From,

G. Mahadevaprasad & Vasanthalakshmi B.S.,

Assistant Professors,

Department of Microbiology

JSS College for Women (Autonomous)

Saraswathipuram, Mysore -9

To,

The Principal

JSS College for Women (Autonomous)

Saraswathipuram, Mysore -9

Respected Sir,

Subject: Report on Visit to "Vani Vilas water works", Yadavagiri, Mysuru - 570020 on 30th March 2025.

We are hereby submitting the report on visit to "Vani Vilas water works" by Fifth semester Microbiology students on 30th March 2025. We are humbly requesting you to accept the report and kindly oblige.

Thanking you,

Yours faithfully,

G. Mahadevaprasad

Vasanthalakshmi B.S.

Date: 06-09-25

Place: Mysore

06/09/25

JSS MAHAVIDYAPEETHA
J S S COLLEGE FOR WOMEN (AUTONOMOUS)
(An Autonomous College of University of Mysore: Re-Accredited by NAAC with 'A' Grade
(CGPA: 3.07) Saraswathipuram, Mysore – 570 009
Ph No:0821-2548239 ♣ Principal 2548383♣Fax: 2548240 ♣✉: jsscw.principal@gmail.com♣ Website: www.jsscw.in

COLLEGE EXTENSION ACTIVITIES

DEPARTMENT OF MICROBIOLOGY

DEMONSTRATION OF WATER PURIFICATION

Date: 30/08/2025

Place: "Vani Vilas water works", Yadavagiri, Mysuru -570020 on 30th March 2025. ,

Number of beneficiaries: 46

Objective: The objective of a field visit to Water purification Plant is :

1. To Learn the various stages of water treatment, including physical, chemical, and biological processes.

2. To understand the role of microbiology in water quality assessment, including testing for pathogens and indicator organisms.

3. To gain practical knowledge of water treatment operations and microbiological testing methods.

4. To learn about the importance of monitoring water quality parameters and the role of microbiologists in ensuring safe drinking water.

5. To apply theoretical concepts of microbiology to real-world water treatment processes and understand the challenges faced in the industry.

Brief Write up on the Programme: The field visit was organized by the Department of Microbiolgy to the "Vani Vilas water works, - Water Purification Plant, Yadavagiri, Mysuru -570020 on 30th March 2025.

This visit was organized to provide Live demonstration of stages of water purification process to Fifth semester students in Microbiology. The visit was scheduled at 10:00 AM. 46 students participated in the visit. They were accompanied by two staff members of the Microbiology Department, Sri.G.Mahadevaprasad and Smt.Vasanthalakshmi B.S.

Vani Vilas Water Works is a historic water supply system in Mysore, Karnataka, built in 1896 to provide clean drinking water to the city. It's named after Maharani Kempananjammanni Vani Vilas, the reigning queen at that time. This heritage building still functions as a water works department, pumping water from the Cauvery River to meet the city's needs. The water supply system draws water from the Cauvery and Kabini rivers. Two pumping stations were set up, one at Belagola on the banks of the Cauvery River and another at Yadavgiri, known as Vani Vilas Water Works. The project was successful due to the power supply from Asia's first hydro-electric station, Shivanasamudra, in 1908. Water is pumped, filtered, and treated before being supplied to consumers.

The Vani Vilas Water Works supplies 235 million liters of water daily to 65 ward areas in Mysuru, ensuring access to safe and potable water for its residents meeting drinking water standards and ensuring public health and well-being.

Students were demonstrated with the Water Purification Process at Vani Vilas Water Works:.

The main stages of process are:

Step 1: Intake and Screening- Raw Water Source: Water is drawn from the Kapila and Cauvery rivers through specially designed Intake structure to withdraw water from the river, equipped with screens to remove large debris.

Screening: Large objects like sticks, leaves, and other floating materials that could obstruct flow are removed to prevent damage to treatment plant equipment and to aid in efficient operation. Coarse screens , Fine screens and Microstrainers are used for screening process.

Step 2: Aeration : After screening, Air is introduced into the water through aerators facilitate gas exchange between the water and the atmosphere, removing unwanted gases and VOCs. Aeration also helps oxidize dissolved metals, making them easier to remove, Removes unpleasant odors and tastes by stripping away VOCs and other impurities. Reduces corrosion by removing dissolved gases that can cause corrosion in pipes and improves overall water quality by removing impurities and excess gases. In certain instances excess algae in the raw water can result in algal growth blocking the sand filter further down the treatment process. In such situations, chlorination is used in addition to, aeration to kill the algae, and this is termed **pre-chlorination**. This comes before the main stages in the treatment of the water.. The pre-chlorination also oxidises taste- and odour-causing compounds.

Step 3: Clariflocculation is a water treatment process that combines coagulation, flocculation, and sedimentation and clarification in a single tank called Clariflocculator. Specific details about the clariflocculation process at Vani Vilas Water Works is as follows.

Coagulation and Flocculation- Coagulant Addition: Chemicals like Potash alum (aluminum sulfate) is added to the raw water to remove dirt and suspended particles.The coagulant is mixed with the water to distribute it evenly.

