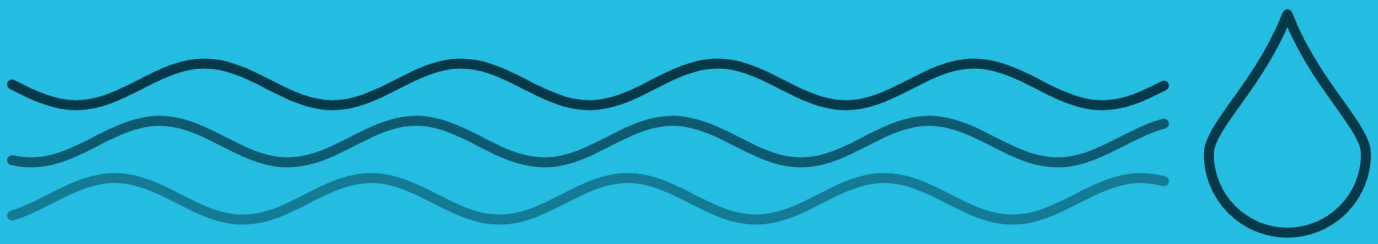
SUSTAINABLE DEVELOPMENT GOAL

6 CLEAN WATER AND SANITATION

المياه النظيفة والصرف الصحي



RANKING SUBMISSION DOSSIER

2024–2025

FRAMEWORKS

UI GreenMetric World University Rankings

THE Impact Rankings (SDG 6)

REPORTING PERIOD

Academic Year 2024–2025

SDG 6 · 2024–2025

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2024–2025 AT A GLANCE

315,002 m³
Total campus water consumption, 2024

-405,068 m³
Reduction compared with 2023

EGP 10.5M
Lower water costs than in 2023

225,326 m³
Inbound treated and extracted water

138,123
Campus population served

55.6%
Public faucets fitted with water-saving heads

~40%
Less water per flush with dual-flush toilets

8
Drainage lysimeters guiding irrigation

2010
Water Reuse Policy, updated 2022

6.2.1

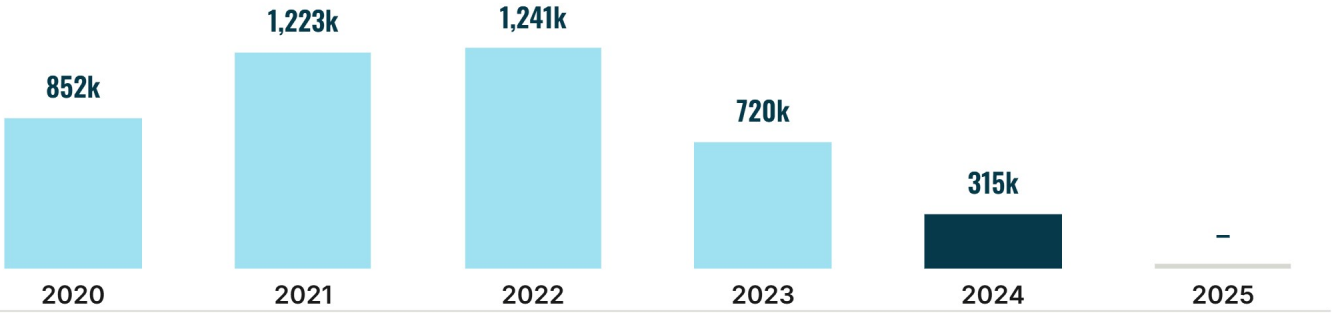
MEASURING WATER CONSUMPTION

INSTITUTIONAL STATUS Yes — whole-university coverage

Assiut University systematically monitors and tracks its total water consumption across all campus facilities, administrative units, residential dormitories, and agricultural research farms. Digital flow meters, building-level monitoring, and central utility accounting track monthly intake from municipal mains supplies and alternative extracted groundwater sources.

