



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

SUSTAINABLE DEVELOPMENT GOALS – 6

CLEAN WATER AND SANITATION



Ensure Availability and Sustainable Management of Water and Sanitation for All



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

6.1 Overview

Reliable access to clean water and sanitation remains one of the most pressing global challenges, with direct consequences for public health, education, and environmental sustainability. Educational institutions, as significant consumers of water, have a responsibility to manage this resource carefully monitoring usage, minimising waste, and treating wastewater responsibly before it re-enters the environment.

6.2 Water Management in Institution

National Engineering College, Kovilpatti (autonomous) manages its campus water supply through a combination of bore wells and monitored distribution systems, ensuring water reaches hostels, academic buildings, and canteens efficiently. Consumption is tracked regularly so usage patterns can be understood and managed responsibly, with allowances made for seasonal variation and the needs of specialised facilities such as purification plants.

Water Conservation Measures Undertaken taken by the institution are

- Water conservation practices actively followed across the campus to minimize wastage.
- Rainwater harvesting system installed and connected to a catchment area of 107,660 sq. ft. to recharge groundwater and reduce dependence on external water sources.
- Wastewater treatment system in operation, treating a portion of generated wastewater for reuse and safe disposal.
- Periodic water audits conducted to monitor consumption patterns and identify areas for improvement.

6.3 Water Consumption in the Institution

National Engineering College tracks campus water consumption through its metered borewell and pump network, supported by periodic water audits. In the 2024-25 academic year, the institution operated a total pump capacity of 103.5 HP to serve around 1,300 taps across academic blocks, hostels, and support facilities, of which 530 taps have been fitted with low-



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

flow fixtures to reduce wastage. Reviewing these consumption patterns annually helps the institution align usage with its water conservation goals under SDG 6.

Water Consumption Data – Year-wise (Source: NIRF Sustainable Institutions Data Submission)

Academic Year	Total Pump Power (HP)	RWH Connected Area (Sq.ft.)	Total Taps
2025-2026	103.500	107660.000	1300
2024-25	103.500	107660.000	1300
2023-24	103.500	107660.000	1293



Automated Water Pumping System, Mechanical Engineering Block

6.4 Plantation of Drought Tolerant Plants

National Engineering College maintains extensive plantation of native, drought-tolerant tree species across its 123-acre campus, including Neem, Vagai, Pungai, Usilai, and Tamarind, which require minimal irrigation, improve soil moisture retention, and support groundwater recharge.



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

With over 3,300 trees maintained on campus, this plantation drive reduces dependence on freshwater for landscaping and reinforces the institution's water conservation efforts.

Trees List Inside College Campus

SL No	Name of the Tree	Scientific Name	Total in Nos
1	Neem	Azadirachta indica	1052
2	Vagai	Albizia lebbeck	711
3	Poovarasu	Thespesia populnea	19
4	Pungai	Millettia pinnata	144
5	Maruthai	Terminalia arjuna	33
6	Usilai	Albizia amara	21
7	Vandi vagai	Albizia lebbeck	51
8	Alastonia	Alstonia scholaris	49
9	Yellow Bignonia	Bignonia stans	29
10	Foxtail	Wodyetia bifurcata	220
11	Barringtonia	Barringtonia asiatica	54
12	Aavi	Ulmus	131
13	Teak	Tectona grandis	36
14	Vadham kottai	Terminalia catappa	24
15	Tamarind	Tamarindus indica	8
16	Bunglow vagai	Albizia lebbeck	23
17	Naval	Syzygium cumini	17
18	Banyan	Ficus benghalensis	8
19	Ashoka	Saraca asoca	520
20	Chitha kathi	Acacia auriculiformis	2
21	Drumstick	Moringa oleifera	4
22	Pomegranate	Punica granatum	3
23	Gosseberry	Phyllanthus emblica	14
24	Guava	Psidium guajava	6
25	Jack fruit	Artocarpus heterophyllus	2



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

SL No	Name of the Tree	Scientific Name	Total in Nos
26	Coconut	Cocos nucifera	89
27	Arasa maram	Ficus religiosa	7
28	Custard apple	Annona squamosa	12
29	Latcha kottai	Pisonia alba	2
30	Kodikai puli	Pithecellobium dulce	2
31	Lemon	Citrus or limon	3
32	Mango	Mangifera indica	8
33	Ilavam	Ceiba pentandra	2
34	Malai avarai	Senna auriculata	1
35	Maruthani	Lawsonia inermis	4
36	Vilvam	Aegle marmelos	4
37	Mahogany	Swietenia	15
38	Nanthiyavattai	Tabernaemontana	1
39	Banana	Musa	3
Total No of Trees			3334

