SUSTAINABLE DEVELOPMENT GOALS

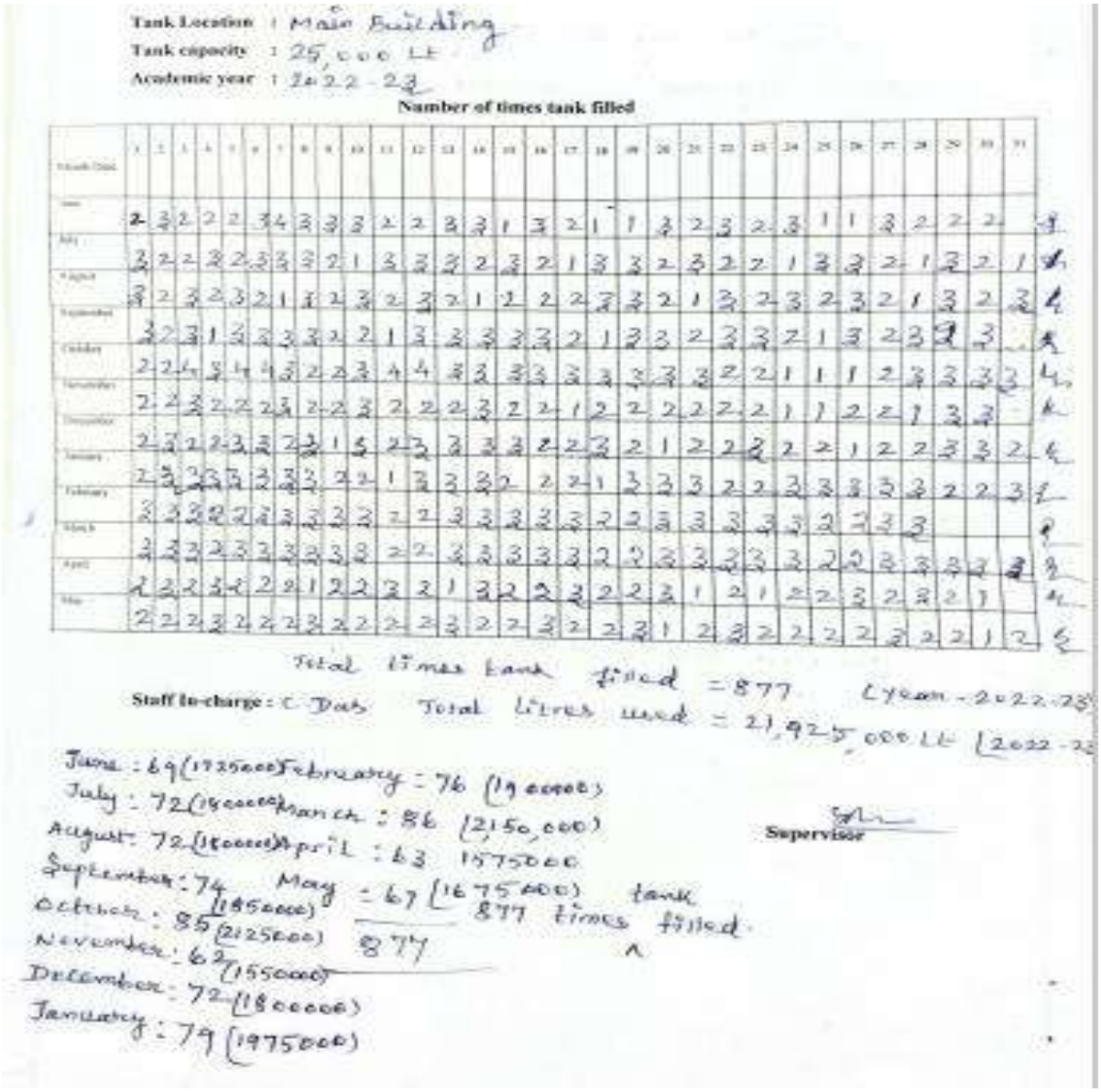
6. CLEAN WATER AND SANITATION

6.2 Water consumption per person

6.2 Water consumption per person

6.2.1 Measure the total volume of water used in the university that taken from mains supply, desalinated, or extracted from rivers, lakes, or aquifers?

On campus, the water supply is managed through four borewells that provide the necessary water to meet daily consumption needs. The in-charge person, carefully monitors and manages the operations to ensure that water is supplied efficiently to various areas such as hostels, academic buildings and canteen. This demand fluctuates depending on various factors, including the number of people on campus, the weather, and specific needs from the RO plants for purified water. The following tank filled data represent the water usage by the campus population for the academic year 2022-23.


Tank Location : Main Building
Tank capacity : 25,000 LL
Academic year : 2022-23

Number of times tank filled

Total times tank filled = 877 (Year - 2022-23)

Staff In-charge : C. Das Total Litres used = 21,925,000 LL (2022-23)

June : 69 (1725000) February : 76 (1900000)
July : 72 (1800000) March : 86 (2150,000)
August : 72 (1800000) April : 63 1575000
September : 74 May : 67 (1675000) tank
October : 85 (2125000) 877 times filled.
November : 62 (1550000) 877
December : 72 (1800000)
January : 79 (1975000)

Supervisor

CHENNAI INSTITUTE OF TECHNOLOGY

Tank Location : Main building.

Tank capacity : 2000 Lt RO

Academic year : 2022 - 23

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	
July	5	2	2	5	5	5	5	5	2	2	5	5	5	5	5	2	2	5	5	5	5	5	2	3	5	5	5	5	5	3	3
August	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5
September	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	5	2	5	5	5	5	5	3	2	5	5	5	5	5	
October	3	2	5	5	5	5	5	3	2	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	3	2	5	5	5	5	
November	5	5	5	5	3	2	5	2	5	5	5	2	2	5	3	5	5	5	3	2	5	2	5	5	5	3	2	5	5	5	
December	5	5	2	3	5	5	5	5	5	2	3	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	5
January	3	5	5	5	5	5	3	2	5	5	3	2	5	4	2	2	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5
February	5	5	5	2	2	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5				
March	5	5	5	3	2	5	4	5	5	5	3	2	5	5	5	5	5	3	2	5	5	5	5	5	3	2	5	5	4	4	4
April	3	3	2	3	2	3	3	2	3	3	2	3	2	2	3	2	2	3	2	3	3	2	2	3	2	2	3	2	3	3	2
May	3	3	3	3	3	2	3	3	3	3	3	2	2	3	3	2	3	2	2	3	2	2	3	3	3	3	2	3	3	3	