Between 2020 and 2024, the university implemented aggressive water conservation policies, plumbing retrofits, smart leak detection, and canal connections for landscape irrigation. In 2024, total campus consumption fell to 315,001.75 m^3 (costing EGP 3,780,021.00). Compared to previous peak consumption levels, the university achieved a net annual freshwater reduction of 405,068.08 m^3, generating direct financial savings of EGP 10,498,493.70.

ANNUAL WATER VOLUME, M^3



YEAR	WATER VOLUME (M^3)	ANNUAL COST (EGP)	VOLUME CHANGE (M^3)	COST CHANGE (EGP)
2020	852,345.60	5,966,418.75	Baseline	Baseline
2021	1,223,398.30	8,563,788.27	+371,052.70	+2,597,369.52
2022	1,240,541.40	8,683,788.27	+17,143.10	+120,000.00
2023	720,069.83	14,278,515.00	−520,471.57	+5,594,726.73
2024	315,001.75	3,780,021.00	−405,068.08	−10,498,493.70
2025	Pending	Pending	Pending	Pending

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Assiut University SDG 6 Water Consumption Dashboard
→ Assiut University Institutional SDG 6 Progress Report 2024–2025

6.2.2.1 VOLUME OF WATER USED IN THE UNIVERSITY: INBOUND TREATED AND EXTRACTED WATER

INSTITUTIONAL STATUS Verified institutional data provided

The total volume of inbound treated and extracted groundwater used across Assiut University facilities during the 2024–2025 reporting period reached 225,326 m^3. Combined with the municipal mains supply, total university water usage stood at 315,001.75 m^3 in 2024.

Raw groundwater from deep wells and surface water drawn from the Ibrahimia Canal pass through specialised campus purification plants and dedicated non-potable distribution networks to supply landscape irrigation, agricultural farms, and facility operations without depleting municipal drinking water networks.

225,326 m^3
Inbound treated and extracted water, 2024–2025

315,001.75 m^3
Total university water usage, 2024

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Official SDG 6 Report 2024–2025 Data Sheet

6.2.2.2 CAMPUS POPULATION

INSTITUTIONAL STATUS Verified institutional data provided

The full campus population served by Assiut University water, sanitation, and campus infrastructure during 2024–2025 is 138,123 individuals. This includes undergraduate students, postgraduate researchers, academic faculty members, clinical staff across the university hospitals, and administrative personnel across all academic campuses and research stations.

138,123
Campus population, 2024–2025

≈2.28 m^3
Water per person in 2024 (315,001.75 ÷ 138,123)

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Assiut University Campus Population Certification

6.3.1

WASTEWATER TREATMENT PROCESS

INSTITUTIONAL STATUS Yes — fully operational on-campus infrastructure

Assiut University operates on-campus wastewater treatment facilities complying strictly with the 2015 Egyptian Code for Water Recycling, established in partnership with USAID. Wastewater from academic buildings drains into the main sewer lines, is collected and treated, and is then pumped through dedicated pipelines to irrigate campus forestry, green lawns, wooden trees, ornamental plants, and agricultural research plots. Collection stations also pump effluent to the central Governorate treatment plant to prevent environmental contamination.

In 2024–2025, university researchers evaluated medical wastewater from Assiut University Hospitals (hemodialysis and reverse osmosis reject water) to ensure safe treatment and environmental compatibility. A water treatment unit also treats and distributes water within the campus, so that water supplied to each university sector meets the required quality standards.

The university is moving toward non-traditional water sources, such as grey water recycling, particularly in student housing. A grey water treatment unit was established in the male student housing (Building G), in partnership with Misr El-Kheir Foundation and the National Bank of Egypt. Treated water irrigates trees and green areas on campus, significantly reducing water waste.



