

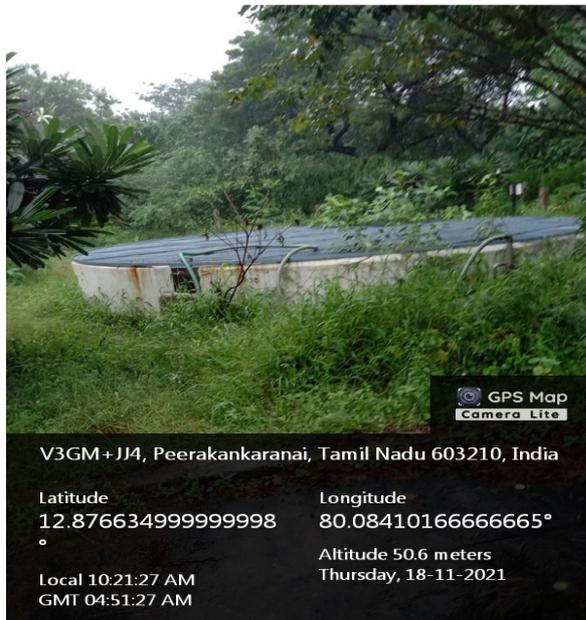
17.3.6 a – Progress against SDG6 – Water Consumption – Treatment – Prevention of Water pollution

Water consumption

B.S.Abdur Rahman Crescent Institute of Science and Technolgy measures the total volume of waster used in the Institution . Then main source of water supply for the Institute includes

(i) Water supply from private water supply : The water is transported to the Institute by means of lorry .

ii) Bore wells : The water required is also met by extracting the water from the bore well (3 Nos) and open well (3 Nos) facility available in the Institute. The Institute also ensures that the quality of water obtained from the private supply and also from the well meets the drinking water standards by frequently conducting the water quality test.



OPEN WELLS



PRIVATE WATER SUPPLY

- | | |
|--|-------------------------------|
| • Raw water taken from private supply /per year | = 1,57,960 m ³ |
| • Water extracted from well and bore well per year | = <u>30,000 m³</u> |
| Total volume of water used in the university | = 1,87,960 m ³ |

Water Treatment plants are provided - 5 Nos. at various places in the campus to treat the water before use in quarters, **RO Plants**, Men's Hostel & Ladies hostel.

The capacity and quantity of water treated by each plant is tabled below

S.NO	LOCATION	CAPACITY	WORKIN G HOURS	REMARKS
1	New staff Quarters	5m ³ /hr	10	Commissioned in Apr -2016
2	New ladies hostel	5m ³ /hr	12	Commissioned in Aug -2016
3	Men's hostel service block	10m ³ /hr	18	Commissioned in Aug -2016
4	VC Villa	1m ³ /hr	4	Commissioned in Jan -2017
5	Life Science block	5m ³ /hr	8	Commissioned in Aug -2017
Total Treated Water		3,35,000 Liters per day		



WATER TREATMENT PLANT

The water quality reports for the well water, raw water and RO water is given below

QUALITY REPORT OF WELL WATER



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 Web : www.ekdantlab.co.in

TEST REPORT						
Sample Ref No. : EES/W/140/08				Report No. : 450/08		
Issued To: M/s. B.S. Abdur Rahman Crescent University, Seethakathi Estate, G.S.T Main Road, Vandalur, Chennai-600 048.				Report Date : 28.08.19 Page: 1 of 2		
Sample Description : Water				Received On : 23.08.19		
Sample Drawn By/ Date : EES / 23.08.19				Commenced On : 23.08.19		
Customer's Reference : Letter Dated on 23.08.19				Completed On : 28.08.19		
Sample Mark : Well Water						
Sampling Procedure : EES/QM/MSP/02						
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source	
Physical Properties						
1	Appearance When Analyzed After Filtration	-	Clear	-	-	-
2	pH value at 25°C	-	6.53	6.5 - 8.5	6.5 - 8.5	4500 H° B
3	Color	Hazen	2.0	5	15	2120 B
4	Odor	-	Agreeable	Agreeable	Agreeable	IS 3025 P 5 1983 R.2012
5	Turbidity	NTU	0.2	1	5	2130 B
6	Electrical conductivity at 25°C	Micromhos/cm	2096	-	-	2510 B
Chemical Properties						
7	Total Suspended Solids	mg/l	BDL (DL=1.0)	-	-	IS:3025. P.17:1984.R.2012
8	Total Dissolved Solids	mg/l	1290	500	2000	IS 3025 P.16:1984.R.2012

---End of Page 1---



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TEST REPORT – ADDITIONAL SHEET

