Template for Evidence(s)
UI GreenMetric Questionnaire

University : Alexandria University
Country : Egypt
Web Address : https://alexu.edu.eg/index.php/en/

[6] Education and Research (ED)

[6.15] Sustainability Report (ED.7)

Template for Evidence(s)
UI GreenMetric Questionnaire

University : Alexandria University
Country : Egypt
Web Address : www.alexu.edu.eg

[6] Education and Research (ED)

[6.12] Sustainability Report

[1] Setting and Infrastructure (SI)

Number of Campus Sites: 28

Faculty of Engineering (Alexandria University)

Faculty of Science (Alexandria University)

The total area on campus covered in planted in the University of Alexandria campus is 2140050.63 m². The total building area in the campus is 1288424.378 m², while the open area is 856020.252 m².
In 1938, the nucleus of the Alexandria University (formerly known as Farouk University) had its beginning in the form of two faculties of Fouad the First University. These were the faculties of Arts and Law. The faculty of Engineering was then established in 1941. In the light of the need for developing more disciplines for higher learning and with a view towards meeting the need of the people of Alexandria, Alexandria University became a separate entity in August 1942 with four additional faculties: Science, Commerce, Medicine and Agriculture. In 1952, it became "Alexandria University". Since then, the University witnessed growth and expansion in several fields: the number of Faculties and high institutes increased to 22.
Alexandria University supervised the establishment of four faculties in the Nile Delta. Those were: Faculty of Medicine (1962) and Faculties of Science (1969) in Tanta (currently Tanta University), Education and Agriculture (1969) in Kafr-Elsheikh (currently Kafr-Elsheikh University).
Seven other Faculties were established in Damanhour, the capital of Behera Governorate: the Faculty of Education (1980), the Faculties of Arts, Agriculture, and Commerce (1983), Science, Veterinary Medicine, and Nursing (2007) (currently Damanhour University).
In 1989, the Faculties and Institute affiliated to Helwan University and located in Alexandria joined the Alexandria University by a Presidential Decree: four Faculties of Physical Education for men, Physical Education for women, fine Arts, and agriculture at Saba-Basha.
A Faculty of Basic Education was also established in 1991, faculty of tourism & Hotels, Faculty of Agriculture, Faculty of Veterinary Medicine and Faculty of Nursing in Marsa-Matrouh Governorate, 300 Km west of Alexandria.

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Examples of Sustainability Reports: Alexandria University Sustainability Report in 2023

Template for Evidence(s)
UI GreenMetric Questionnaire

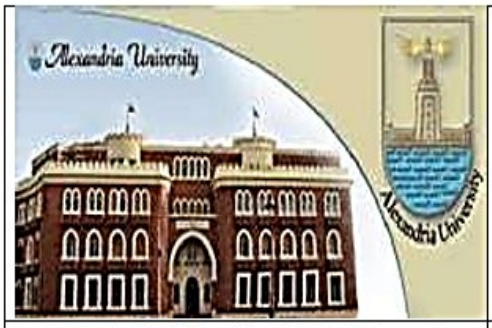
University : Alexandria University
Country : Egypt
Web Address : www.alexu.edu.eg

[6] Education and Research (ED)

[6.12] Sustainability Report

[1] Setting and Infrastructure (SI)

Number of Campus Sites: 34



University Administration Building (Alexandria University)

Faculty of Engineering (Alexandria University)

Faculty of Science (Alexandria University)

Faculty of Dentistry (Alexandria University

The total area on campus covered in planted in the University of Alexandria campus is 4070666.23 m^2. The total building area in the campus is 2385538.832 m^2, while the open area is 1627003.212 m^2.
In 1938, the nucleus of the Alexandria University (formerly known as Farouk University) had its beginning in the form of two faculties of Fouad the First University. These were the faculties of Arts and Law. The faculty of Engineering was then established in 1941. In the light of the need for developing more disciplines for higher learning and with a view towards meeting the need of the people of Alexandria, Alexandria University became a separate entity in August 1942 with four additional faculties: Science, Commerce, Medicine and Agriculture. In 1952, it became "Alexandria University". Since then, the University witnessed growth and expansion in several fields: the number of Faculties and high institutes increased to 24.

Description:

Alexandria University has published its annual Sustainability Report on its official website for the last three consecutive years (2022, 2023, and 2024). Each report details the university's environmental performance, sustainable infrastructure projects, academic initiatives aligned with the United Nations Sustainable Development Goals (SDGs), and community engagement efforts, all in support of Egypt's Vision 2030. The university actively implements formal institutional policies to advance the SDGs across all dimensions of campus life. These policies are publicly available and systematically integrated into planning and operations. The consistent annual publication of comprehensive sustainability reports demonstrates Alexandria University's ongoing commitment to transparency, accountability, and leadership in sustainable development, fully meeting the UI GreenMetric requirement for regularity and public accessibility.

Alexandria University sustainability reports for 2022, 2023, and 2024 are available on the following links:

Year 2022: Alexandria_University_Egypt_6_12_Sustainability_Report.pdf

Year 2023: Alexandria University_Egypt_6_12_Sustainability 2022-2023_compressed_compressed.pdf

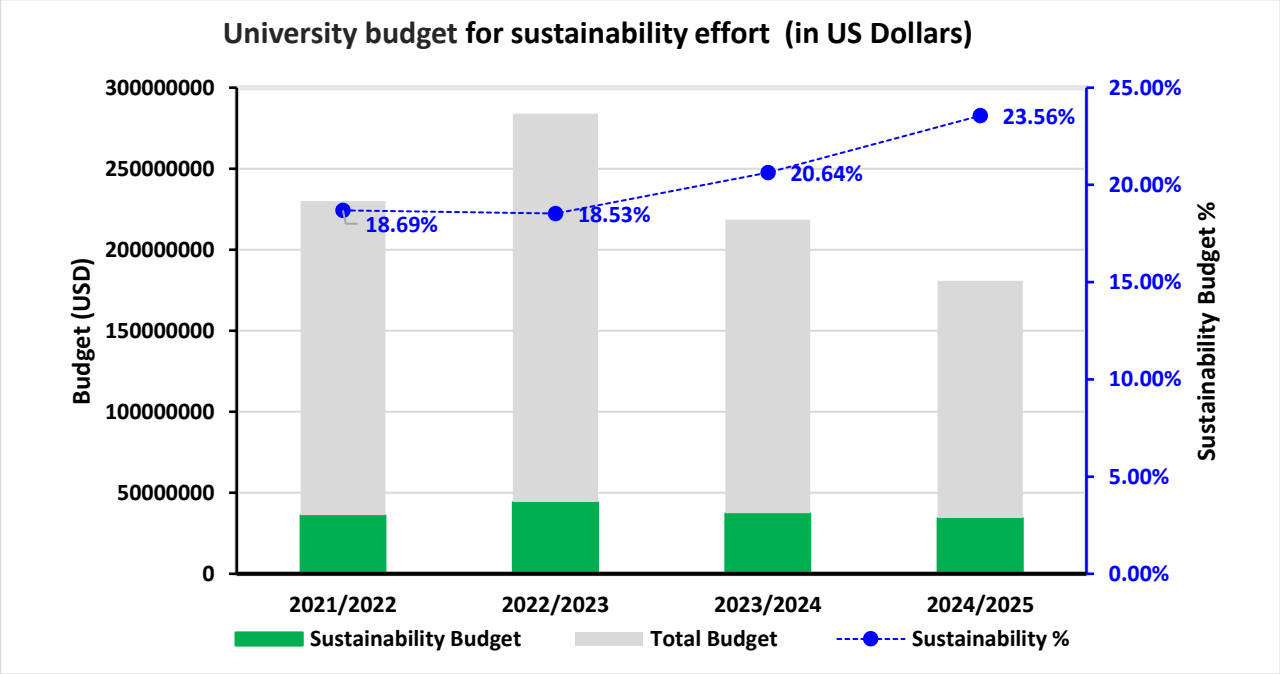
Year 2024: Alexandria University_Egypt_6_12_Sustainability 2023-2024-2.pdf