Total times tank filled : 1441 (in Year 2022-23)

Staff In-charge : 6 Days Total Litres used : 2,882,000 Lt

June - 130 (260,000) January - 126 (252,000)
July - 128 (256,000) February - 120 (240,000)
August - 135 (270,000) March - 132 (264,000)
September - 125 (250,000) April - 74 (148000)
October - 130 (260000) May - 84 168 000
November - 122 (244,000) 1441
December - 135 (270,000)

Supervisor

Tank Location : Kaveri hostel

Tank capacity : 30,000

Academic year : 2022-23

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	5	5	5	3	4	4	4	3	5	5	4	4	5	3	4	4	3	4	3	3	4	5	4	4	3	3	5	5	4	4	
July	5	4	4	5	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	5	5	5	5	5	5	5	5	4	5
August	5	5	5	5	5	4	3	4	5	5	5	5	4	3	4	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5
September	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	5	
October	4	3	5	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	5	4	3	5	4	4	5	5	5	5	5
November	5	5	5	5	5	4	5	5	5	5	4	5	5	5	3	5	5	4	3	5	5	3	5	5	5	4	3	5	5	5	
December	5	5	4	3	3	4	4	5	3	4	4	5	3	5	5	4	3	3	5	5	5	4	4	3	4	5	5	5	4	5	4
January	5	5	5	5	5	5	4	3	5	5	5	5	4	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5
February	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5			
March	5	5	5	4	3	5	5	5	5	5	4	3	5	5	5	5	4	3	5	5	3	5	5	4	3	5	5	5	5	5	5
April	4	3	4	3	4	3	4	4	3	3	2	2	3	4	3	2	4	4	3	2	4	4	3	4	2	3	2	1	4	4	
May	4	3	4	3	4	4	3	4	3	3	3	2	2	2	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Staff In-charge : C. DAS

Number of times tank filled in Ac. year 2022-23 } = 1553.

Total litres used = 46,590,000 Lt

Supervisor

June : 121 (36,30,000)
July : 146 (4380000)
Aug : 141 (4230000)
Sep : 138 (41400000)
Oct : 144 (4320000)
Nov : 138 (4140000)
Dec : 130 (3900000)
Jan : 148 (4440000)
Feb : 128 (3840000)
Mar : 143 (4290000)
April : 97 (2910000)
May : 82 (2460000)

1553

Tank Location : kaveri hostel

Tank capacity : 2000 Lt RO

Academic year : 2022 - 23

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
June	1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	–	1	1	1	–	1	1	1	1	1	1	1		½
July	1	1	1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	–	1	1	1	–	1	1	1	–	1	1	1	1	1	½
August	1	1	1	1	–	1	1	1	1	–	1	1	1	1	–	1	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	½
September	1	1	1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		½
October	1	1	1	1	–	1	1	1	1	–	1	1	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	½
November	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		½
December	1	1	1	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	1	1	1	1	1	1	½
January	1	1	–	1	1	1	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	½
February	1	1	1	1	1	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					½
March	1	1	1	1	1	1	–	1	1	–	1	1	1	1	–	1	1	1	1	(	1	1	1	1	1	–	1	1	–	1	1	½
April	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–	1	–		½
May	1	–	1	–	1	–	–	1	–	1	–	1	1	–	–	1	1	–	–	1	–	1	–	1	–	1	–	1	–	1	–	½

Number of times tank filled = 306

Staff In-charge : C. Das

Total Litres used = 612,000

June : 27 54,000
July : 27 54,000
August : 27 54,000
September : 29 58,000
October : 28 56,000
November : 29 58,000
December : 29 58,000
January : 27 54,000
February : 27 54,000
March : 26 52,000
April : 15 30,000
May : 15 30,000

306

Supervisor

Back to Main

Tank Location : Boys HOSTEL-OLD

Tank capacity : 30,000

Academic year : 2022-2023

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	
July	3	2	1	3	3	3	3	3	2	1	3	3	3	2	3	2	1	3	2	3	3	2	2	2	3	3	3	3	2	1	3
August	3	3	3	3	3	2	1	3	3	3	3	3	2	1	1	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	2
September	3	3	2	1	3	3	3	3	3	2	3	3	3	3	3	2	1	3	3	3	3	3	2	3	3	3	3	3	2	1	
October	2	1	3	3	2	3	2	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3
November	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	3	3	3	3	
December	3	3	1	2	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	1	3	3	3	3	3	2
January	1	3	3	3	3	3	2	1	3	3	3	3	3	-	-	-	-	-	3	3	2	2	3	3	3	3	3	3	2	1	3	3
February	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3			
March	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3
April	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	2	1
May	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	2	1	3	3	3

Number of times tanks filled in the academic year 22-23 } = 923

Total litres used = 27690000

Staff In-charge :

Jun - 78 (2340000lt)
July - 76 (2280000)
August - 78 (2340000)
Sep' - 79 (2370000)
Oct' - 76 (2280000)
Nov' - 80 (2400000)
Dec' - 81 2430000

Jan - 68 2040000
Feb - 72 2160000
Mar' - 82 2460000
Apr' - 72 2160000
May - 81 2430000

923

Supervisor

Tank Location : BOYS HOSTEL - NEW

Tank capacity : 30,000

Academic year : 2022-23

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	
July	3	2	1	3	3	3	3	3	2	1	3	3	3	2	3	2	1	3	2	3	3	2	2	2	3	3	3	3	2	1	3
August	3	3	3	3	3	2	1	3	3	3	3	3	2	1	1	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	2
September	3	3	2	1	3	3	3	3	3	2	3	3	3	3	3	2	1	3	3	3	3	3	2	3	3	3	3	3	2	1	
October	2	1	3	3	2	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	2	1	3
November	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	3	3	3	3	
December	3	3	1	2	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	1	3	3	3	3	3	2
January	1	3	3	3	3	3	2	1	3	3	3	3	3	+	+	+	-	-	3	3	3	2	1	3	3	3	3	3	1	2	3
February	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3			
March	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	2
April	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	3	3	3	2	1	3	3	3	3	
May	3	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3	3	3	2	1	3	3	3