6.5 Sustainable Water Extraction Technologies

National Engineering College, Kovilpatti (Autonomous) has implemented a structured rainwater harvesting system across the campus to promote sustainable water management and groundwater conservation. Rooftop catchment areas from all major academic and administrative blocks along with the Library, Canteen, Maintenance Department, Godown, Boys' and Girls' Hostels, Dining Hall, and Gymnasium, have been integrated into the rainwater harvesting network. As illustrated for the First Year Block, rooftop runoff is collected through a dedicated network of pipelines fixed along the building exterior and directed toward designated harvesting pits, ensuring efficient capture of rainwater with minimal surface runoff loss. These harvested waters are channeled into recharge pits, such as the one located opposite the Administrative Block, which are cut into the natural rock strata and secured with protective fencing for safety, allowing rainwater to percolate and effectively recharge the groundwater table. Out of a total rooftop catchment area of 28,259 Sq.Mtr across the campus, an area of 10,002 Sq.Mtr has been brought



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

under active rainwater harvesting coverage, amounting to 35.4% of the total rooftop area. This structured, campus-wide implementation, spanning academic blocks, hostels, and support facilities, reflects the institution's ongoing commitment to water conservation, groundwater sustainability, and responsible infrastructure planning, in alignment with SDG 6 (Clean Water and Sanitation).

Department-wise Roof Top Area and Rain Water Harvesting Coverage

Department / Block	Roof Top Area (Sq.Mtr)	Rain Water Harvesting Area (Sq.Mtr)
S&H Dept	1814.38	1814.38
Admin	496.51	496.51
Auditorium	746.37	-
COE	683.64	683.64
Techpark	617.12	617.12
Canteen	475.03	-
CSE Dept	1282.22	-
EEE Dept	2370.18	2370.18
AI&DS Dept	1047.12	-
ECE Dept	1679.4	1679.4
Library	1895.98	-
Mech Dept	1649.54	1649.54
Mech Lab Rcc	337.97	-
Mech Lab Ac	1179.28	-
Mech Lab Rcc	118.7	118.7
Mech Lab Ac	546.15	-
Mech Lab Rcc	118.7	118.7
Mech Lab Ac	533.89	-
Civil Dept	1809.16	-
IT Dept	979.85	-
Maintenance Dept	221.38	221.38
Godown	232.25	232.25



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

Department / Block	Roof Top Area (Sq.Mtr)	Rain Water Harvesting Area (Sq.Mtr)
G.Hostel - 1	1893.05	-
G.Hostel - 2	1400.75	-
L.Hostel	2071.67	-
Dining	134.578	-
L.Hostel - 2	416.13	-
L.Hostel - 3	1050.86	-
Gym	457.13	-
Total (Sq.Mtr)	28259	10002
Total (Sq.Ft)	304177.34	107660.63
Percentage of Rain Water Harvesting		35.4%



Rain Water Harvesting, First Year Block



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503



Rainwater Collection Pipeline from Rooftop to Harvesting Pit, First Year Block



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503



Rainwater Harvesting Pit, Secured with Protective Fencing, Opposite to Admin Block

6.6 Courses

The Civil Engineering department offers a set of core courses that collectively address multiple targets under SDG 6: Clean Water and Sanitation. The table below maps each course to its corresponding SDG 6 target(s).

S.No	Course Title	Corresponding Target Description	SDG	Course-SDG Alignment
------	--------------	----------------------------------	-----	----------------------



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

S.No	Course Title	Corresponding Target SDG Description	Course-SDG Alignment
1	Wastewater Engineering PCC	Improve water quality by reducing pollution, eliminating dumping, and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater	Trains students to design collection, treatment, and disposal systems for domestic and industrial wastewater, ensuring safe discharge and reuse
2	Water Resources and Irrigation Engineering PCC	Increase water-use efficiency across sectors and ensure sustainable withdrawals to address water scarcity; support implementation of integrated water resources management	Builds competence in planning, allocation, and efficient management of surface and groundwater resources, including irrigation system design for sustainable agricultural water use
3	Water Supply Engineering PCC	Achieve universal and equitable access to safe and affordable drinking water for all	Trains students to design and manage water treatment, storage, and distribution systems that ensure safe and reliable drinking water supply to communities

6.7 Collaborations on Water Security

National Engineering College extends its technical expertise and laboratory facilities to construction firms and industrial organizations in the region through consultancy and testing services. As part of this extension activity, the institution's testing laboratory undertook water testing for organizations including Ms. Hariram Constructions, Erode, and SP Construction, Kovilpatti, verifying the physical, chemical, and bacteriological parameters of water samples against relevant construction and drinking-water standards prior to their use in ongoing civil works. Such testing plays a vital role in ensuring the quality and durability of construction, safeguarding structures from long-term damage caused by the use of substandard water, and thereby protecting public safety and infrastructure investment. The consultancy service also



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

strengthens the institution's engagement with local industry, providing students and faculty members with practical exposure to real-world testing procedures, industry expectations, and quality standards that complement classroom instruction. The revenue generated through such consultancy work, amounting to Rs. 3,300 after deduction of applicable charges for the reported period, is credited to the institution and reflects its growing role as a resource centre for the regional construction sector. Beyond the immediate financial contribution, these engagements enhance the visibility and credibility of the institution's laboratories, encourage repeat association from industry partners, and support the College's broader objectives under extension and consultancy activities as recognized by accreditation bodies such as NAAC and NBA. Going forward, the institution intends to expand the scope of such services to include additional categories of material and structural testing, and to formalize industry outreach through structured consultancy agreements, thereby further strengthening institution-industry linkage and generating sustained non-academic revenue.