Another evidence is available through the following links:

- Policies: https://sustainability.alexu.edu.eg/policies/
- Sustainability Main Page: https://alexu.edu.eg/index.php/en/sustainable-development
- Alexandria University Sustainability Portal: http://sustainability.alexu.edu.eg/
- University Overview: https://alexu.edu.eg/index.php/about-us-ar
- Green University Initiatives: https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA

[1] Setting and Infrastructure (SI)

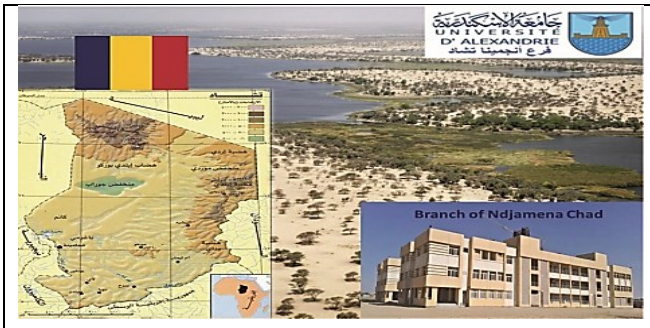
[1.1] University budget for sustainability effort (in US Dollars)



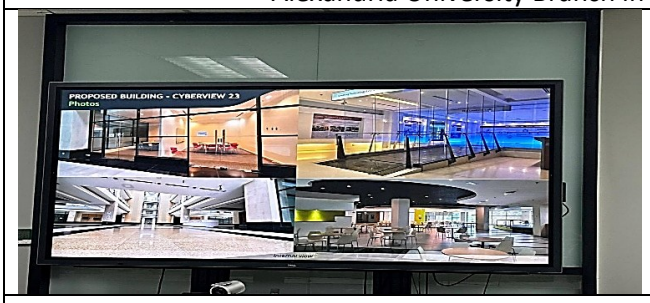
✓ The average percentage of Alexandria University's budget for sustainability effort from the academic year 2021/2022 to 2024/2025 is **20.04 %.**

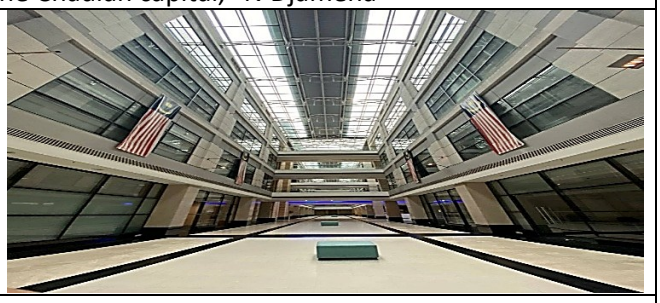
[1.2] International Branches as Drivers of Sustainable Development

Alexandria University has expanded its global footprint through international branches in Juba and Tonj, South Sudan, and N'Djamena, Chad, reinforcing Egypt's commitment to academic diplomacy, capacity building, and the Sustainable Development Goals (SDGs). In Chad, the university established its first Francophone African branch in N'Djamena in 2010–2011, initially hosted at the University of N'Djamena and now operating from dedicated standalone buildings. Offering programs in Agriculture and Veterinary Medicine taught in both Arabic and French, and soon to include Pharmacy, the branch serves approximately 200 students annually from Chad and neighboring countries, with its first cohort graduating in 2016–2017. In South Sudan, formalized through a Memorandum of Understanding signed in February 2024 and witnessed by Egypt's Minister of Higher Education, branches in Juba and Tonj began operations in 2015, delivering programs in Agriculture, Veterinary Medicine, Nursing, Education, Engineering, Business, and Biotechnology. These programs adhere to the Egyptian National Qualifications Framework, ensure academic parity with the main campus, and provide opportunities for scholarships, faculty exchange, and even study periods in Alexandria. Through these international branches, Alexandria University advances SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 10 (Reduced Inequalities), and SDG 17 (Partnerships for the Goals), while strengthening Egypt's academic, economic, and cultural ties across Africa.



Alexandria University Branch in the Chadian capital, "N'Djamena"

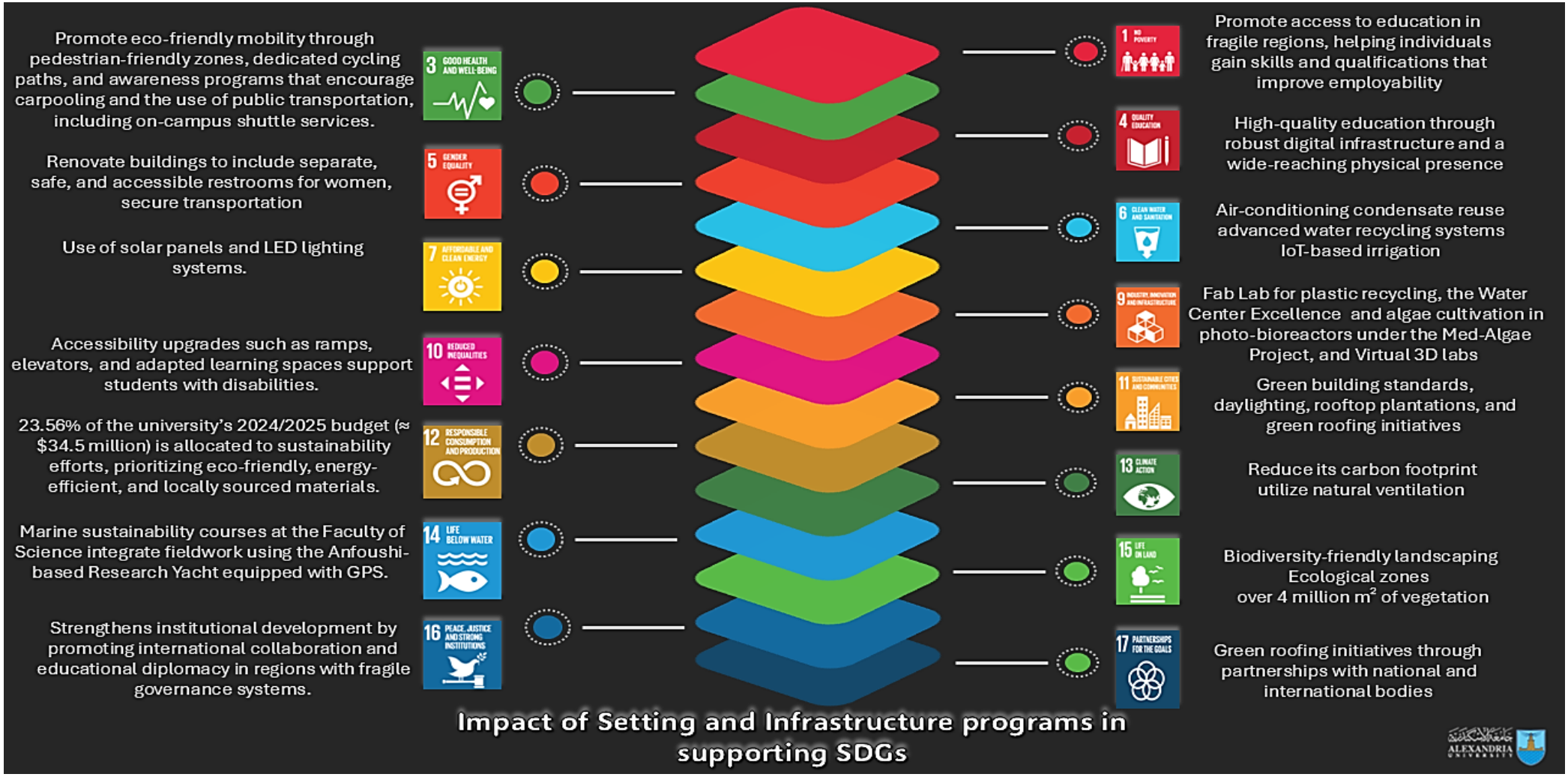




Alexandria University Branch in Malaysia

[1.24] Alexandria University's Sustainability-Oriented Infrastructure and Campus Development

Alexandria University, one of Egypt's leading higher education institutions, has integrated sustainable infrastructure development and campus planning into its core sustainability strategy. These initiatives align directly with 15 of the United Nations' Sustainable Development Goals (SDGs), particularly those addressing clean energy, sustainable cities, responsible consumption, biodiversity conservation, and climate action.