No of times tanks filled in the academic year 2022-2023 } = 926

Total litres used = 27,780,000 Litres

Staff In-charge :

Jun' - 78
Jul' - 76
Aug' - 78
Sep' - 79
Oct' - 77
Nov' - 81
Dec' - 81

Jan' - 67
Feb' - 72
Mar' - 80
Apr' - 78
May' - 79
926

Supervisor

Jun : 2,340,000
Jul : 2,280,000
Aug : 2,340,000
Sep : 2,370,000
Oct : 2,310,000
Nov : 2,430,000
Dec : 2,430,000

Jan : 2,010,000
Feb : 2,160,000
Mar : 2,400,000
Apr : 2,340,000
May : 2,370,000

Tank Location : RO Boys Hostel

Tank capacity : 3,000

Academic year : 2022 - 2023

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	1	1	1	-	-	1	1	1	1	-	-	1	1	1	1	1	1	-	1	1	1	1	1	1	0	1	1	1	1	1	
July	1	-	-	1	1	1	1	-	-	1	1	1	1	1	1	-	-	1	1	1	1	1	-	-	1	1	1	1	1	-	-
August	1	1	1	1	1	1	-	1	1	1	1	1	1	0	0	1	1	1	1	1	-	1	1	1	1	1	1	-	1	1	1
September	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	
October	1	0	1	1	0	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1
November	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1
December	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	
January	0	1	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1
February	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1				
March	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	
April	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0
May	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	

No of times tanks filled in the academic year 22-23 = 297

Total litres used = 297 X 3000

891000

Staff In-charge :

Jun' - 24
Jul' - 22
Aug' - 25
Sep' - 26
Oct' - 23
Nov' - 23
Dec' - 25

Jan' - 23
Feb' - 24
Mar' - 28
Apr' - 28
May' - 27
297

June : 72,000
July : 66,000
Aug : 75,000
Sep : 78,000
Oct : 69,000
Nov : 69,000
Dec : 75000
Jan : 69,000

Supervisor

Feb : 72,000
Mar : 84,000
Apr : 84,000
May : 81,000

Tank Location : CANTEEN MESS RO1

Tank capacity : 3,000

Academic year : 2022-2023

Number of times tank filled

Month/Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
June	1	1	1			1	1	1	1	1			1	1	1	1	1			1	1	1	1	1			1	1	1	1	
July	1	–	–	1	1	1	1	1			1	1	1	1	1			1	1	1	1	1			1	1	1	1	1	–	–
August	1	1	1	1	1	1	–	1	1	1	1	1	1	1	–	1	1	1	1	1	–	1	1	1	1	1	1	–	1	1	1
September	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	–	1	1	1	1	1	0	1	1	1	1	1		
October	1	0	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	
November	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	
December	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1
January	0	1	1	1	1	1	0	1	1	1	1	1	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	0	1	1	
February	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1				
March	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	
April	1	0	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0		
May	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1

No of times tanks filled in the academic year 2022-23 = 297

Total litres used = 297 × 3000

= 891000

Staff In-charge :

Jun' - 22
Jul' - 23
Aug' - 27
Sep' - 26
Oct' - 23
Nov' - 26
Dec' - 27

Jan' - 23
Feb' - 24
Mar' - 27
Apr' - 24
May' - 25
297

June = 66,000
Jul = 69,000
Aug = 81,000
Sep = 78,000
Oct = 69,000
Nov = 78,000
Dec = 81,000

Supervisor

Jan = 69,000
Feb = 72,000
Mar = 81,000
Apr = 72,000
May = 75,000

In the Academic year 2022-23, total water usage inside the campus was 1,29,261,000 L

The institution has planned to avoid water wastage (if any) by continuous monitoring.

6.2.2 Water consumption per person

Academic year : 2022-23

Volume of water usage inside the campus per year : 129,261,000 lt

Campus population : 4032

Water consumption per person : 32,059 lt

SUSTAINABLE DEVELOPMENT GOALS

6. CLEAN WATER AND SANITATION

6.3 Water usage and care

6.3 Water usage and care

6.3.1 Waste Water Treatment

Process Involved in the Institution:

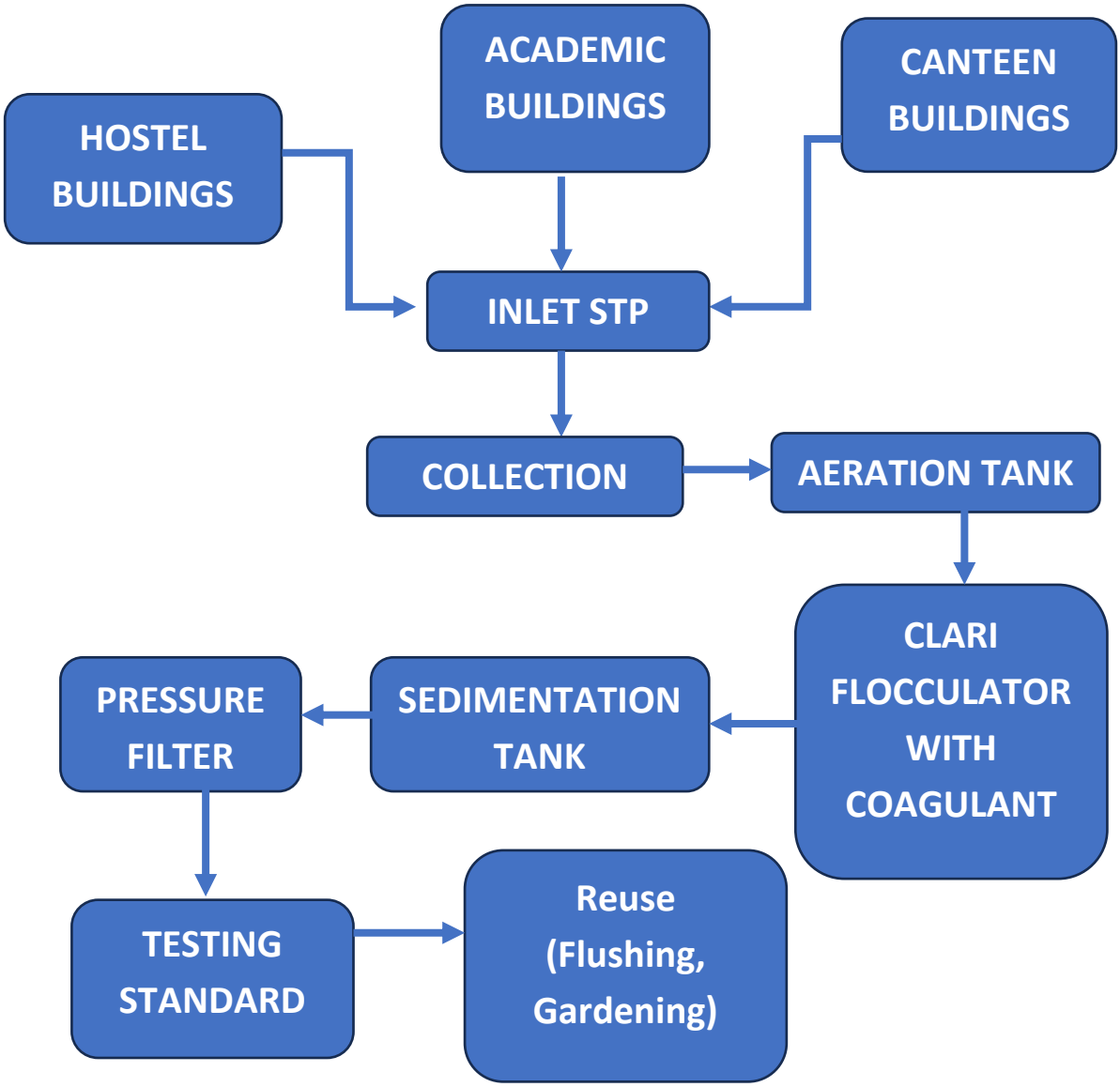
The Chennai Institute of Technology is mindful of the need to conserve society and water for the safety of the environment. The plant comprises 1 unit of capacity 1,25000litres and 2 units of 75,000litres. Initially, the excess water is stored in the storage tank and aired in the aeration tank. After the aeration process, the coagulant is flocculated and sent to the sedimentation tank. And then the water is filtered by pressure and sent to the distribution tank. Water is used for gardening and irrigation of plants.

The Institution is dedicated to sustainability and environmental conservation, and one of the key initiatives in this regard is our Water Recycling Program. This program is designed to reduce water consumption, minimize waste, and promote the efficient use of water resources across our campus.

Several steps are involved in wastewater treatment to eliminate impurities and enhance water quality. To stabilize wastewater flow, screening, grit removal, and flow equalization are used in preliminary treatment to remove big solids and debris.

Through sedimentation and the removal of floating material, first treatment eliminates a sizable amount of solids and organic matter; however, dissolved particles are not addressed. Secondary treatment reduces BOD by 85–95% by using biological processes like as oxidation ponds, trickling filters, and the activated sludge process to break down organic materials.

Through filtration, chemical coagulation, nutrient removal (phosphorus and nitrogen), and disinfection with chlorine, UV radiation, or ozone to get rid of any lingering pathogens, tertiary (advanced) treatment further enhances the quality of the water.



Flow Chart - Process of Collection, Treatment and Reuse


PRESSURE SAND
ACTIVATED CARBON
INLET


ACTIVATED CARBON

Pressure Filter Units

Aerators

Filter Feed , Clarrifier and Sludge drying Beds

Water Re-use Measurement:

Sewage treatment tank capacity	: 275,000 litres/day
Volume of water consumption	: 129,261,000 litres/year;
Per day water inlet to STP plant	: 271,748 litres;

6.3.2 Preventing Water System Pollution

Preventive Actions Involved:

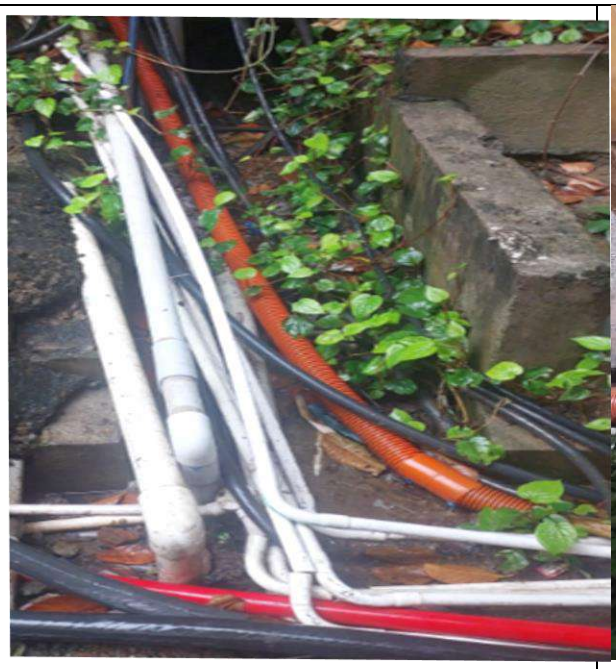
The Institute's plumbing system, which collects water from the respective bore-well and then transports it to the treatment unit and supply, has been carefully designed and put into place. The water is conveyed safely, and the pipes are installed at an appropriate gradient. It is also made sure there were no leaks in the water pipelines by regularly inspecting them. If there is an issue with the water pipes breaking due to an accident, they will also need to be replaced every once monitored. Similarly, different sewer pipelines carry the wastewater that is collected from the institution's numerous locations. There are enough manholes at many intersections to do pipeline inspections. The function of the valves installed in the sewer pipelines is also examined, and necessary maintenance is performed. Additionally, the treated wastewater is used for gardening and flushing while being carried securely. Water and sewer lines can be easily distinguished from one another thanks to distinct markings on the plumbing lines. By taking these steps, the Institute has been able to control the wastewater produced on the property and keep it out of the water pipelines and other water sources.

In-house Safety for RO System

RO System Unit Covered By

	Polycarbonate Housing
	
System provided with Adequate clearance	**System provided with Ease maintenance**

Safety Water System

Different Colors of Pipes for Easy Maintenance

Water sample Tested for Standard(pH)

Chennai Institute of Technology prioritizes environmental sustainability by actively monitoring water quality to control pollution within our campus. To achieve this, we utilize advanced equipment such as a digital auto-ranging conductivity meter with a magnetic stirrer and a digital pH meter with a magnetic stirrer. The digital pH meter provides precise measurements of the water's acidity or alkalinity, which is critical in assessing the overall water quality. By regularly checking these parameters, we can swiftly identify any anomalies or signs of pollution, allowing us to take preventive measures. This proactive approach helps in maintaining a healthy environment and mitigating water pollution on our campus.