On-campus wastewater treatment and reuse infrastructure



Treatment and reuse of grey water to irrigate university green areas

6.3.1 WASTEWATER: EVIDENCE

OFFICIAL EVIDENCE LINKS: 6.3.1

→ Wastewater Treatment and USAID Sector Support
→ USAID Drinking Water and Sanitation Sector Project Details
→ Medical Wastewater Quality Analysis Study (Assiut University Hospitals)
→ Arab El-Madabegh Treatment Plant Environmental Impact Assessment
→ Grey water treatment unit with Misr El-Kheir Foundation (news)

6.3.2
PROCESSES TO PREVENT POLLUTED WATER FROM ENTERING THE WATER SYSTEM

INSTITUTIONAL STATUS Yes — multi-tiered pollution prevention controls

Assiut University implements a range of measures to protect its water supply system and reduce the risk of water contamination:

Compliance with drinking water standards

Water supplied to the university meets national drinking water quality requirements, with regular monitoring. Specifications follow Ministry of Health and Population Decision No. 182 of 2025.

Routine inspection and maintenance of water infrastructure

Periodic inspection, maintenance, and repair of distribution networks minimise leaks, prevent contamination, and keep the supply system intact.

Water quality monitoring

Regular physical, chemical, and microbiological analyses of municipal and groundwater sources verify compliance with water quality standards.

Laboratory safety and hazardous waste management

Laboratories follow set procedures for handling, storing, and disposing of chemicals and hazardous materials to prevent releases that could affect water resources.

Environmental health and safety procedures

Emergency response procedures and environmental management practices reduce pollution risks and protect surface water and groundwater.

6.3.2

UNIVERSITY EFFORTS TO PREVENT POLLUTED WATER FROM ENTERING THE WATER SYSTEM

Modelling drinking water quality

The Faculty of Engineering has run studies using advanced software to model drinking water quality within the distribution network and keep an optimal level of residual free chlorine for effective disinfection.

Regular testing of well water

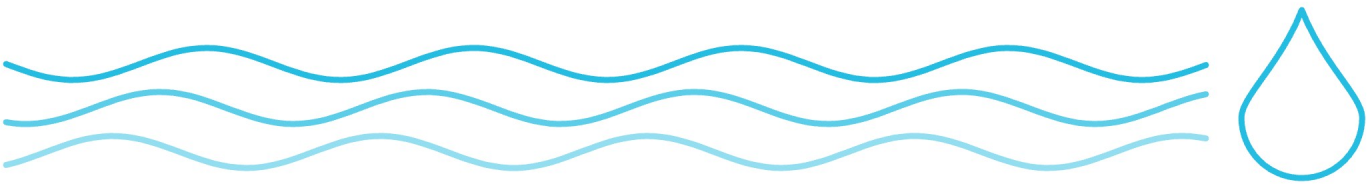
Well water is tested regularly in university laboratories, including the Faculty of Agriculture's Soil, Water and Plant analysis laboratory.

Leak repair in student housing

A 2025 tender covered the work needed to repair water pipe leaks in university housing.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Faculty of Engineering study on improving drinking water quality (news)
→ Groundwater suitability for drinking and industrial use in Assiut (news)
→ Faculty of Agriculture land and water laboratory
→ Water Pollution Control Protocols
→ 2025 Housing Water Pipe Leak Maintenance Tender Notice
→ Leak maintenance tender document



6.3.3

FREE DRINKING WATER PROVISION

INSTITUTIONAL STATUS Yes — universal campus access

Assiut University provides free access to safe, high-quality drinking water for all students, faculty members, staff, and visitors across its campus facilities. Its integrated drinking water production and purification system includes modern treatment plants and purification units that treat water from deep groundwater wells and the Ibrahimia Canal to strict national standards (Ministry of Health Decision No. 182 of 2025), with regular monitoring, testing, and quality control.

Water coolers and dispensers are installed throughout academic buildings, administrative offices, student residences, sports facilities, university hospitals, and public gathering areas, so drinking water is freely available to all members of the university community. This also improves health and well-being, promotes efficient resource use, and reduces dependence on single-use plastic bottles.