[2] Energy and Climate Change (EC)

[2.1] Green-building

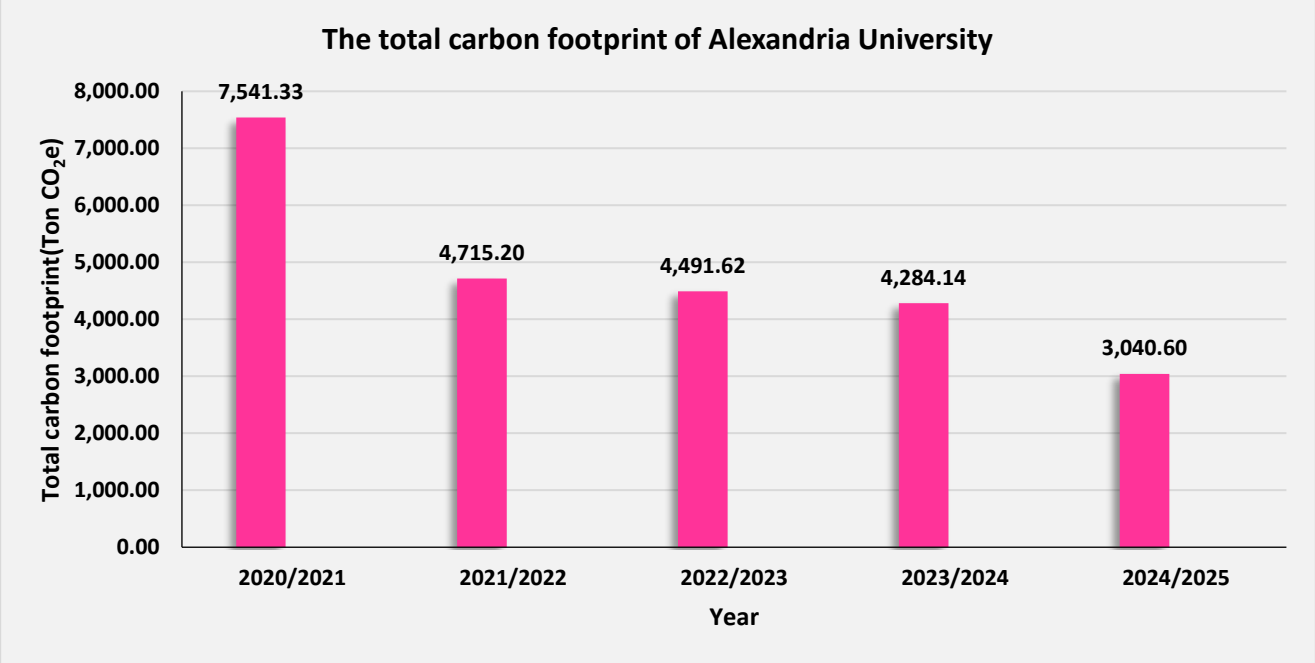
Green-building measures are implemented across the campus. LED lighting with occupancy/daylight controls is installed; BMS-based scheduling and monitoring-based commissioning with sub-metering are applied; VFDs are fitted on major fans and pumps and AHU motors are upgraded; exterior lighting curfews with photocells are applied; rooftop/carport solar PV is deployed; heat-island reduction is addressed with cool roofs, shade trees, light/permeable paving, and PV canopies; rainwater harvesting and AC-condensate recovery are used for irrigation and flushing; smart irrigation and drip systems with drought-tolerant planting are in place; water-efficient fittings, leak detection, and water sub-metering are implemented; low-emitting, EPD/recycled-content materials are specified under a sustainable purchasing policy, and sustainably sourced timber is required; waste segregation for paper/card, plastics/metals, glass, e-waste, and organics is provided; ventilation and IAQ controls (CO_2 monitoring, filtration, ETS control, IAQ testing) are implemented; daylighting and glare control and acoustic comfort measures are provided; integrated pest and landscape management with erosion control is practiced; refrigerants with zero ODP and low GWP are specified with leak detection and recovery; safety programs and Building User Manuals are maintained; monthly KPIs (BEI, kWh saved, IAQ, faults closed) are reported; and innovation pilots (analytics/FDD, circular labs, low-carbon materials) are underway, while heat-recovery solutions for hot water/reheat are planned.

LED Lighting

Green building implementation through the use of sun breakers in the SSP building at the Faculty of Engineering

[2.2] Carbon footprint

Alexandria University has achieved a continuous and substantial reduction in its institutional carbon footprint, decreasing emissions from 7,541.33 metric tons of CO_2e in 2020/2021 to 3,040.60 metric tons in 2024/2025. This 59.7% decline over five academic years is a result of systematic decarbonization strategies, including energy efficiency upgrades in campus infrastructure, increased and procurement of renewable electricity. The consistent downward trajectory aligns with the emission reduction pathways recommended by the Intergovernmental Panel on Climate Change for limiting global warming to 1.5 °C. It supports Egypt's updated Nationally Determined Contributions under the Paris Agreement. By embedding these measures into core operational planning, the university demonstrates a replicable model of science-based climate governance within the higher education sector.



[2.3] Renewable energy

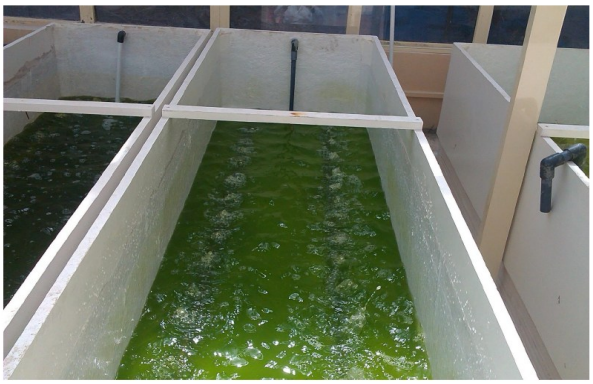
In the 2024–2025 academic year, Alexandria University significantly advanced its sustainability and climate action agenda, building on prior initiatives but achieving measurable progress in energy efficiency, renewable energy deployment, green infrastructure, and carbon reduction. The university reported a total electricity consumption of 4,228,995.91 kWh, representing a 6.42% decrease from 2023 to 2024, and a significant 70% reduction in natural gas usage, reflecting the successful implementation of energy-saving retrofits and transitions to cleaner energy systems. Renewable energy production reached 1,213,291.2 kWh/year, accounting for 28.69% of total electricity use, driven by the expansion of solar installations and hybrid systems across faculties.

Alexandria University is advancing a dual-track sustainability initiative comprising a rooftop photovoltaic installation and a Fab Lab for circular economy innovation. The solar component, targeting approximately 200 m² of suitable roof space (net usable area: 196 m² after accounting for 3% service access), will deploy a 1.5-ton system generating an estimated 37,700 kWh annually under Alexandria's mean global horizontal irradiance of 5.2 kWh/m²/day, factoring in 20% panel efficiency and a 0.75 performance ratio to account for system losses. Concurrently, the university hosts a trans-Mediterranean Fab Lab project, co-developed with Horizons Solidarités and the University of Corsica, to establish a low-tech innovation hub focused on the valorization of plastic waste. This initiative aligns

with Egypt's COP27 legacy and the regional "Zero Plastic Waste" strategy endorsed by the IUCN Med. This initiative integrates environmental, educational, and socio-economic dimensions through cross-sectoral collaboration involving Alexandria Governorate, the Alexandria Business Association (ABA), and Francophone academic partners, aiming to foster inclusive innovation, skill development, and scalable circular business models while embedding long-term monitoring frameworks to evaluate technical, financial, and social impact metrics.