Water sample tested in Laboratory

6.3.3 Free Drinking Water

The Chennai Institute of Technology is equipped with 42 CONWAY Purifiers installed across various locations on campus, providing free purified drinking water. These purifiers are strategically placed on all floors of the buildings, in the hostels, reception area, main gate, entrance, waiting hall, auditorium, cafeteria, mess hall, and other common areas. They serve a wide range of users, including students, faculty, staff, parents, and visitors, ensuring access to clean, safe drinking water throughout the institute. Some sample location access to free drinking water is attached here for evidence.

Drinking water in Ground Floor(Academic Building)

Research Building

First Floor-Academic Building

Second Floor-Academic Building

	
Waiting Hall -Gate 2	**Main Canteen**

6.3.4 Water-conscious building standards

The institution's implementation of water-efficient appliances plays a crucial role in promoting sustainability and conserving water resources. Water is continuously provided for drinking and other uses throughout the clock. This stops residents from storing water improperly in preparation for a shortage. To cut down on evaporation and water use during building construction, we use self-curing construction processes. Every building on campus and in the residence, halls has rainwater gathering capabilities. For instance, the use of washing machines designed to optimize water usage significantly reduces the amount of water needed per load compared to traditional models, which can waste substantial amounts. Similarly, dishwashers equipped with energy-efficient settings not only save water but also ensure thorough cleaning, further enhancing water conservation efforts. The installation of sensor-based water coolers minimizes water wastage by providing water only when needed, while low-flow taps reduce water flow rates without compromising performance, effectively cutting down overall water consumption in restrooms and kitchens. Additionally, dual-flush toilet tanks offer users the option to select between a lower volume flush for liquid waste and a higher volume for solid waste, thus optimizing water use for different needs. The Chennai Institute of Technology has unveiled a rainwater harvesting system with a dedication to supporting the city and the world. Rainwater can be obtained from the roofs of residential buildings and inns, and the water collected is diverted to a deep pit.

Appliance	Total number water Efficient appliances
Washing Machine	32
Dishwasher	3
Drinking water taps	252
Hand Washing Water tap	218
Toilet flush	376

	
Washing Machines (Laundry Unit	**Dish Washer-Mess**
	
Drinking water taps	**Gardening with Reused water**

Sensor Based Water Cooler

Dual-flush toilet tanks

Rainwater harvesting

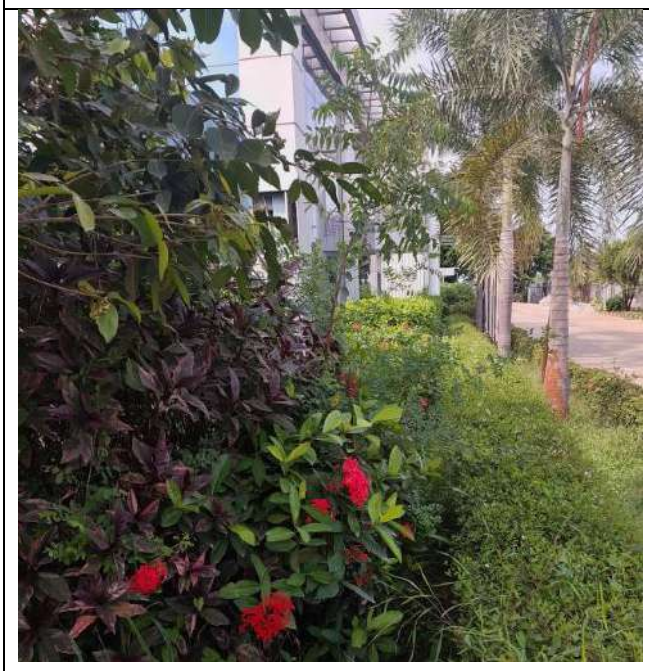
6.3.5 Water-conscious planting

Campus has been provided with the nature of water-conscious planting like drought Tolerant plants for effective adaption to the to the local climate and soil conditions, making them more resistant to drought and requiring less water once established. Additionally, plants like Madagascar Periwinkle, Ruellia tuberosa and Adenium obesum which store water in their leaves or stems, thrive in dry, sunny conditions and are known for their drought resistance.

Grouping plants with similar water needs together. Plants that need frequent watering should be placed near each other, while drought-tolerant plants can be placed in separate zones, reducing overall water usage.

Watering during the cooler parts of the day (early morning or late evening) reduces evaporation losses. Regularly we check plants to make sure they're receiving the right amount of water. Overwatering can be as harmful.

Drought-Tolerant plants



Red ixora at research campus entrance

	
Galphimia Gracilis at opposite to faculty dining hall	**Clerodendrum Macrosiphon near laundry office**

Stepped Hibiscus along the way to main building

Madagascar periwinkle – way to boys hostel

Canna at dining seats near mess hall 2

Creeping-oxeye near fountain

Portulaca grandiflora along the way through cafeteria

Bauhinia purpurea near volley ball court

Crape jasmine at security gate 3

Group plants

From gate 3 to research building along CoE building

	
From college gate 1 to fountain	**From fountain to OAT**
	
Play ground	**Offset area – fountain back side**

SUSTAINABLE DEVELOPMENT GOALS

6. CLEAN WATER AND SANITATION

6.4 Water reuse

6.4 Water reuse

6.4.1 Water reuse policy

Introduction

Chennai Institute of Technology (CIT) is committed to a robust water harvesting and reuse policy, implementing innovative strategies to maximize the benefits of water saving and recycling.

The policy is designed to ensure that campus water resources are managed efficiently and sustainably. By promoting judicious use and maximizing water reuse, the policy aims to minimize the strain on local water sources. Through the implementation of innovative water-saving, rain water harvesting, waste water recycling systems, and comprehensive community engagement initiatives, the policy fosters a culture of conservation. By reducing the water footprint and promoting responsible water management practices inside the campus, CIT aim to set an example of environmental stewardship and sustainability.