Sample Ref No. : EESW/140/08		Report No. : 450/08		Report Date : 28.08.19		Page: 2 of 2	
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017	
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source		
9	Total Hardness as CaCO ₃	mg/l	776	200	600	2340 C	
10	Calcium Hardness as CaCO ₃	mg/l	545	-	-	3500 - Ca B	
11	Magnesium Hardness as CaCO ₃	mg/l	231	-	-	3500 - Mg D	
12	Calcium as Ca	mg/l	216	75	200	3500 - Ca B	
13	Magnesium as Mg	mg/l	55.0	30	100	2340 C	
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	Nil	-	-	2320 B	
15	Total Alkalinity as CaCO ₃	mg/l	168	200	600	2320 B	
16	Chlorides as Cl	mg/l	386	250	1000	4500 Cl B	
17	Sulfates as SO ₄	mg/l	255	200	400	4500 SO ₄ ²⁻ E	
18	Total Iron as Fe	mg/l	0.08	0.3	0.3	3500 Fe- B	
19	Silica (Reactive) as SiO ₂	mg/l	39.0	-	-	4500 SiO ₂ C	
20	Carbonate Hardness as CaCO ₃	mg/l	168	-	-	2340 A	
21	Non-Carbonate Hardness as CaCO ₃	mg/l	608	-	-	2340 A	
22	Free Residual Chlorine	mg/l	BDL (DL=0.1)	0.2	**1	4500 Cl B	

BDL= Below Detectable Limit, DL= Detection Limit.
 ** To be applicable only when water is chlorinated.

—End of Report—



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QUALITY REPORT OF RAW WATER



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 E-mail : ekdantlab@gmail.com / info@ekdantlab.co.in
 Web : www.ekdantlab.co.in

TEST REPORT						
Sample Ref No. : EES/W/141/08			Report No. : 451/08			
Issued To: M/s. B.S. Abdur Rahman Crescent University, Seethakathi Estate, G.S.T Main Road, Vandalur, Chennai-600 048.			Report Date : 28.08.19 Page: 1 of 2			
Sample Description : Water			Received On : 23.08.19			
Sample Drawn By/ Date : EES / 23.08.19			Commenced On : 23.08.19			
Customer's Reference : Letter Dated on 23.08.19			Completed On : 28.08.19			
Sample Mark : Raw Water						
Sampling Procedure : EES/QM/MSP/02						
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source	
Physical Properties						
1	Appearance When Analyzed After Filtration	-	Clear Clear	-	-	-
2	pH value at 25°C	-	7.43	6.5 – 8.5	6.5 – 8.5	4500 H° B
3	Color	Hazen	5.0	5	15	2120 B
4	Odor	-	Agreeable	Agreeable	Agreeable	IS 3025 P.5 1983 R.2012
5	Turbidity	NTU	0.4	1	5	2130 B
6	Electrical conductivity at 25°C	Micromhos/cm	2716	-	-	2510 B
Chemical Properties						
7	Total Suspended Solids	mg/l	BDL (DL=1.0)	-	-	IS 3025: P.17:1984 R.2012
8	Total Dissolved Solids	mg/l	1780	500	2000	IS 3025:P.16:1984 R.2012

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TEST REPORT – ADDITIONAL SHEET

Sample Ref No. : EESW/141/08		Report No. : 451/08		Report Date : 28.08.19		Page: 2 of 2	
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017	
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source		
9	Total Hardness as CaCO ₃	mg/l	1101	200	600		2340 C
10	Calcium Hardness as CaCO ₃	mg/l	394	-	-		3500 - Ca B
11	Magnesium Hardness as CaCO ₃	mg/l	707	-	-		3500 - Mg B
12	Calcium as Ca	mg/l	158	75	200		3500 - Ca B
13	Magnesium as Mg	mg/l	170	30	100		2340 C
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	Nil	-	-		2320 B
15	Total Alkalinity as CaCO ₃	mg/l	329	200	600		2320 B
16	Chlorides as Cl	mg/l	444	250	1000		4500 Cl B
17	Sulfates as SO ₄	mg/l	510	200	400		4500 SO ₄ E
18	Total Iron as Fe	mg/l	0.16	0.3	0.3		3500 Fe- B
19	Silica (Reactive) as SiO ₂	mg/l	41.0	-	-		4500 SiO ₂ C
20	Carbonate Hardness as CaCO ₃	mg/l	329	-	-		2340 A
21	Non-Carbonate Hardness as CaCO ₃	mg/l	772	-	-		2340 A
22	Free Residual Chlorine	mg/l	BDL (DL=0.1)	0.2	**1		4500 Cl B

BDL= Below Detectable Limit, DL= Detection Limit.
 ** To be applicable only when water is chlorinated.