Solar photovoltaic

Algae Cultivated In Flat Panel Photo-Bioreactor, Med-Algae Project (Faculty of Science, Alexandria University)



Open Ponds with running algal cultures, Med-Algae Project (Faculty of Science, Alexandria University)

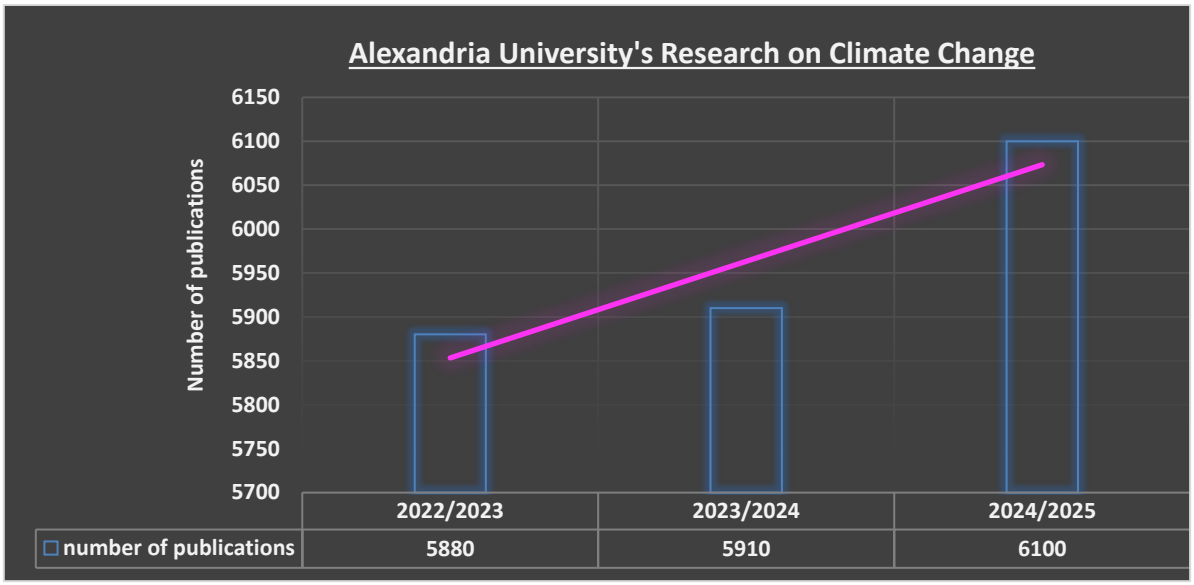
[2.4] Digital transformation

In the 2024–2025 academic year, Alexandria University significantly advanced its digital transformation as a core pillar of its sustainability and operational efficiency strategy, transitioning toward a near-paperless campus through electronic archiving, digital communication, and e-administration, resulting in a 48.6% reduction in paper consumption since the 2020/21 academic year. The university implemented electronic exam halls across multiple faculties, established virtual labs offering 36 physics, 58 biology, and 92 chemistry remote experiments, and deployed smart digital infrastructure, including IoT-based irrigation systems, Building Management Systems (BMS) with real-time energy dashboards, and motion-sensor lighting. Digital tools, such as the Green Cycle carpooling app and e-learning platforms for renewable energy courses, as well as centralized digital monitoring for utilities, further reinforced resource efficiency. This comprehensive digitization effort not only supports the university's goal of reducing its carbon footprint but also aligns with Egypt's Vision 2030 and global

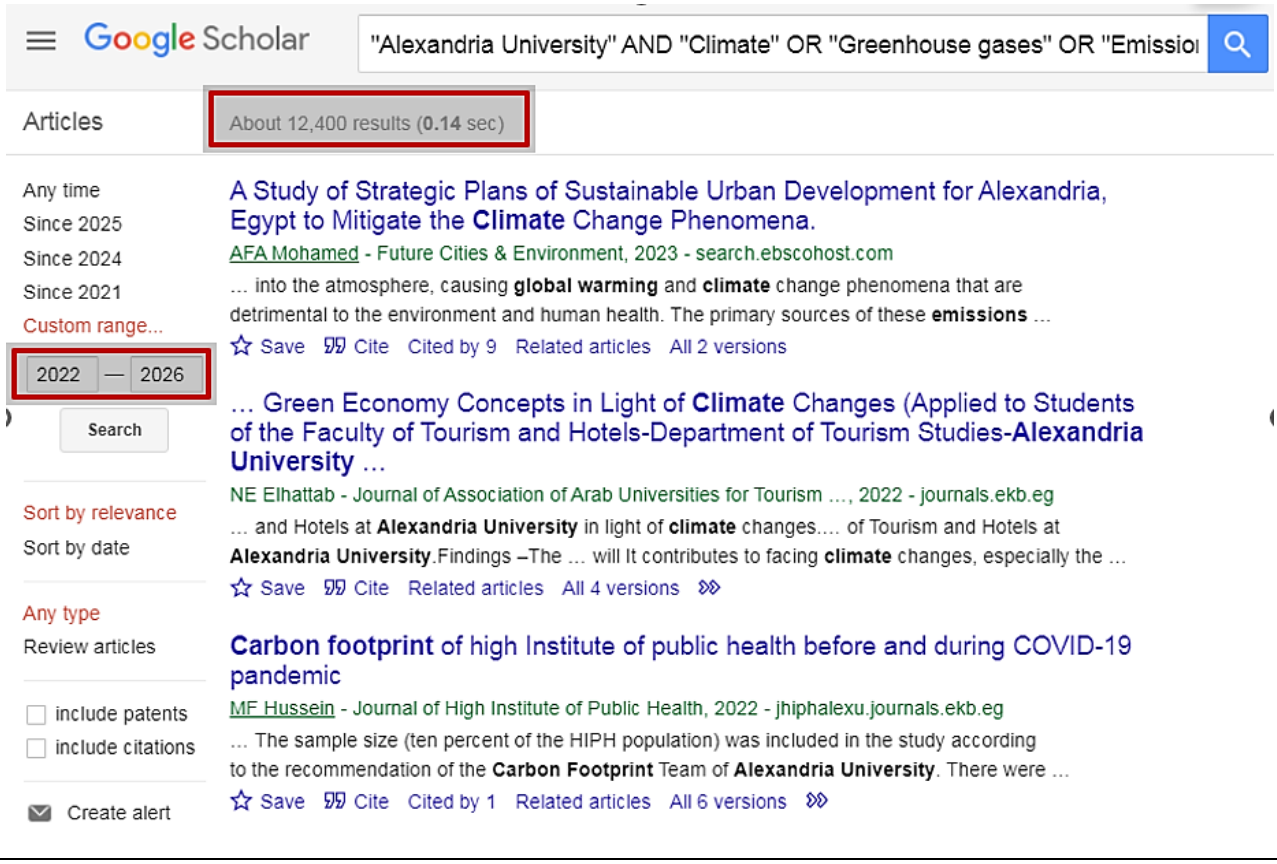
sustainability commitments by enhancing educational quality, institutional resilience, and environmental stewardship.

[2.5] Alexandria University's Research on Climate Change

Researchers from various faculties at Alexandria University have published 12,400 research articles and reviews between 2021 and 2025 to investigate the phenomenon of climate change across different scientific fields.



The data presented illustrates a consistent upward trend in the volume of research publications produced by Alexandria University on the subject of climate change over a three-year period. Specifically, the number of publications increased from 5,880 during the 2022/2023 academic year to 5,910 in 2023/2024, and further rose to 6,100 in 2024/2025. This progression indicates a sustained growth in scholarly output, suggesting an expanding institutional commitment to advancing knowledge in this critical field. The magnitude of the increase between the first and final year represents a net gain of 220 publications, reflecting both incremental annual growth and an accelerating pace in the most recent period. Such a trajectory may imply enhanced research capacity, increased funding, or heightened institutional prioritization of climate-related inquiry within the university's academic agenda.