Objectives:

1. To promote water conservation on campus by organizing workshops, seminars, and awareness campaigns that educate students, faculty, and staff about the importance of reusing and saving water.
2. To evaluate and enhance water management strategies.
3. To implement water-saving technologies and practices across campus facilities, ensuring efficient water usage and reducing overall consumption.
4. To collaborate with local organizations in sharing effective water reuse practices and resources to promote sustainable water management.

Purpose

The policy aims to ensure that water is used efficiently and reused to the maximum extent possible, reducing the strain on campus water sources. It promotes the adoption of water-saving technologies and practices across all campus facilities, encouraging responsible

water usage among students, faculties, and staffs. By implementing systems for the collection, treatment, and reuse of grey and rainwater, the policy seeks to make significant strides in water conservation.

Policy content

The establishment of a state-of-the-art sewage wastewater treatment facility at CIT marks a significant advancement in environmental sustainability. Every day, the campus generates wastewater from various sources, including hostels and dining facilities. This wastewater is systematically collected through a robust underground sewer network and transported to the sewage treatment and recycling plant, ensuring efficient management and recycling of water resource. The plant processes sewage to produce reusable water which is then utilized for irrigation and other non-potable purposes, significantly reducing the campus's reliance on freshwater resources.

Dedicated research centers are focused on developing advanced technologies to minimize the ecological footprint of waste management, particularly through improved wastewater treatment and efficient composting of solid biological waste, thus reducing water wastage.

Ensuring an uninterrupted supply of water for drinking and other purposes prevents residents from storing water improperly in anticipation of shortages. This consistent supply helps minimize wastage by eliminating the need for excessive storage and reducing the likelihood of spills or overuse. Additionally, the provision of water-efficient fixtures and regular maintenance ensures that drinking water is used responsibly and wastage is kept to a minimum. Utilizing multiple water sources such as bore wells, rainwater, and recycled water reduces dependence on any single source, promoting sustainability and resilience. This diversified approach minimizes water wastage by balancing the usage among various sources and preventing the over-extraction of any one source.

Promoting rainwater harvesting across the college campus, including academic and hostel blocks, aids in groundwater recharging and minimizes water wastage by capturing and utilizing rainwater efficiently. The policy ensures that water is used efficiently and replenished naturally, further reducing water wastage. Additionally, continuous monitoring

and management of these sources allow for timely detection and repair of leaks, preventing unnecessary water loss.

Cleaning dishwashers in the canteen and mess in batches conserves water, ensuring it is used judiciously and minimizing wastage by reducing the frequency and total volume of water required for cleaning. By carefully managing laundry services for students and staff, and recycling and reusing wastewater from laundry facilities, water consumption is reduced and wastage is effectively minimized.

Through educational sessions and visual reminders, students are guided to practice mindful water usage and to turn off taps during non-use periods, which helps significantly reduce water wastage.

Implementing sensor-based automation for water tanks with continuous monitoring of water levels and automatic pump control prevents overflow and minimizes water wastage.

Conducting regular tests of water from the effluent treatment plant (ETP) ensures its quality and safety, allowing for the efficient reuse of treated water and minimizing wastage by preventing improper discharge.

Policy History

Policy created on	25-02-2021
Policy reviewed on	23-03-2022

6.4.2 Water reuse measurement

Academic year : 2022-23

Waste water collected from hostels and mess	: 271,748 lt / day
Sewage treatment tank capacity	: 2,75,000 lt/day

SUSTAINABLE DEVELOPMENT GOALS

6. CLEAN WATER AND SANITATION

6.5 Water in the community

6.5 Water in the community

6.5.1 Water Management Educational Opportunites

Water Leakage Photo Fest

The Water Leakage Photo Fest is a competition aimed at raising awareness about water conservation in Chennai Institute of Technology -Local Community. Participants are invited to submit hard copies of photos that capture instances of water leakage or inefficient water use within the campus premises. The goal is to identify and highlight areas where water management improvements are needed and to foster a culture of responsibility towards water conservation.

Winning entries will be displayed in a special exhibition on campus. A certificate of recognition will be awarded to all top three winners. Winning photos will be used in future water conservation campaigns to illustrate the importance of addressing water leakage.

Event Schedule:

Launch Date **:** 31-08-2022

Announcement of Winners **:** 07-09-2022

Photos collected from water leakage photo fest

Behind academic block	Near hand wash area
	
Hostel water purifier	**Café sink**
	
Hostel tank outlet	**Boys hostel**

6.5.2 Water Conservation

Community Awareness in Somamangalam

A Rally was conducted in Somangalam Village to make the people aware of education on water management as it plays a crucial role in shaping educational opportunities, particularly in areas where water scarcity or poor water infrastructure can be a significant barrier to learning. By ensuring that schools have access to clean water and adequate sanitation, we create healthier, more equitable, and more sustainable learning environments. Additionally, integrating water management into curriculum and encouraging water conservation efforts can equip students with valuable knowledge and skills that contribute to a more water-conscious society.

Tree saplings were given to the people at Somangalam village on 16-09-2022

In Somangalam Village, a tree planting campaign was held to raise awareness of the importance of water management education and how it shapes educational opportunities, especially in places where inadequate water infrastructure or water scarcity can be major learning obstacles. We establish more sustainable, egalitarian, and healthy learning environments in schools by guaranteeing that they have access to clean water and proper sanitation. Furthermore, incorporating water management into the curriculum and supporting conservation initiatives can give students important knowledge and abilities that help create a society that is more water-conscious. Following the rally, the neighborhood received tree seedlings on December of 2022.

A tree planting campaign at Somangalam village on 20-12-2022

Community Awareness in Puthuper on 11.02.2023

A Rally titled "A MARCH FOR MINDS AND WATER", Over 50 students and faculty members took part in the rally, showing solidarity towards the cause. The participants carried banners and slogans emphasizing the importance of Water conservation and preservation. The rally began from CIT and proceeded to Puthuper Village attracting attention and sparking conversations about the importance of water management and literacy towards it.

Thirunageswaram Rafting pond – Cleaning

The Chennai Institute of Technology, in collaboration with the National Service Scheme (NSS), organized a Rafting Pond Cleaning event on 3rd February 2023. A total of 35 students actively participated in the initiative, contributing to the cleaning and maintenance of the rafting pond. This event not only helped in improving the water quality and surrounding environment but also promoted a sense of responsibility and community service among the students.