Assiut University water purification station providing free and safe drinking water across campus

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Free Potable Water Infrastructure Evidence

→ Campus Water Purification Units Portal

6.3.4

WATER-EFFICIENT BUILDING STANDARDS

INSTITUTIONAL STATUS Yes — enforced standards and retrofit program

Assiut University applies measures and standards to improve water-use efficiency in new and existing buildings:

1. **Water-saving spray tap heads** on 100 of 180 faucets in public restrooms (55.6% adoption). Flow fell from 450 mL to 200 mL per 10 seconds, an estimated water saving of about 55.6%.
2. **Dual-flush toilet systems** in several facilities, cutting water use by about 40% per flush compared with conventional systems.
3. **Preventive maintenance during the summer break:** inspecting water networks and sanitary facilities, repairing leaks, replacing damaged fixtures, and rehabilitating distribution systems to minimise losses.
4. **Green roofs irrigated by drip systems,** ensuring efficient water use and significant savings in daily consumption.
5. **Reusing water collected from air conditioners.**
6. **Modern irrigation systems** that conserve water in gardens and green spaces.

100 / 180
Faucets with spray tap heads

450 → 200 mL
Flow per 10 seconds

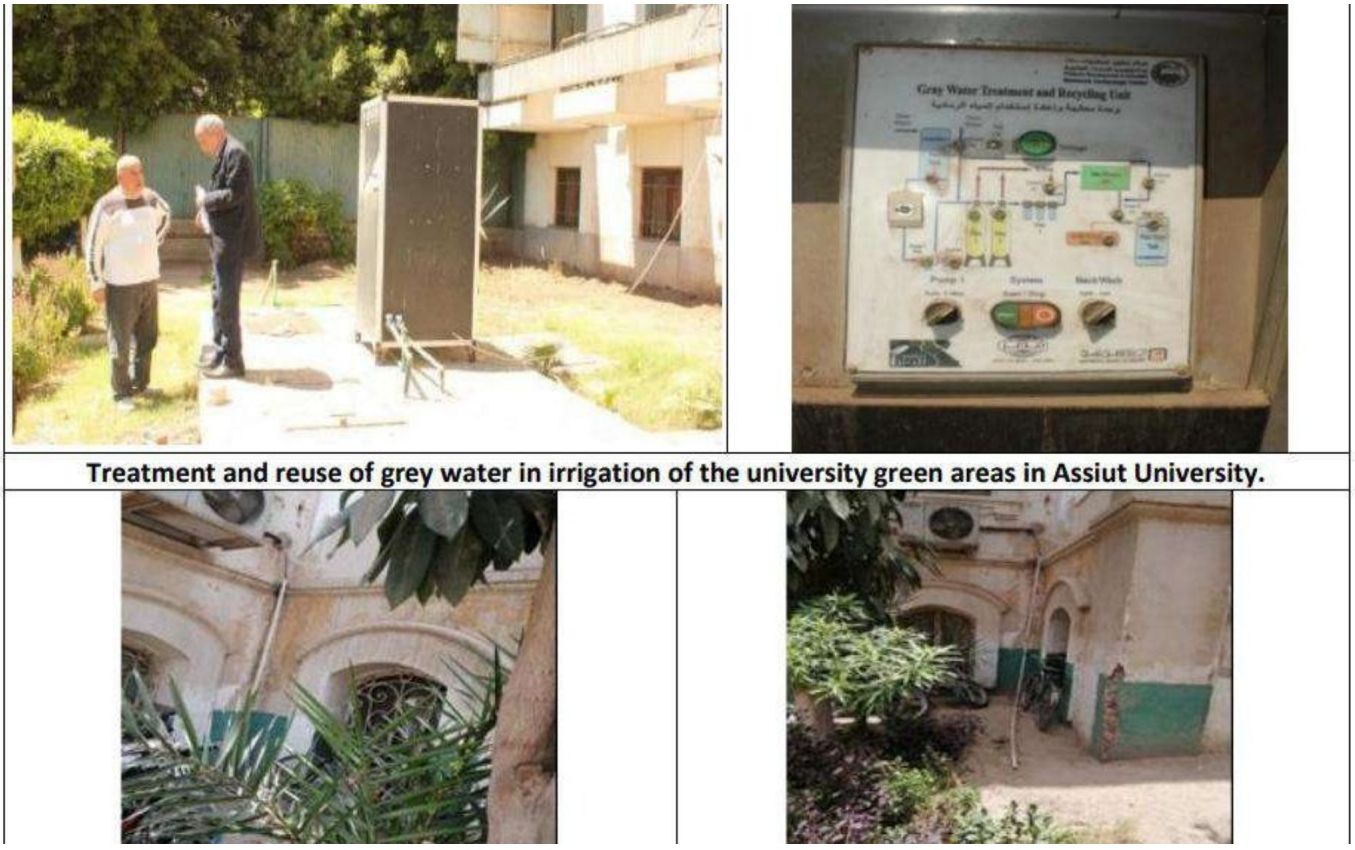
~40%
Saving per dual flush



Spray tap heads reduce the amount of water drawn from each tap.

6.3.4

REUSE AND GREEN ROOFS IN PRACTICE



Grey water treatment in student housing, and reuse of water collected from air conditioners to irrigate nearby green areas





Green roofs across the campus are irrigated with drip systems, ensuring efficient water use and significant savings in daily consumption.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Water-Efficient Appliances and Fixture Standard

6.3.5

DROUGHT-TOLERANT LANDSCAPING TO MINIMISE WATER USAGE

INSTITUTIONAL STATUS Yes — smart irrigation and climate-resistant agriculture

Assiut University adopts water-efficient landscaping and advanced irrigation technologies to minimise water consumption while keeping its green spaces:

1. **Multi-span greenhouse** (inaugurated December 2023) housing about 3,000 ornamental plants, with automated mist irrigation and fertigation systems that optimise water and nutrient use.
2. **Drainage lysimeters** at the Farm of the Department of Soil and Water Sciences: eight units accurately determine crop evapotranspiration needs, enabling precise irrigation scheduling.