Organization	Nature of Work	Total amount after deduction
Ms.Hariram Constructions, Erode & SP Construction , Kovilpatti	Water Test	3300

6.8 Projects

National Engineering College actively encourages student-driven research and innovation projects that address real-world challenges in water conservation and wastewater management. As part of this initiative, students are currently engaged in developing sustainable, low-cost solutions aimed at treating and reusing wastewater at the household and environmental level. These ongoing initiatives reflect the institution's continued emphasis on nurturing practical, application-oriented research that supports responsible water resource management and contributes to the broader goal of clean water and sanitation.

PROJECT TITLE	EXPECTED OUTCOME
Portable Household Grey water Recovery Unit	Expected to deliver a compact, low-cost household unit capable of recovering and treating greywater for reuse in non-potable applications such as gardening and flushing, thereby reducing freshwater



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

PROJECT TITLE	EXPECTED OUTCOME
	consumption at the household level
Agro waste Derived Carbon Dots for Environmental Remediation of Wastewater	Expected to yield a low-cost, sustainable carbon dot synthesis route from agricultural waste for use in wastewater remediation, enabling effective pollutant detection/removal while promoting circular use of agro-waste

6.9 Drinking Water in Campus

National Engineering College provides safe, potable drinking water across the campus through Reverse Osmosis (RO) purification units installed in academic blocks and hostels, such as the RO unit at the CSE Department. Regular maintenance and monitoring of these units ensure consistent access to clean drinking water for students and staff.



RO water purification unit installed in the CSE Department



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

6.10 Measure Water Reuse

National Engineering College maintains a systematic, year-on-year record of its campus water infrastructure and usage parameters, reflecting the institution's structured approach to water stewardship. Data is tracked annually across key parameters pump power for water distribution, rainwater harvesting connectivity, wastewater treatment levels, and tap infrastructure providing measurable insight into the scale and efficiency of water-related systems operating across the campus.

The institution maintains an adequately sized water pumping infrastructure to support distribution and circulation needs across all blocks, ensuring uninterrupted water supply throughout the campus. This capacity has been planned to meet current requirements without the need for frequent reactive scaling, reflecting sound infrastructure planning.

A significant proportion of the campus rooftop area has been brought under rainwater harvesting coverage, with the connected catchment area maintained consistently over time. This reflects the institution's sustained commitment to groundwater recharge and reduced dependence on external water sources, rather than a one-time or short-lived initiative.

The institution also tracks the extent of wastewater treated on campus, enabling it to monitor treatment efficiency and identify opportunities to strengthen treatment capacity in line with evolving water usage patterns. This ongoing monitoring supports informed decision-making around wastewater management infrastructure.

On the demand-management front, the campus has been steadily expanding its tap infrastructure while maintaining a strong proportion of low-flow taps among the total installations. This reflects a conscious institutional effort to promote water-efficient fixtures and reduce per-capita consumption, even as overall infrastructure grows to meet campus needs.

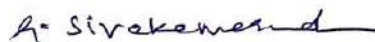
Taken together, these measures reliable pumping capacity, sustained rainwater harvesting coverage, active wastewater treatment monitoring, and a growing emphasis on low-flow fixtures illustrate a campus-wide, data-driven approach to water usage rather than isolated interventions. By maintaining this data annually, the institution is able to identify trends and respond with targeted infrastructure or process improvements over time. This ongoing monitoring and continuous improvement in water infrastructure reflects National Engineering College's broader institutional commitment to responsible water resource management, efficient consumption



NATIONALENGINEERING COLLEGE
(An Autonomous Institution – Affiliated to Anna University Chennai)
K.R.NAGAR, KOVILPATTI-628503

practices, and long-term environmental sustainability across its campus operations.

Academic Year	Total Pump Power (HP)	RWH Connected Area (Sq.ft.)	Wastewater Treated (%)	Total Taps	Low-Flow Taps	Total Rooftop Area (Sq.ft.)
2025-26	103.500	107660.000	36.17	1300	530	304177.000
2024-25	103.500	107660.000	38.490	1300	530	304177.000
2023-24	103.500	107660.000	41.310	1293	523	304177.000


Member


Coordinator


Principal
29/12
Dr. K. Kalidasa Murugavel, M.E., Ph.D.,
PRINCIPAL
NATIONAL ENGINEERING COLLEGE
K.R. NAGAR, KOVILPATTI - 628 503.
THOOTHUKUDI-DIST