Rally for Community Service

On February 18, 2023, the National Service Scheme (NSS) unit of Chennai Institute of Technology organized a significant rally named "Country is Our Home" in the picturesque Poonthandalam village. This event was part of NSS's ongoing efforts to foster a sense of national pride and community engagement among students and residents.

The rally was designed to instill a deeper sense of belonging and responsibility towards our country. With a focus on highlighting the importance of community service, national unity, and environmental consciousness, the event aimed to inspire participants to take an active role in societal betterment.

The day began with a gathering at the institute where 45 dedicated volunteers assembled at 3.00pm on that day. These volunteers, comprising both students and NSS members, were briefed about the day's activities and the objectives of the rally. After a motivational speech emphasizing the values of patriotism and civic duty, the group departed for Poonthandalam village. Upon arriving in Poonthandalam, the volunteers were met with a warm reception from the local residents. The village, known for its close-knit community, provided a welcoming atmosphere that further energized the participants. The rally kicked off with a parade through the village streets, during which volunteers carried banners and placards bearing messages of unity, pride, and the importance of community involvement. The parade was marked by enthusiastic chants and slogans, which resonated with the local populace and created a lively, engaging atmosphere. At the end of the event, motivational speech given by the Anna University Vice chancellor.

River Side Cleaning for Water Conservation

The National Service Scheme volunteers of Chennai Institute of Technology conducted a "World Water Day 2023" - a Mass Cleaning Campaign in river side and chembarambakkam lake on 22nd March 2023. The activities for the day started with the volunteers leaving to the College, to clean the River side in Adayar river near Tambaram and chembarambakkam lake. 50 Volunteers played their part in restoring the area to its original glory by engaging themselves from 9 am to 5pm in all the activities of the day with great enthusiasm and helped to restore nature. The programme was organized by the program officer Mr. Yakkana Rajasankar along with NSS volunteers.

River Side Cleaning – Adayar River

Chembarambakkam Lake – Cleaning

Removal ProsopisJuliflora

Removal ProsopisJuliflora

Thirunageswaram Rafting pond – Cleaning

Removal ProsopisJuliflora

The Karuvelam tree, or prosopis juliflora as it's known biologically, is a species native to West Africa and was brought to Tamil Nadu in 1960s as fuelwood. Slowly, these seeds started drifting into dams and rivers, causing problems. The plant according to multiple reports, absorbs excess groundwater, adding to the woes of the water-starved state. The NSS unit of CIT associated with Lions club, Chennai conducted by unwanted tree-cutting program in 19th July 2022. It afforests the wastelands. These trees are cut by the NSS volunteers of CIT near by the waste lands in Periyar nagar village (nearby CIT) to preserve the environment. Totally 58 members are participated in this event.

6.5.3 Sustainable Water Extraction

Sustainable water extraction on campus

The organization has a long-term goal regarding the sustainable use of water resources. There is a thorough plan in place for collecting rainwater and replenishing groundwater supplies.

6.5.4 Cooperation On Water Security

Chennai Institute of Technology provides educational opportunities for local communities to learn about good water management. The Institute adopts various methodologies to educate the local community. The webinars, workshops etc are arranged for the various groups of people in the community who are interested in water management and are looking for opportunities for water conservation. During the webinars, experts in the field will be invited to deliver the lecture on water management and water conservation practices. Lakes are increasingly impacted by the accumulation of water hyacinths and plastic waste on the surface, complicating cleanup efforts. Traditional water surface cleaning methods are often inefficient, labour-intensive, and unable to effectively reach and clean challenging areas. **Eco-Society India** is a non-profit organization based in Chennai, focused on environmental conservation and urban ecosystem protection. It aims to educate and train communities to protect and restore natural resources. The organization is actively involved in the following five key thematic areas:

1. **Eco-restoration of Lakes**: Focused on restoring urban lakes to improve water quality, biodiversity, and sustainability.
2. **Eco-restoration of Tropical Dry Evergreen Forest (TDEF)**: Working to restore and conserve this unique and biodiverse ecosystem in southern India.
3. **Eco-restoration of Kovalam Mangroves**: Protecting and restoring mangrove ecosystems, which are crucial for coastal protection and biodiversity.
4. **Afforestation & Eco-restoration of Degraded Landscapes**: Revitalizing deforested and degraded landscapes through afforestation and soil restoration efforts.
5. **Mural Art & Awareness Wall Paintings**: Using art to raise environmental awareness and engage the public in conservation efforts.

Location: Eco-Society India, #52, Dhayakar Avenue, Kalaivanar Salai, Chitlapakkam, Chennai 600064, India.



Autonomous Lake Surface Cleaner: Reducing Waste Accumulation with 270° Coverage

Research Project Grant

Chennai Institute of Technology has been approved for a grant of the Tamil Nadu State Council for Science and Technology Research Project. The Grant has been titled 'Underground Water Quality Monitoring due to Pumping of Water by Tanker Using GIS and Wireless Sensor Network Technology' and budgeted on Rs.4,35,000. The project "Underground Water Quality Monitoring due to Pumping of Water by Tanker Using GIS and Wireless Sensor Network Technology" aims to monitor the impact of water extraction by tankers on underground water quality. It involves deploying wireless sensors to continuously measure water quality parameters such as pH, turbidity, and contaminants in real time. The data collected by these sensors is transmitted wirelessly to a central system, where it is analyzed and visualized using Geographic Information Systems (GIS). GIS helps map the sensor locations and assess how pumping activities affect water quality over a geographical area. This integrated system allows for early detection of any contamination or quality degradation, enabling more efficient water management and ensuring the sustainability of groundwater resources by providing real-time insights and spatial analysis.

6.5.5 Promoting Conscious Water Usage on Campus

The Institute has adopted various methodologies to educate the students and staff members in Conducting regular water audits to identify wastage points. Campus Buildings were Set up with effective rainwater harvesting. Greywater recycling system that can treat wastewater from sinks and showers for reuse in gardening or Flush toilets. Water-conscious tags are maintained at appropriate places inside the campus.