Google Scholar
"Alexandria University" AND "Climate" OR "Greenhouse gases" OR "Emissio
Articles
About 12,400 results (0.14 sec)
Any time
Since 2025
Since 2024
Since 2021
Custom range...
2022 — 2026
Search
Sort by relevance
Sort by date
Any type
Review articles
include patents
include citations
Create alert
A Study of Strategic Plans of Sustainable Urban Development for Alexandria, Egypt to Mitigate the Climate Change Phenomena.
AFA Mohamed - Future Cities & Environment, 2023 - search.ebscohost.com
... into the atmosphere, causing global warming and climate change phenomena that are detrimental to the environment and human health. The primary sources of these emissions ...
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... Green Economy Concepts in Light of Climate Changes (Applied to Students of the Faculty of Tourism and Hotels-Department of Tourism Studies-Alexandria University ...
NE Elhattab - Journal of Association of Arab Universities for Tourism ..., 2022 - journals.ekb.eg
... and Hotels at Alexandria University in light of climate changes.... of Tourism and Hotels at Alexandria University.Findings –The ... will It contributes to facing climate changes, especially the ...
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MF Hussein - Journal of High Institute of Public Health, 2022 - jhiphalexu.journals.ekb.eg
... The sample size (ten percent of the HIPH population) was included in the study according to the recommendation of the Carbon Footprint Team of Alexandria University. There were ...
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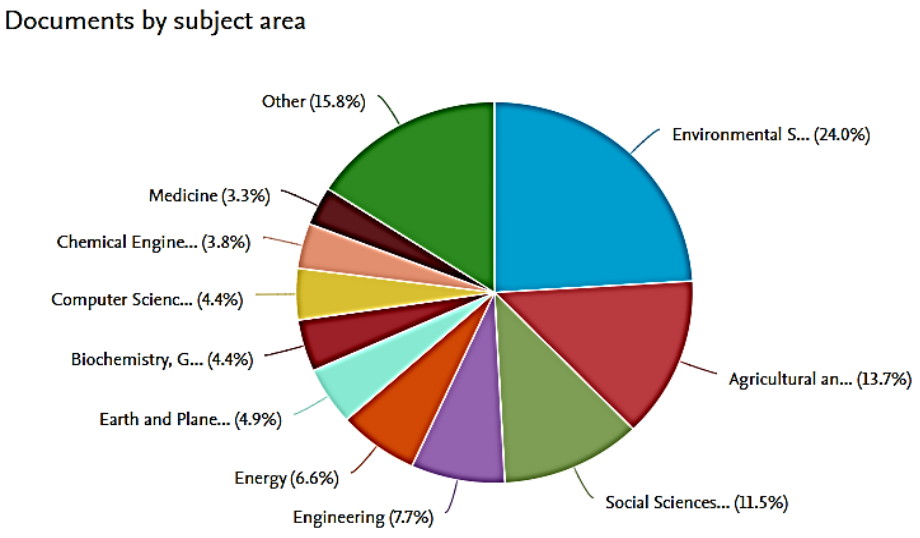
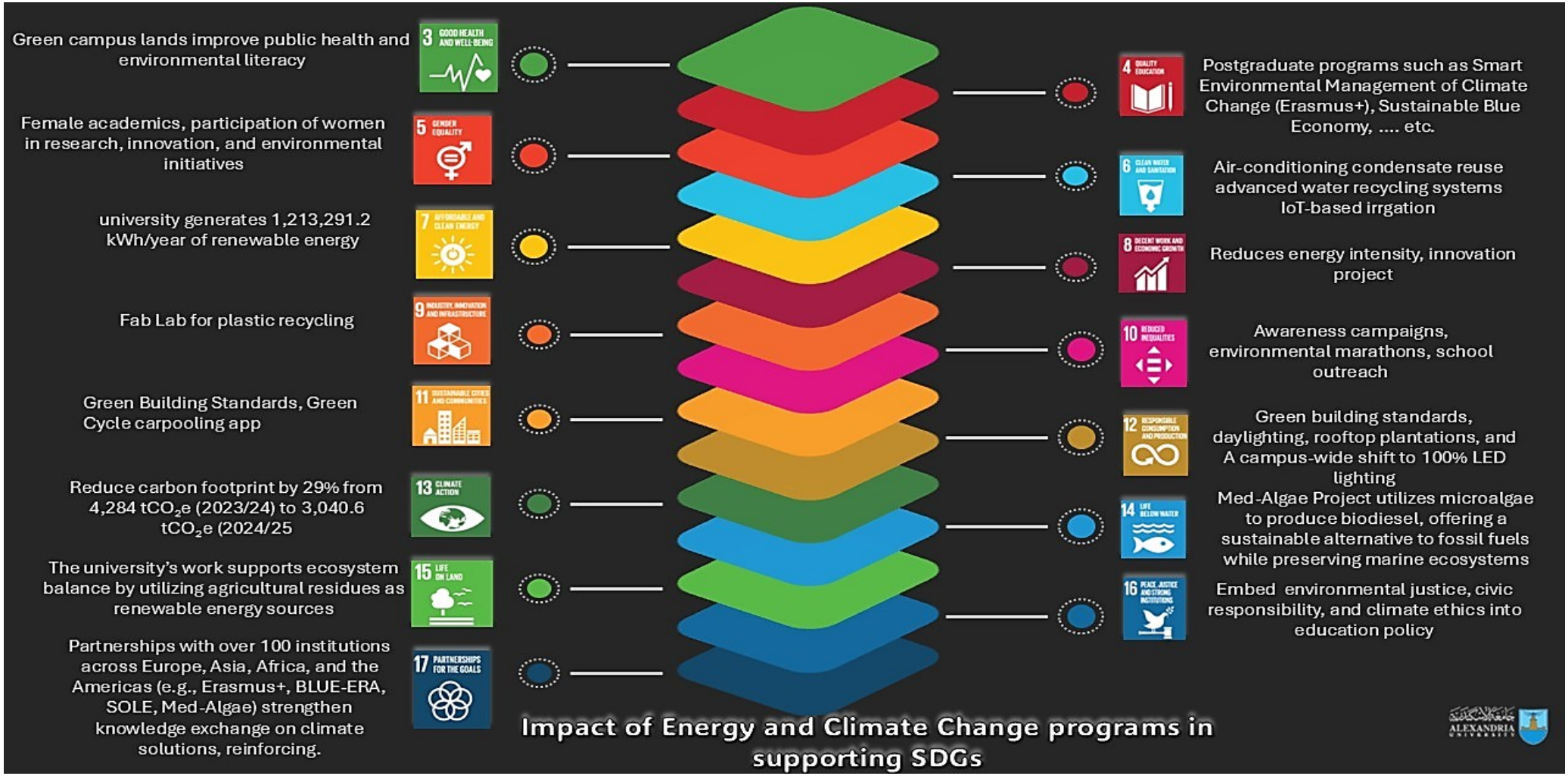

Documents by subject area
Other (15.8%)
Environmental S... (24.0%)
Medicine (3.3%)
Chemical Engine... (3.8%)
Computer Scienc... (4.4%)
Biochemistry, G... (4.4%)
Earth and Plane... (4.9%)
Energy (6.6%)
Engineering (7.7%)
Social Sciences... (11.5%)
Agricultural an... (13.7%)

[2.16] Alexandria University's Sustainability of Energy and Climate Change

Alexandria University implements a comprehensive portfolio of energy and climate change initiatives that directly and indirectly advance multiple United Nations Sustainable Development Goals (SDGs). These programs reflect the university's strategic alignment with Egypt's Vision 2030 and global climate commitments.



[3] Waste (WS)

Alexandria University has made significant academic and operational progress in sustainability over the past three years (2022–2025), aligning its institutional practices with Egypt's Vision 2030 and the United Nations Sustainable Development Goals (SDGs). The university's comprehensive 3R (Reduce, Reuse, Recycle) waste management framework is underpinned by a formal policy, defined institutional responsibilities, and quantifiable targets, which are monitored through annual reporting.