3. **Drought-tolerant species** such as Jojoba (Simmondsia chinensis), the “green gold” valued for its economic worth and low water needs, grown under drip irrigation.
4. **Non-potable water for landscape irrigation,** through direct pipelines to campus gardens and green areas. Sewage treated on campus under the 2015 Egyptian Code is pumped into dedicated irrigation lines, and air-conditioner water is collected in plastic pipes to irrigate nearby green areas.

EXTENSION FARM IN THE ASSIUT VALLEY

The extension farm covers about 200 acres of new sandy land, of which about 80 acres are cultivated using sprinkler and drip irrigation. Because modern irrigation networks are costly, they are installed gradually, growing in area each year: drip irrigation now covers 10 acres of Jojoba and 4 acres of wheat. The rest of the cultivated area uses improved surface irrigation, and a large area has been retained to further rationalise water use. Traditional methods are replaced every year, with the aim of irrigating the entire farm by sprinkler and drip.

200 acres	80 acres	10 + 4 acres	3,000
Extension farm	Cultivated	Drip: Jojoba and wheat	Greenhouse plants

These initiatives show the University's commitment to sustainable landscape management, climate resilience, and efficient water use, integrating drought-tolerant vegetation, precision irrigation, and alternative water sources.

6.3.5

SMART IRRIGATION IN THE FIELD



Lysimeters at the Land and Water Department farm measure how much water each crop needs, reducing irrigation water use.



Temperature and humidity controlled multi-span greenhouse that saves irrigation water.



Drip irrigation on the acres cultivated with Jojoba and wheat.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Landscaping Strategy and Conservation Infrastructure

→ Faculty of Agriculture Smart Irrigation Farm Portal

6.4

WATER REUSE

6.4.1 POLICY TO MAXIMISE WATER REUSE ACROSS THE UNIVERSITY

INSTITUTIONAL STATUS Yes — formal institutional policy

Assiut University operates under an official Water Reuse Policy established in 2010 and reviewed and updated in 2022. The policy mandates greywater treatment in student housing, harvesting air-conditioning condensate for nearby garden watering, and distributing treated wastewater to agricultural research plots and woody trees. Combined conservation measures yielded 405,068 m³ in annual freshwater savings.

2010
Water Reuse Policy established

2022
Policy reviewed and updated

405,068 m³
Annual freshwater savings

Greywater treatment

Mandated in student housing.