---End of Report---



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QUALITY REPORT OF RO WATER



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 E-mail : ekdantlab@gmail.com / info@ekdantlab.co.in
 Web : www.ekdantlab.co.in

TEST REPORT						
Sample Ref No. : EES/W/142/08			Report No. : 452/08			
Issued To: M/s. B.S. Abdur Rahman Crescent University, Seethakathi Estate, G.S.T Main Road, Vandalur, Chennai-600 048.			Report Date : 28.08.19 Page: 1 of 2			
Sample Description : Water Sample Drawn By/ Date : EES / 23.08.19 Customer's Reference : Letter Dated on 23.08.19 Sample Mark : RO Water Sampling Procedure : EES/QM/MSP/02			Received On : 23.08.19 Commenced On : 23.08.19 Completed On : 28.08.19			
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source	
Physical Properties						
1	Appearance When Analyzed After Filtration	-	Clear	-	-	-
2	pH value at 25°C	-	6.52	6.5 - 8.5	6.5 - 8.5	4500 H° B
3	Color	Hazen	1.0	5	15	2120 B
4	Odor	-	Agreeable	Agreeable	Agreeable	IS 3025 P.5 1983 R.2012
5	Turbidity	NTU	BDL (DL=0.1)	1	5	2130 B
6	Electrical conductivity at 25°C	Micromhos/cm	65.0	-	-	2510 B
Chemical Properties						
7	Total Suspended Solids	mg/l	BDL (DL=1.0)	-	-	IS 3025: P.17:1984:R.2012
8	Total Dissolved Solids	mg/l	39.0	500	2000	IS 3025:P.16:1984:R.2012

---End of Page 1---



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TEST REPORT – ADDITIONAL SHEET

Sample Ref No : EES/W/142/08			Report No. : 452/08 Report Date : 28.08.19 Page : 2 of 2			
Sl. No	PARAMETERS	UNITS	RESULTS	As Per IS 10500:2012		PROTOCOL: APHA 23 rd Edition 2017
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source	
9	Total Hardness as CaCO ₃	mg/l	4.0	200	600	2340 C
10	Calcium Hardness as CaCO ₃	mg/l	2.0	-	-	3500 - Ca B
11	Magnesium Hardness as CaCO ₃	mg/l	2.0	-	-	3500 - Mg B
12	Calcium as Ca	mg/l	0.80	75	200	3500 - Ca B
13	Magnesium as Mg	mg/l	0.48	30	100	2340 C
14	Phenolphthalein Alkalinity as CaCO ₃	mg/l	Nil	-	-	2320 B
15	Total Alkalinity as CaCO ₃	mg/l	12.0	200	600	2320 B
16	Chlorides as Cl	mg/l	17.0	250	1000	4500 Cl B
17	Sulfates as SO ₄	mg/l	2.0	200	400	4500 SO ₄ ²⁻ E
18	Total Iron as Fe	mg/l	BDL (DL=0.05)	0.3	0.3	3500 Fe- B
19	Silica (Reactive) as SiO ₂	mg/l	3.0	-	-	4500 SiO ₂ C
20	Carbonate Hardness as CaCO ₃	mg/l	4.0	-	-	2340 A
21	Non-Carbonate Hardness as CaCO ₃	mg/l	Nil	-	-	2340 A
22	Free Residual Chlorine	mg/l	BDL (DL=0.1)	0.2	**1	4500 Cl B

BDL= Below Detectable Limit, DL= Detection Limit.
 ** To be applicable only when water is chlorinated.
Report Opinion: The above submitted water sample complies with acceptable limits of drinking water specification as per IS 10500:2012 with respect to the above tests.

—End of Report—

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B.S. Abdur Rahman

Crescent
Institute of Science & Technology

Deemed to be University u/s 3 of the UGC Act, 1956



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TEST REPORT					
Sample Ref No : EES/W/142/08			Report No : 452/08		
Issued To: M/s. B.S. Abdur Rahman Crescent University, Seethakathi Estate, G.S.T Main Road, Vandalur, Chennai-600 048.			Report Date : 28.08.19 Page: 1 of 1		
Sample Description : Water			Received On : 23.08.19		
Sample Drawn By/ Date : EES/ 23.08.19			Commenced On : 23.08.19		
Customer's Reference : Letter Dated on 23.08.19			Completed On : 28.08.19		
Sample Mark : RO Water					
Sampling Procedure : EES/SOP/MB/005					
Sl. No	PARAMETERS	UNITS	RESULTS	Requirement as per IS 10500: 2012 Second revision (Acceptable Limit)	PROTOCOL
MICROBIOLOGICAL EXAMINATION					
1	Total Coliforms	MPN / 100ml	Absent	Shall not be detectable in any 100 ml	IS:1622-1981 Amd.4 RA 2012
2	E.coli	MPN / 100ml	Absent	Shall not be detectable in any 100 ml	IS:1622-1981 Amd.4 RA 2012
MPN- Most Probable Number					
Report Opinion: The above submitted water sample meets the requirement of drinking water specification as per IS 10500:2012 with respect to the parameters tested.					

