106.875	15.46828553	
3-15-2024	114	118	119	91	82	126	120	81		106.375	18.50820281	
3-16-2024	104	122	106	88	122	128	122	93		110.625	15.01368423	
3-17-2024	102	115	109	112	121	115	118	95		110.875	8.642709562	
3-18-2024	116	114	111	110	106	117	110	92		109.5	7.928249672	
3-19-2024	129	129	129	98	90	132	123	94		115.5	18.10288059	
3-20-2024	129	122	95	94	85	116	112	78		103.875	18.4192252	
3-21-2024	111	123	110	91	115	115	114	76		106.875	15.46828553	

# TDS data of Multiple OBH Filters of March month

[illegible]

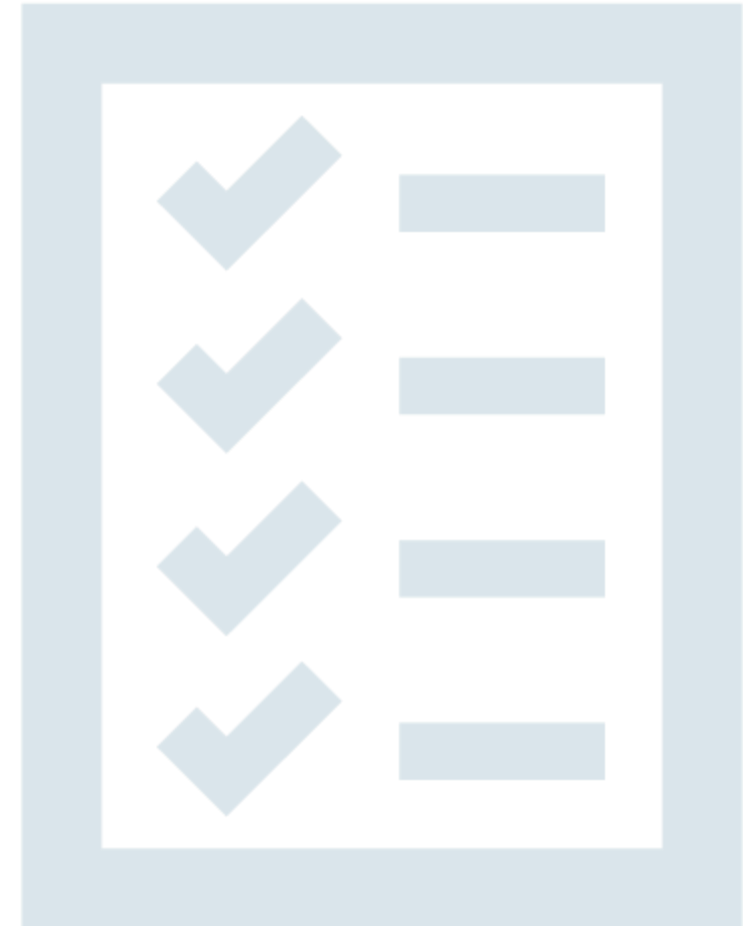




# Survey

➤ [Survey Summery](#)

➤ [Survey Link](#)



# Missing parts in the Survey

---

- The survey just focuses on the current students views but not what they felt when the drinking water issue occurred.
- Need few more Questions like:
  - ❖ How there health effected because of the drinking water at that time and now.
  - ❖ How they felt about drinking water at that time of issue.
  - ❖ If there is an another source of drinking water which is free of cost as well what would they prefer.

# Oral Survey with maintenance staff

- ❖ How often the Water coolers are cleaned?
    - Once in a week every Wednesday
  - ❖ How often the main Water filter in OBH is cleaned?
    - Automatic cleaning process. Once 15 days someone related to the field keeps checking it and clears the water and cleans it with some chemical.
  - ❖ Have you ever felt any difference in water before and after It was cleaned?
    - Nothing particular.
  - ❖ What about during the water issue?
    - Can be seen clearly as source was changed.
-



# Undetailed analysis

- Since the testing of the data is done by simple devices which might not give the accurate results, but If observed the data as a whole we can observe that there is an slight increasing fluctuations of TDS values for around a week(look at the avg TDS values of 13th to 19th) and then again it decreases by seemingly large value.
  - Which proves that cleaning the filters is showing some basic results results.
-