Condensate harvesting

Air-conditioner water reused to water nearby gardens.

Treated wastewater

Distributed to agricultural research plots and woody trees.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Institutional Water Reuse Policy Evidence

6.4.2 MEASURING WATER REUSE ACROSS THE UNIVERSITY

INSTITUTIONAL STATUS Yes — digital tracking and facility audits

Water reuse volumes are measured using digital flow meters, central utility logs, and agricultural irrigation records across all faculties. In 2024, cumulative water recycling and conservation initiatives reduced freshwater consumption by 405,068 m³, generating EGP 10,498,493.70 in financial savings.

405,068 m³
Freshwater reduction, 2024

EGP 10,498,493.70
Financial savings, 2024

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Water Reuse Measurement Evidence

6.5

WATER IN THE COMMUNITY

6.5.1 EDUCATIONAL OPPORTUNITIES FOR LOCAL COMMUNITIES ON WATER MANAGEMENT

INSTITUTIONAL STATUS Yes — free public outreach and applied research

Assiut University promotes water management awareness and capacity building through public education, community outreach, research, and technological innovation, to improve conservation practices, support sustainable resource management, and address regional water challenges.

Public awareness and community education

Public seminars, workshops, and awareness campaigns on water conservation, environmental sustainability, climate adaptation, and efficient resource use, open to students, staff, and the wider community.

Leadership in water sustainability advocacy

University leaders contribute to national and regional discussions on water security, sustainable development, desalination, and the role of research in addressing water scarcity and climate challenges.

Applied research on community water challenges

Studies on water conservation behaviour, domestic water-use efficiency, and sustainable resource management produce evidence-based recommendations for households and communities.

Student research and community-oriented innovation

Student projects test low-cost, sustainable water treatment using natural and local materials such as moringa seeds, orange peels, and biochar as purification and filtration media.

Innovative water treatment and desalination

Faculty of Engineering students and researchers developed a solar-powered desalination unit using Multiple Effect Distillation (MED), solar tracking, and Internet of Things (IoT) monitoring for real-time optimisation.

Master's thesis, Department of Soils and Water

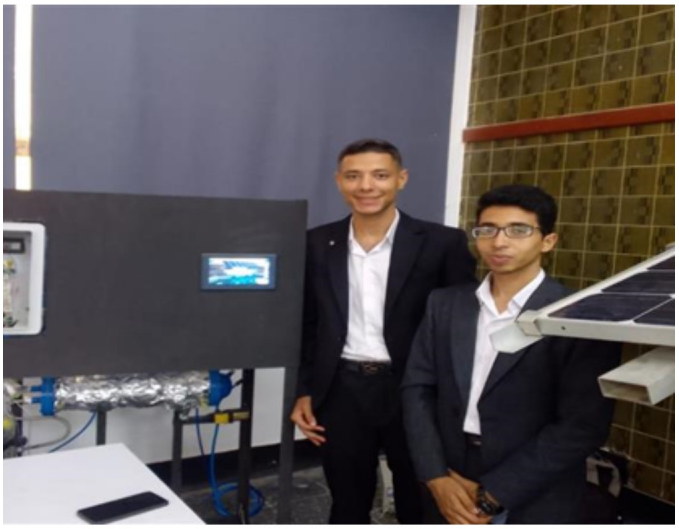
On using zeolite and biochar as sorbents to remove salinity and sodicity and improve water quality.

Knowledge transfer and capacity building

Training programs, public lectures, research dissemination, and community engagement transfer knowledge and practical skills in sustainable water management.