6.5.6 Promoting conscious water usage in the wider community

The institution participates in the national initiative *Unnat Bharat Abhiyan* to enhance basic amenities in rural areas, including infrastructure, sanitation, healthcare, and education. The college team met with the Village Administrative Officer and the Chairman of the village to discuss raising awareness about the need for water management and the importance of rainwater harvesting. The "Neerottam" Water Marathon, conducted annually, and the cleanup of the Chembarabakkam Lake ridges were initiated by NSS-CIT in collaboration with the Lions Club, Chennai, to encourage the community to remain engaged in water-conscious and sustainable activities..

Students participating marathon

Chembarambakkam Lake – Cleaning

Unnat Bharat Abhiyan

The imperatives of sustainable development which are being felt more and more acutely all over the world also demand eco-friendly development of the villages and creation of appropriate employment opportunities locally. Increasing urbanization is neither sustainable nor desirable. So far, our professional higher education institutions have largely been oriented to cater to the mainstream industrial sector and, barring a few exceptions, have hardly contributed directly to the development of the rural sector. Unnat Bhārat Abhiyān (UBA) is a much-needed and highly challenging initiative in this direction.

The institution carried out reach around the beach, water bodies and public places. This activity enhanced the promotion towards the village people of Kottivaakam, Sirukalathur (near sembarambakam lake) and Thirunageswaram(public place) for sanitation , hygiene and preventing contamination of water bodies.

Beach cleaning activity

Public place (Thirunaganeswaram village)

url:https://www.citchennai.edu.in/campus-life/unnat-bharat-abhiyan/

SUSTAINABLE DEVELOPMENT GOALS

6. CLEAN WATER AND SANITATION

Other details

Other details

1. Research works contributing to SDG6

1. Water quality analysis in peri-urban areas of Chennai city using aqua chem software
2. Detection, prevention and removal of contaminants in hydraulic working fluid
3. Water verge – to forecast water consumption

2. Publications contributing to SDG6

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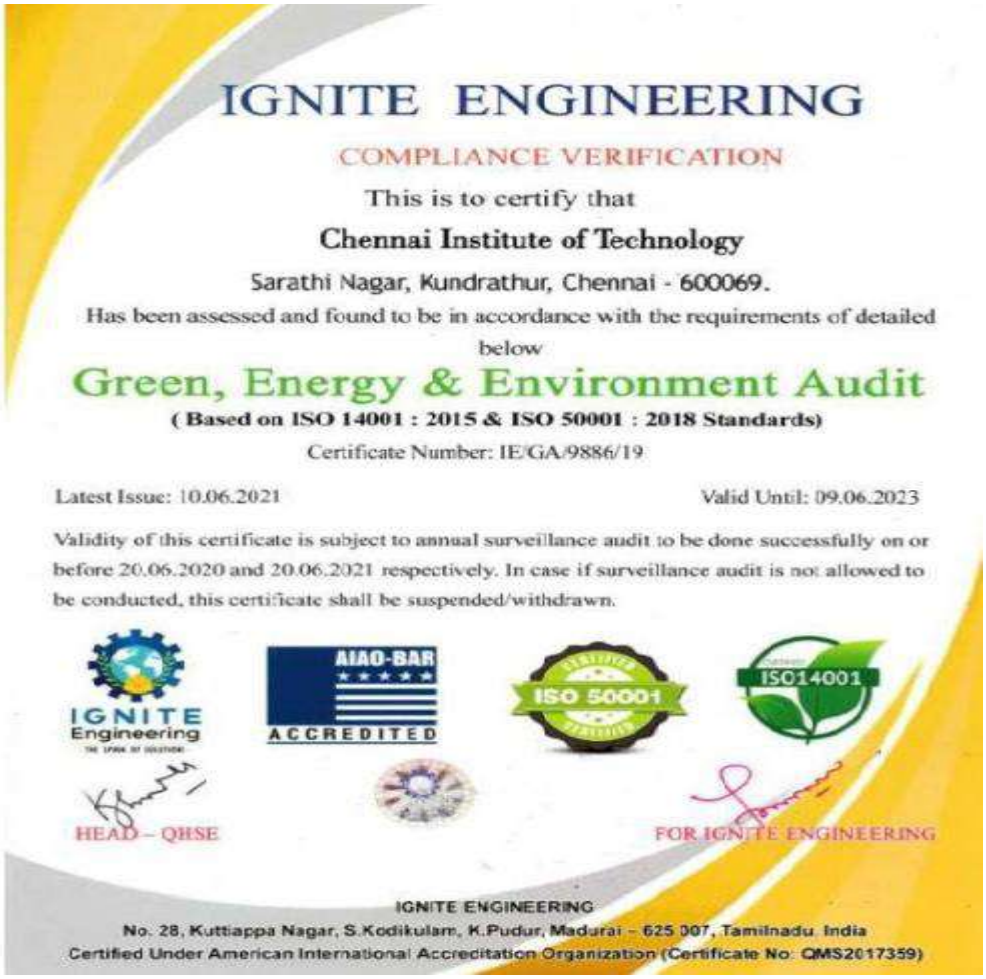
3. Patents contributing to SDG6

1. IoT based NFT hydroponics system. Application No: 202341077562 A
2. Device for electricity generation from waste water treatment. Design No: 394720-001
3. System for water level detection and control based on internet of things. Application No: 202341006631 A

2. Green, energy and environment audit certification

Chennai Institute of technology has been assessed and found to be in accordance with the requirements of green, energy and environment audit.



IGNITE ENGINEERING

COMPLIANCE VERIFICATION

This is to certify that

Chennai Institute of Technology

Sarathi Nagar, Kundrathur, Chennai - 600069.

Has been assessed and found to be in accordance with the requirements of detailed below

Green, Energy & Environment Audit

(Based on ISO 14001 : 2015 & ISO 50001 : 2018 Standards)

Certificate Number: IE/GA/9886/19

Latest Issue: 10.06.2021 Valid Until: 09.06.2023

Validity of this certificate is subject to annual surveillance audit to be done successfully on or before 20.06.2020 and 20.06.2021 respectively. In case if surveillance audit is not allowed to be conducted, this certificate shall be suspended/withdrawn.

IGNITE Engineering

AIAO-BAR ACCREDITED

ISO 50001

ISO14001

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FOR IGNITE ENGINEERING

IGNITE ENGINEERING

No. 28, Kuttiappa Nagar, S.Kodikulam, K.Pudur, Madurai – 625 007, Tamilnadu, India

Certified Under American International Accreditation Organization (Certificate No: QMS2017359)