During the academic year 2024/2025, Alexandria University continued to advance its comprehensive sustainability agenda, focusing on waste minimization, recycling, and environmentally responsible practices across all faculties and campuses. Approximately 231 tons of waste were collected in collaboration with the Nahdet Misr Company, representing an integrated waste management system that includes source separation, recycling, and safe disposal. Organic waste accounted for about 55% (127 tons) of the total waste generated, all of which was recycled into organic compost. This 100% recycling achievement demonstrates the University's commitment to circular economy principles and the conversion of waste into valuable resources. Compared to the previous academic year (2023/2024), organic waste generation decreased from 129 tons to 127 tons, marking a 1.6% reduction attributed to improved source segregation, stricter food waste management, and enhanced collection efficiency.

Alexandria University's organic waste management program operates under a structured policy that prioritizes biological treatment and the high-value reuse of materials. Organic waste from cafeterias, gardens, and animal facilities undergoes controlled decomposition through a series of processes, including stirring, purification, fumigation, and filtration, which lasts 45 to 60 days. This process yields approximately 58 tons of nutrient-rich compost annually. The Faculty of Agriculture plays a central role in this process by utilizing agricultural residues to produce organic fertilizers, animal feed, and biochar, while also employing vermicomposting and black soldier fly bioconversion techniques to produce sustainable protein sources. The fertilizers produced are categorized as 14 mm fine organic compost for vegetables, 25 mm compost for trees, and 40 mm compost for newly planted areas, all of which are suitable for use in desert lands, thereby contributing to soil fertility and sustainable agriculture.

Inorganic waste constitutes 45% of the total waste (104.5 tons), with 70% of it being recycled and 30% transferred to the Alexandria Governorate Hazardous Waste Management Facility (NASERIA) for final disposal. The University generated 109 tons of paper waste during 2024/2025, which was collected under contract with El Amireia Printing Company and Matabea Moharram for processing at licensed recycling facilities. Overall, the University successfully managed 340.5 tons of non-toxic waste, comprising 127 tons of organic and 213.5 tons of inorganic materials. These efforts led to a 4.3% year-over-year reduction in inorganic waste, aligning with Alexandria University's broader waste reduction and carbon mitigation targets. Poor waste management is recognized as a significant environmental threat, and the University's approach, combining segregation, recycling, and responsible disposal, aims to minimize pollution, reduce landfill dependency, and prevent contamination of air, water, and soil.

The University also achieved significant progress in hazardous waste management. Toxic waste was reduced from 3.09 tons to 2.75 tons, representing an 11% annual decrease in volume. This improvement stems from strengthened oversight, safer handling practices, and strict compliance with Egyptian laws, specifically Law No. 6 of 2009 and Law No. 9 of 1982, on environmental protection. Hazardous and biomedical wastes are managed through a specialized contract with NASERIA, ensuring that all medical, biological, and chemical hazards are

treated and disposed of safely. The Infection Control Unit at the Faculty of Medicine developed an innovative initiative to reuse empty jerry cans as safety boxes for disposing of sharp medical instruments, promoting sustainable reuse while ensuring safety and infection control. These efforts integrate waste recycling, infection prevention, and environmental stewardship, establishing Alexandria University as a national model in sustainable waste management.

Recycling programs across faculties further contribute to resource efficiency and innovation. The University's central directive mandates the transfer of recyclable materials including metals, wood, electronic equipment, and laboratory instruments to the Abis Agricultural Research and Experiments Station for sorting and reuse. This centralized recycling initiative transforms solid waste into a valuable resource, reduces production and energy costs, and minimizes the environmental burden of virgin material extraction. Faculties such as Science have implemented practical recycling systems for tree waste, producing approximately five tons of organic compost valued at 250,000 EGP. These initiatives collectively enhance biodiversity, soil fertility, and sustainable resource use on campus.

The Faculty of Science also leads in environmental innovation and safety. It manages chemical use and disposal through the Occupational Safety and Health Unit, which ensures proper classification, labeling, storage, and disposal of laboratory chemicals. Every faculty maintains a Temporary Hazardous Waste Storage (THWS) facility equipped with ventilation, secondary containment, and spill response tools. Trained technicians oversee the segregation, packaging, and documentation of hazardous materials in accordance with national regulations. Regular training sessions and awareness seminars are conducted for laboratory staff and students to promote a culture of safety and sustainability.

Alexandria University's commitment to reducing paper and plastic use has been reinforced through the adoption of digital transformation initiatives. These include an electronic archiving system, e-exams, e-signatures, and digital communication protocols, significantly reducing paper consumption and associated emissions. Administrative decrees mandate the exclusive use of email for official correspondence, printing only when necessary, and using recycled paper for double-sided copies. Smart printing has been implemented across departments to minimize resource waste. The University aims to maintain a ratio of one shared printer for every 25 staff members to discourage excessive printing and foster sustainable office practices.

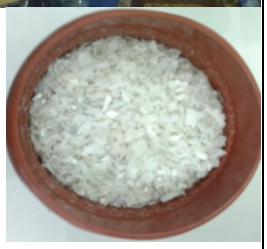
Innovation and student engagement are central to Alexandria University's sustainability vision. Students have launched projects focused on converting used cooking oil into eco-friendly plasticizers, developing microbial systems for PET degradation, and creating art installations from recycled materials. The EFFCT team from Alexandria University earned second place in the prestigious Hult Prize International Competition in Paris in 2023 for their project on recycling textile industry waste, showcasing the University's leadership in social innovation and environmental entrepreneurship. Additionally, students from the Faculty of Sport Education in Abu Qir collaborated with the Ministry of Environment in a large-scale coastal cleanup of Alexandria's Eastern Harbour, reflecting the University's active role in community-based environmental stewardship.

Recycling Program for University Waste (Alexandria University, Egypt)

Program for separation of Paper (blue), Plastic (yellow), aluminum cans and glass (green) and organic waste (red) in Campus (Alexandria University, Egypt)

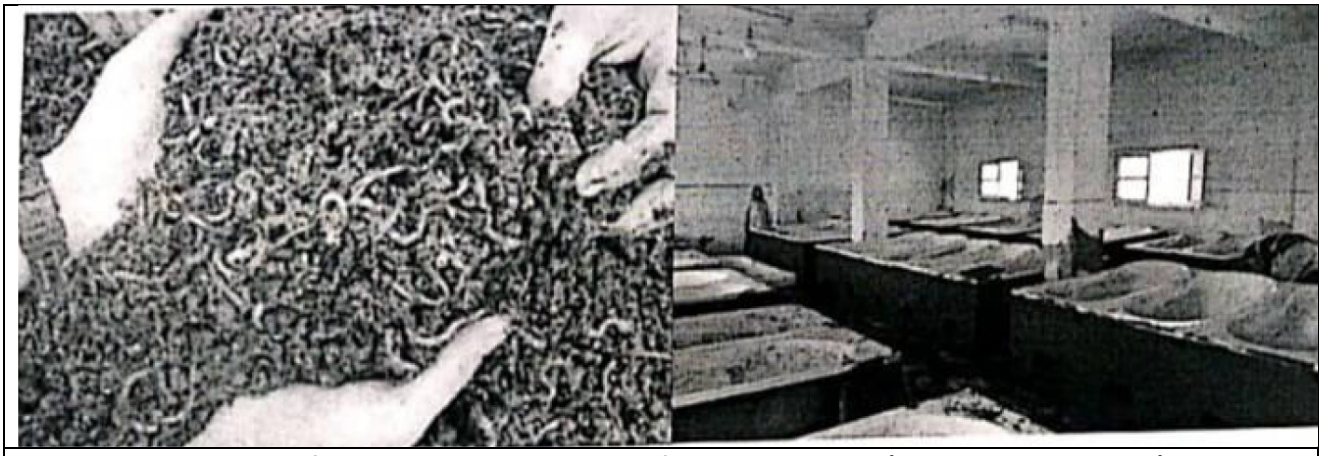
Separating waste into special containers for plastic, paper, glass and metal waste. Donation provided by the Rotary Club of Newaira (for condolences and to the College of Medicine and the Hospital).