Flocculation: The water is gently stirred to allow particles to stick together and form larger clumps (flocs).

Sedimentation: Once large flocs are formed, they need to be settled out, and this takes place in a process called **sedimentation / settling.** A large Sedimentation tank where the water is held for

a period, allowing heavy flocs to settle to the bottom. The settled sludge is removed from the bottom of the tank.: The clarified water on top is drawn off for further treatment. Clariflocculation reduces the space and time required for water treatment and improves the overall efficiency of the water treatment process.

Step 4: Filtration: The clarified water is passed through the filters to remove suspended particles , germs and impurities from the water.

VVWW uses Rapid Sand Filter with Granular media made of sand, gravel, or anthracite coal with different pore sizes for filteration of 8MGD capacity . The Standard filter media for these systems is typically sand and gravel . These materials are layered in the filter bed, with coarser material like gravel at the bottom and finer sand at the top to effectively remove impurities by mechanical straining and biological action. Continuous filtration results in the accumulation of mud, debris and particles, necessitating periodic cleaning of filters.

At VVWW the **Backwash Water Treatment Plant** is being constructed at a cost of Rs. 1.73 crore, funded by the Union Government's Finance Plan (2020-21). This reclaims 3 to 4 million litres of precious water wasted daily, optimising the utilisation of available water resources. Filter is taken offline, and water is drained to a level above the filter bed surface. Compressed air is injected upwards through the filter material, causing the filter bed to expand and dislodge compacted particles into suspension. Clean backwash water is then forced upwards through the filter bed, further expanding the bed and carrying suspended particles into designated troughs above the filter surface. Backwashing process continues for a predetermined duration or until the turbidity of the backwash water falls below a specified threshold. .

Step 5: Disinfection (Chlorination): The filtered water is added with chlorine to kill bacteria, viruses, and other microorganisms. For drinking water, the recommended chlorine level is typically between 0.5 and 1.5 ppm (parts per million). The chlorine level in the water is regularly monitored by chloroscope which measures the residual chlorine in water indicating whether disinfection has been achieved. The color change after adding a reagent corresponds to the chlorine level, which can be compared to a color scale to check the efficiency of disinfection and also ensure the safety as too much chlorine can be harmful to human health.

Step 6: Storage and Distribution-: The treated water is stored in storage or reservoir tanks to meet peak demand. The safe and clean water is distributed to households, industries, and institutions through a network of pipes. Regular monitoring of water quality parameters ensures the water meets drinking water standards.

The visit concluded at about 11:30 am, provided with valuable insights of water treatment processes and their significance, Familiarity with microbiological testing methods and water quality assessment and challenges faced in the everyday supply of adequate quantity and quality water to the residents of mysore.

Brochure/Invitation/Program list/Hand bills etc (Image –JPG)

JSS MAHAVIDYAPEETHA

J S S COLLEGE FOR WOMEN (AUTONOMOUS)

(An Autonomous College of University of Mysuru-Accredited by NAAC with 'A' Grade (CGPA: 3.07))

Saraswathipuram, Mysuru - 570 009

No.0821-2548339 ▲ Principal 2548383 ▲ FAX: 2548340 ▲ E: jsscw.principal@gmail.com ▲ Website: http://www.jsscw.in

Ref. No.:JSSCW/ 931 /25-26

Date: 22.08.2025

Girish. M: 9886893669

To,

Executive Engineer,
Vani Vilas Water Works,
Yadavagiri
Mysuru

Dear Sir,

Sub: Seeking permission to visit the Water Purification unit Vani Vilas Water Works, Yadavagiri on ~~25.08.2025~~ 30.08.2025 at ~~12.30~~ 10.00 AM pm -Regarding

*****

With reference to the above subject, I shall be much obliged if you could permit 50 students of Final B.Sc Microbiology of our college to visit the Water Purification unit, Vani Vilas Water Works, Yadavagiri on ~~25~~.08.2025 at ~~12.30~~ 10.00 AM pm as it happend to be a part of their curriculum (Water Microbiology). They will be accompained by two membes of staff. Kindly make an arrangement to explain them about the process and thus help them gain knowledge about the same.

Thanking you,

Yours faithfully,

HoD of Microbiology
Department of Microbiology
JSS College for Women
(Autonomous)
Saraswathipuram, Mysore-09

Principal
PRINCIPAL
JSS COLLEGE FOR WOMEN
(Autonomous)
Saraswathipuram, MYSORE-9

PERMISSION LETTER TO VISIT VANI VILAS WATER WORKS

Photos of Visit :



THE CLASS AT VANI VILAS WATER WORKS



VVWW TECHNICAL STAFF SRI NAGENDRA EXPLAINING STAGES OF WATER PURIFICATION TO STUDENTS



CLARIFLOCULATION TANK



RAPID SAND FILTERS – FILTERATION



BACK WASHING PROCESS



SHOWING THE CLEAR WATER AFTER FILTERATION PROCESS

Participants list- Enclosed

Feed back
(Graphical representation)

Rating Category	Parameter-1	Parameter-2	Parameter-3	Parameter-4	Parameter-5
Strongly Agree	32	34	36	34	35
Agree	14	12	10	12	11
Disagree	0	0	0	0	0