6.5.1

INNOVATION AND RESEARCH IN PRACTICE



Solar-powered water desalination unit enabling the recycling and reuse of water across the campus



Master's thesis on zeolite and biochar sorbents, Department of Soils and Water

OFFICIAL EVIDENCE LINKS: 6.5.1

→ Community Water Education and Seminars
→ President El-Minshawy's World Water Day 2025 address
→ Faculty of Engineering Waste and Energy Conservation Symposium
→ Master's thesis on zeolite and biochar sorbents (post)
→ Research on Egyptian awareness of domestic water conservation and reuse
→ Evaluation of groundwater resources in Wadi El-Assiuti, east of Assiut City

6.5.2 SUPPORT FOR WATER CONSERVATION OFF CAMPUS

INSTITUTIONAL STATUS Yes — community extension and technical support

Assiut University supports water conservation beyond its campus through community engagement, knowledge transfer, applied research, and technical assistance. Through the Faculty of Agriculture and its extension activities, the University works with surrounding farming communities to promote sustainable water management and improve irrigation efficiency.

Agricultural extension and farmer support

Technical guidance and extension services help farmers in neighbouring communities adopt drip and sprinkler irrigation to reduce water use and improve efficiency.

Research-based water conservation solutions

Researchers develop and evaluate technologies and management practices that improve water-use efficiency in agriculture and rural communities.

Development of water treatment technologies

Engineering researchers designed and tested low-cost, modular water treatment and purification systems, with automated monitoring and control, for rural and underserved communities.

Capacity building and public awareness

Training programs, workshops, field demonstrations, and campaigns promote sustainable water management and climate-resilient agriculture among farmers, students, and community stakeholders.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Off-Campus Water Conservation Extension
→ Arduino-Automated Rural Modular Water Purification Project
→ Arab El-Madabegh Treatment Plant study
→ Community Service and Environmental Development Sector
→ Water quality assessment in Assiut Governorate, Nile Valley
→ Capacity of aquatic and mesophytic plants to treat wastewater in Assiut Governorate

6.5.3 COOPERATION WITH GOVERNMENTS ON WATER SECURITY

INSTITUTIONAL STATUS Yes — local, regional, national and global partnerships

European Union dialogue session · 14 December 2024

Assiut University hosted an international dialogue session with the European Union on "Improving Water Management and Achieving Water Security".

Memoranda of Understanding

Formal MoUs with the National Water Research Center, the National Research Institute of Astronomy and Geophysics (NRIAG), and the National Authority for Remote Sensing and Space Sciences (NARSS).

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Governmental Cooperation Evidence

→ European Union Water Security Dialogue Session Report

6.5.4 SUSTAINABLE WATER EXTRACTION TECHNOLOGIES

INSTITUTIONAL STATUS Yes — solar desalination and smart extraction

1. A **solar-powered water desalination unit** designed by Mechatronics Engineering students, using Multiple Effect Distillation (MED), solar tracking, and Internet of Things (IoT) sensors.
2. **8 drainage lysimeters** and automated drip and sprinkler networks across the research farms.
3. Student-designed **autonomous water-body cleaning robots** and grass-trimming systems, exhibited at Faculty of Engineering showcases.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Sustainable Extraction and Solar Technology Evidence

→ Engineering Graduation Showcase (solar desalination and cleaning robot)

6.5.5 ACTIVE PROMOTION OF CONSCIOUS WATER USAGE IN THE WIDER COMMUNITY

INSTITUTIONAL STATUS Yes — campus competitions and preparedness campaigns

1 **"Best Environmentally Friendly College" competition, 2024/2025**
Faculties are evaluated on water and energy management and waste handling.

2 **Weather and roof drainage preparedness inspections**
Chaired by Vice President Prof. Mohamed Ahmed Adawy, checking rainwater channels and roof drainage.

3 **Research in Nature Scientific Reports (2025)**
Analysing household water, energy, and solid waste practices across Egyptian communities.

OFFICIAL EVIDENCE LINKS AND DOCUMENTATION

→ Community Conscious Water Usage Promotion
→ Best Environmentally Friendly College Evaluation Tour
→ Weather Preparedness and Rooftop Drainage Inspection
→ Nature Scientific Reports (2025) Egyptian Household Water Study

From measuring every cubic metre to treating, reusing, and sharing knowledge about water, Assiut University works to secure clean water and sanitation for its campus and the communities around it.



6

CLEAN WATER AND SANITATION

المياه النظيفة والصرف الصحي



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