Program for separation of Plastic (blue), Paper (green), Aluminum Cans (red) and General (black) in the Faculty of Pharmacy (Alexandria University, Egypt)



Recycling of plastic waste at the Faculty of Science (Alexandria University, Egypt)

Leaves and organic waste were treated for the vermi-compost to produce organic fertilizers to use in the Campus gardens (Alexandria University).



The Faculty of Agriculture recycles 100% of its organic waste (Alexandria University).

Waste reception hall in Nahdet Misr company for waste collection in Alexandria

Manual sorting hall in Nahdet Misr company for waste collection in Alexandria

Organic matter separation unit in Nahdet Misr company for wastes collection in Alexandria

Mixed plastic collected by Nahdet Misr company for wastes collection in Alexandria

Cans waste collected by Nahdet Misr company for wastes collection in Alexandria

Paper and carton baler in Nahdet Misr company for wastes collection in Alexandria

Cans press in Nahdet Misr company for wastes collection in Alexandria

Recycling Program for both materials and equipment with metals and derivatives (Alexandria University, Egypt)

The biohazards and medical hazards, and toxic chemical compounds are handled by Alexandria Governorate Hazardous Waste Management (NASERIA), Alexandria University, Egypt

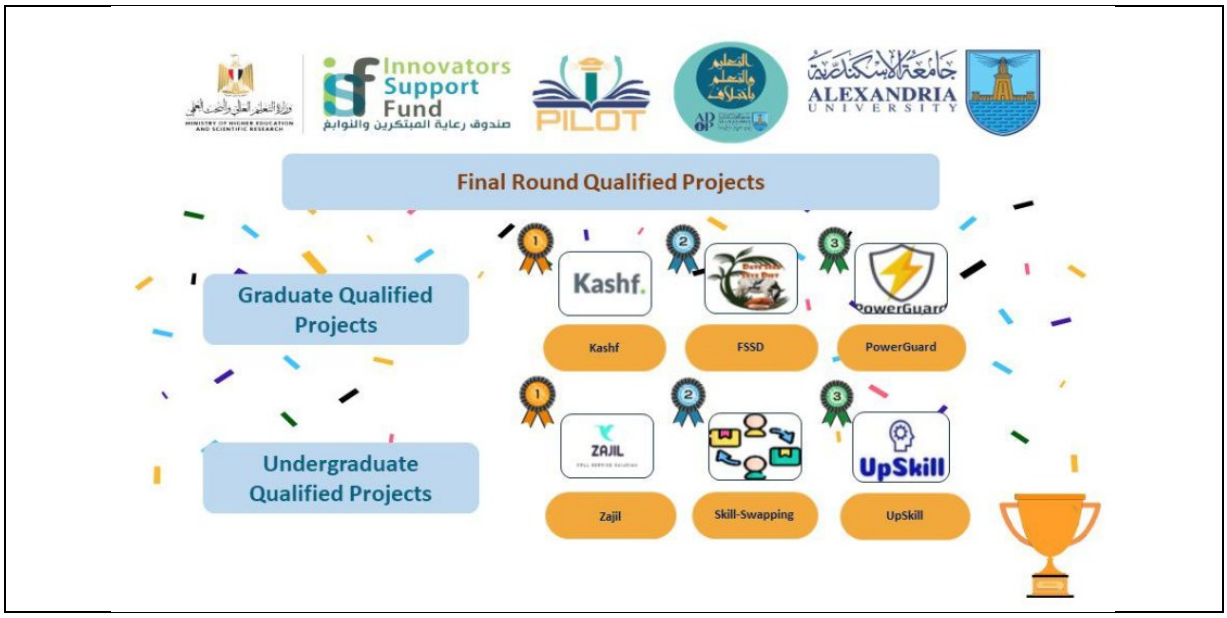
The water sewage of the Aquaculture of the Faculty of Agriculture (Alexandria University, Egypt)
The irrigated water supplied to the fish farm at the Agriculture Experimental Research Station of the Faculty of Agriculture is recycled to irrigate the crops, vegetables, and fruits of the land farm.

Wastewater treatment unit at Faculty of Engineering

Grey water recycling system organized by Faculty of Pharmacy (Alexandria University, Egypt), and reused in rooftop cultivation.

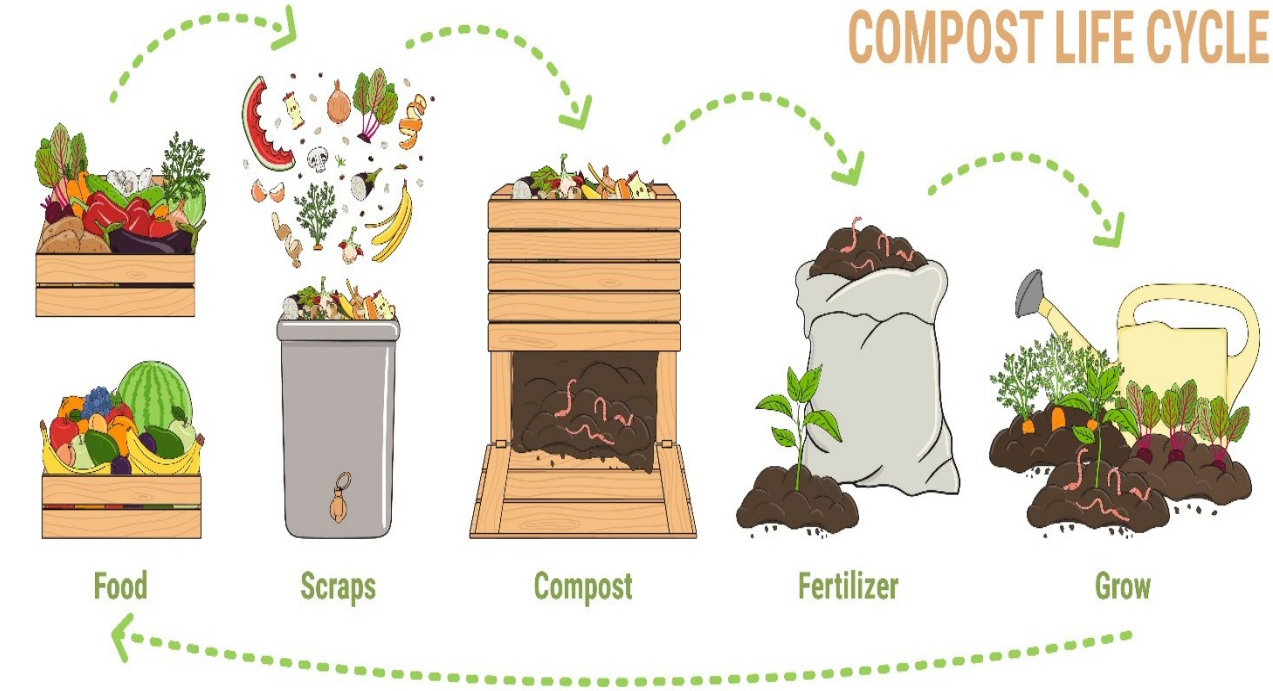
[3.1] Alexandria University activities for waste recycling and treatment

- Alexandria University's FSSD project—recycling agricultural waste via advanced bioprocessing to produce sustainable alternative animal feed—has reached the national finals of the 2024 Startup Olympiad (Researchers track) under the Innovators Support Fund (ISF). After winning the university qualifiers (July 2024) and excelling in the regional qualifiers (September 2024), the team, led by Prof. Doaa Ahmed Gharib (Medical Biotechnology, Faculty of Science) with collaborators from SRTA-City, now competes at the national level. The project advances circular resource use, cuts reliance on imported feed, strengthens food security, and aligns with environmental sustainability and the green economy, showcasing impactful university–research collaboration for societal and industrial benefit.