The parameters are described below

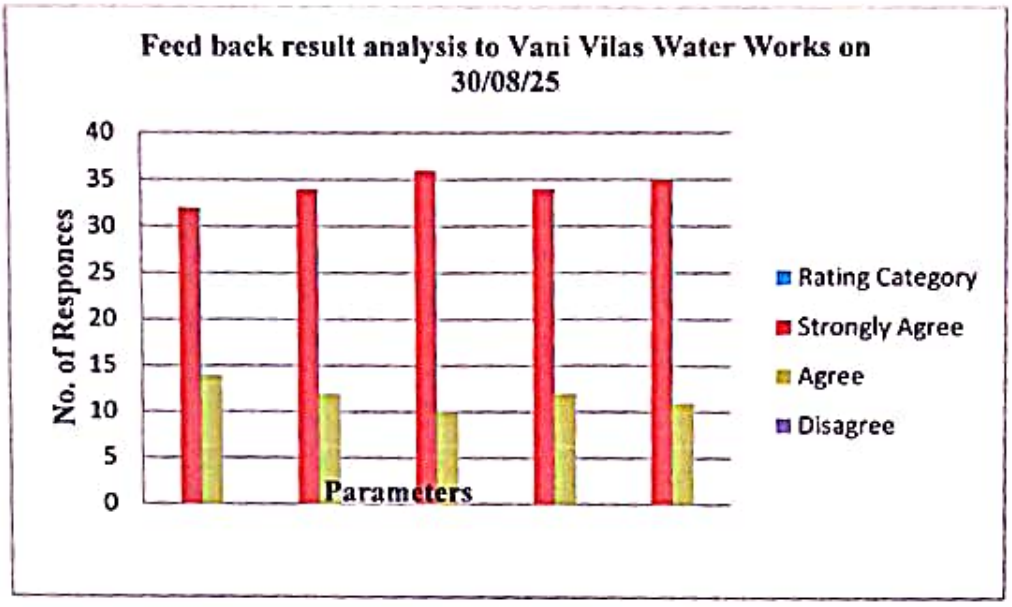
Parameter 1- The visit enhanced students knowledge about waterborne diseases and importance of water purification.

Parameter 2- The students obtained the knowledge about various stages of water purification and management.

Parameter 3- The Backwashing unit installed recently in the water works is environmentally safe and has significantly contributed to water conservation and sustainability.

Parameter 4- The water purification plant monitors the quality of water by conducting Regular microbial testing and optimizing the process parameters to remove pathogens.

Parameter 5- The visit changed the perspective of students about the importance of understanding the microbiological aspects of water purification in designing the effective process to produce safe and clean water.



Impact: The Field visit arose to be very efficient as the students were able to gain insight into the various stages of water treatment, including purification techniques, quality control measures, and distribution mechanisms. The visit highlighted the critical role of water treatment plants in ensuring access to safe and potable water, emphasizing the importance of water quality management in preventing waterborne diseases. The construction of backwash water treatment plants at various centers showcases the importance of infrastructure development in ensuring water security. Students developed a deeper understanding of the complexities of water quality management and importance of microbiological aspects to design the efficient water purification process.

JSS MAHAVIDYAPEETHA

JSS COLLEGE FOR WOMEN (AUTONOMOUS)

Saraswathipuram, Mysuru – 570 009

Visit to "Vani Vilas water works, Yadavagiri, Mysuru-570020 on 30.08.2025

LIST OF PARTICIPANTS

MBA

Sl.No.	Name	Signature
1.	Aishwarya. N.	
2.	Aishwarya. T	
3.	Anita. Y	
4.	Apeksha.	
5.	Bhavana.	
6.	Binam T	ABSENT
7.	Dweethi	
8.	Dharwathi.	
9.	Srisaha. Iyer.	
10.	Gangadhara. LS	
11.	Himabindu.	
12.	Insana	
13.	Likhitha.	
14.	Manasa.	
15.	Madhuri	
16.	Namratha.	
17.	Nivedya	
18.	Pooja	
19.	Prakruthi G.K	
20.	Prathiba.	Prathibha. T.
21.	Pakshaka. K.P	
22.	Sreenakshi	
23.	Sinchana.	Sinchana R
24.	Spandana. D	
25.	Shreya	
26.	Yamuna.	Yamuna US
27.	Hishwaaya. M.	ABSENT

BeMb

Sl. No.	Name	Signature
1.	Sahana Sangappa	
2.	Nisai A.L	
3.	Sinpa	
4.	Keerthika	
5.	Priya	
6.	Kushal	
7.	Nivedtha B.G	
8.	Aparna K.A Chowdanna	
9.	Kavana	
10.	Nayana	
11.	Sanch Mandanna	
12.	Ramya	
13.	Haripriya	
14.	Manasa. P.M	Manasa P M
15.	Harshitha. M	Harshitha. M
16.	Varshitha L	
17.	Varshini. V	Varshini. V
18.	Yashwini	
19.	Kavya	
20.	Keerthana. P	
21.	Amartha	
22.	Sanika	ABSENT
23.	Neethu.	ABSENT