—End of Report—



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EFFICIENT INFRASTRUCTURE FACILITY

B.S.Abdur Rahman Crescent Institute of Science and Technology have implemented sufficient measures to prevent the polluted water entering the water sources /water pipelines Some of the processes practised and provisions available in the Institute are given below

EFFICIENT INFRASTRUCTURE FACILITY FOR COLLECTION AND TREATMENT OF WATER AND WASTEWATER

In the Institute, the plumbing facility for collection of water from the well and subsequently transporting it for the treatment unit and also for supply has been meticulously planned and implemented. The pipes are laid at a suitable gradient and the water is transported safely . It is also ensured that there is no leakages in the water pipelines through frequent inspection. The water pipes are also subjected to an immediate replacement if there is any problem of breakage has occurred because of any accidents. Similary the wastewater collected from the various locations of the Instituion is conveyed in a separate sewer pipe lines.Sufficient manholes are provided at several junctions to conduct the inspection of the pipelines. The pumps and other valves placed in the sewer pipelines are also checked for its performance and it is maintained properly. The treated wastewater is also transported safely and used for flushing and gardening.

There are separate markings indicated in the plumbing lines for the easy identifications of water and sewer lines. These measures has helped the Institute the manage the wastewater generated in the premises and it is been prevented from entering the water pipelines or any other water sources.

SOLID WASTE MANAGEMENT

B.S.Abdur Rahman Crescent Institute of Science and Technology have implemented sufficient measures to prevent the water pollution caused by accidents and incidents at the university. The water system can also be contaminated due to the improper disposal of the solid waste. Especially the waste like plastics can clog the pipelines and affect the quality as well as the flow of the water. Institute has ensured that a proper solid waste management is practised and hence preventing the water pollution. Some of the processes practised in the Institute are given below

SOLID WASTE MANAGEMENT IN THE CAMPUS

In order to avoid water pollution and enhance the solid waste management, the following preventive measures have been applied in the campus.

- Segregation of Garbage to be controlled and monitored at entry point i.e from major areas like Hostel and canteen
- Minimisation of the waste throwing (plastic, papers & bottles) to the dumping yard.
- Height of garbage stocked is almost to the height compound wall to be restricted
- Clearing the entire garbage from dumping yard very frequently
- Sewer connection to old bio gas plant should be diverted to STP by direct connections - Mixing of sewer and rainwater may be restricted.
- Closing all the holes contributing to the seepage of water from zoo and other neighbourhood all along the boundary of the Institute
- Frequent disposal of existing stocked waste (plastic, papers & bottles)
- Utilisation of the additional raw water storage tank during emergency time.

THE SEQUENCE OF SOLID WASTE MANAGEMENT PROCESS IN THE CAMPUS IS GIVEN BELOW



Collection of Solid Waste



Segregation of Solid Waste



Recovery of Recyclable Waste



Windrow Formation and Rotation



Training and Awareness Program for Housekeepers and Green Friends

RO Plant and Water Dispenser

BSA Crescent Institute of Science and Technology has Reverse Osmosis (RO) Plant to provide drinking water to the college and hostel. The entire college campus is facilitated with pure Reverse Osmosis (RO) drinking water with water coolers in every block to cater to the need of pure and safe drinking water to all. The Institute has RO systems with a processing capacity of 44,500 liters / day installed in the campus and water dispensers are available in each floor in every building. The water treatment plants provide safe drinking water at every tap on the campus. A high level of maintenance frequent inspection and regular testing ensure the quality of the water. Water treatment plant with reverse osmosis technology is available to provide quality drinking water.

RO DRINKING WATER PLANTS

S.No	Location	Capacity Liters/Hr	Working Hours Per day	Qty. of Treated Water in liters
1	University Main Plant-Near to Main block	1500	6	9000
3	Ladies Hostel New block Terrace	500	5	2500
4	Men's Hostel Dining Hall	2000	4	8000
5	Men's Hostel Service block	2000	5	10000
6	Aeronautical Block terrace	500	2	1000
7	Life Sciences block terrace	500	2	1000
8	New architecture terrace	2000	4	8000
Total treated Water		10000		44500



KBA MEN'S HOSTEL RO PLANT



TBAK LADIES HOSTEL NEW BLOCK TERRACE RO PLANT



AERONAUTICAL BLOCK RO PLANT



ARCHITECTURE BLOCK RO PLANT



RO PLANT IN MAIN BLOCK



WATER DISPENSER / COOLER