Alexandria University Project for Recycling Agricultural Waste into Bio-Feed Reaches 2024 Startup Olympiad Final

- For more than fifteen years, the Faculty of Science has demonstrated a strong commitment to environmental sustainability through continuous efforts to trim infected palm trees, maintain the surrounding landscape, and remove trees that pose potential risks to pedestrians. As part of its sustainability initiatives, the Faculty ensures that waste generated from palm tree pruning is recycled rather than discarded. Using the Palm Fronds and Plant Residues Shredding Machine, the Faculty processes palm fronds and other agricultural residues into reusable products such as animal feed and organic fertilizers. In addition, the Faculty has produced five tons of organic compost from tree waste collected in the botanical garden, with an estimated value of approximately 250,000 EGP. This initiative not only reduces waste but also enhances the sustainable use of natural resources and supports environmental conservation across the campus.


COMPOST LIFE CYCLE
Food
Scraps
Compost
Fertilizer
Grow

Sustainable Management and Recycling of Palm Tree Waste at the Faculty of Science

- On **Wednesday, May 7, 2025**, the **Faculty of Science** hosted a seminar titled *"Environmental Sustainability of Natural Resources and the Protection of Future Generations' Rights"* as part of the Community Service and Environmental Development Sector. **Dr. Ashraf Saeed Mohamed Ragab** (General Manager, Alexandria Company for Oils and Soap) presented on **sustainable refining of edible oils**, highlighting local **production-consumption gaps**, **eco-friendly refining technologies** that cut emissions and carbon footprint, and strategies for **recycling/reuse** of process wastes. He emphasized expanding **oilseed cultivation** to boost self-sufficiency, reduce imports and foreign-currency pressure, and strengthen environmental protection through **recycling-oriented industrial practices**.

Faculty of Science Seminar Highlights Sustainable Oil Refining and Recycling Practices

[3.19] Alexandria University's Sustainability of Waste Management

The university has implemented a comprehensive range of waste management programs that significantly contribute to achieving the 15 Sustainable Development Goals (SDGs). These initiatives demonstrate a strong institutional commitment to reducing environmental impact, promoting a circular economy, and encouraging responsible consumption.

[4] Water (WR)

Alexandria University's water sustainability initiatives for the 2024–2025 academic year represent a comprehensive, institution-wide strategy aligned with *Egypt's Vision 2030* and the *United Nations Sustainable Development Goals (SDGs)*, particularly SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), and SDG 14 (Life Below Water). The University's framework aligns with the five UI GreenMetric water criteria, integrating infrastructure modernization, technological innovation, academic research, and community engagement to promote sustainable water management across all levels of campus operations.

Under the Water Conservation Program (WR.1), Alexandria University has implemented a wide range of high-efficiency fixtures, including sensor-activated faucets, low-flow toilets, and bidets, resulting in an estimated 50% reduction in potable water consumption across its faculties. A proactive leak detection and preventive maintenance program helps minimize losses associated with aging infrastructure. To further reduce demand, the University utilizes innovative irrigation technologies such as drip systems and soil moisture sensors across its landscaped areas, complemented by the introduction of drought-tolerant plant species. Comprehensive awareness campaigns, organized in collaboration with the *Alexandria Drinking Water Company* and the *Holding Company for Water and Wastewater*, engage students, faculty, and staff in adopting sustainable water-use practices.

The *Water Recycling Program (WR.2)* demonstrates significant progress in non-potable water reuse and resource recovery. Treated sewage effluent (TSE) from the *Campus*, totaling approximately 1.12 million m^3 annually, is utilized for landscape irrigation. At the *Faculty of Pharmacy*, a greywater pilot system treats hand-wash wastewater for toilet flushing, while air-conditioning condensate recovery systems in select buildings supply irrigation and flushing operations. Rainwater is harvested into a central retention lake, providing an additional source for green-area irrigation. The *Faculty of Agriculture's* aquaculture facility recycles nutrient-rich effluent from its eight-pond fish farm to irrigate adjacent crops, enhancing soil fertility and yield. The University also operates a 100 m^3/day solar-powered desalination unit at *Wadi El-Natroun*. It has developed an innovative renewable energy–driven multi-stage flash desalination system (RE-NF-MSF) with nanofiltration pre-treatment, demonstrating leadership in sustainable water technologies.

Implementation of *Water-Efficient Appliances (WR.3)* has expanded substantially, with 80.1% of all fixtures on campus now classified as water-saving devices. These include 90.97% of bathroom faucets, 50.48% of toilets, and 57.69% of urinals that have been retrofitted with flow-control mechanisms. The University enforces institutional policies mandating water-efficient design standards in all new buildings and major renovations. The *Abis Campus* exemplifies these efforts, with green infrastructure now covering 52% of its total site area, integrating sustainability principles into the built environment.

In relation to *Treated Water Consumption (WR.4)*, Alexandria University channels the entirety of its wastewater 1,116,625.26 m^3 annually, through the *Alexandria Sanitation Company* for secondary and tertiary treatment. A substantial portion of this treated water supports Egypt's *New Delta* agricultural reclamation project, thereby contributing to the country's national food security objectives. Treated water is reused for irrigation, aquaculture, and experimental research, establishing a closed-loop water management model that exemplifies the University's commitment to sustainable resource utilization.

Water Pollution Control (WR.5) is rigorously maintained through strict adherence to Egyptian environmental legislation and international standards such as the *APHA Standard Methods*. The University's accredited *Central Laboratory at the Faculty of Science and the Faculty of Engineering and the Institute of Graduate Studies and Research* conduct regular monitoring of physical, chemical, and biological parameters in stormwater, sewage,

and coastal discharges. In parallel, Alexandria University actively contributes to marine conservation through shoreline clean-up initiatives, environmental impact assessments for coastal infrastructure, and research programs addressing marine biodiversity and pollution mitigation. The University's pivotal role in advancing research and innovation for the protection of Mediterranean coastal ecosystems is exemplified through collaborative projects such as the EU-funded *"Circular Economy: From the Beach to the Lab"* initiative and the *Erasmus+* programs on the blue economy and sustainable aquaculture.

Recent initiatives of the Center of Excellence for Water include student training in wastewater treatment operations, entrepreneurship bootcamps on water innovation, and workshops on EU-funded research opportunities. These activities have positioned Alexandria University as a national and regional leader in sustainable water governance, demonstrating how academic excellence, technological advancement, and environmental responsibility can be effectively integrated to address Egypt's water and climate challenges.

Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks (Alexandria University, Egypt)

Supplying water taps with water conservation units (Alexandria University, Egypt)


Supplying water taps with water conservation units (Alexandria University, Egypt)


Air conditioning water collection and reuse unit - Faculty of Engineering

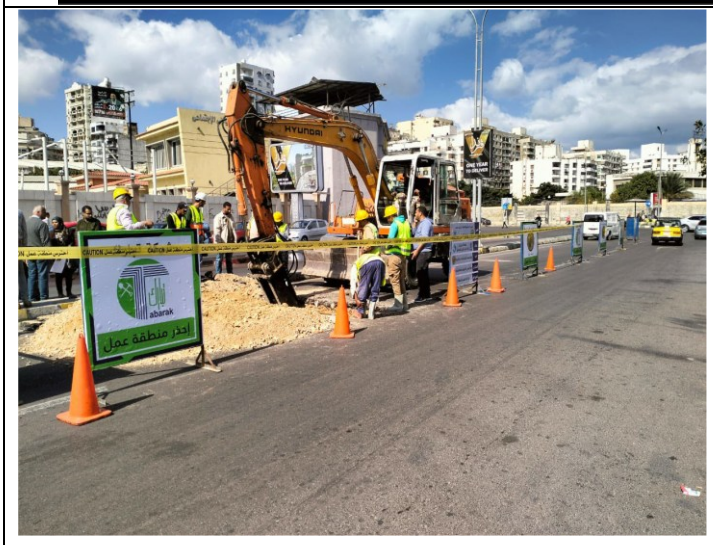
Wastewater treatment unit at the Faculty of Engineering

The sewage water will be treated and reused in the irrigation of green areas in the project (Alexandria University)

Innovative Renewable Energy RE-Multi-stage flash system (MSF) with salt precipitator and nanofiltration (NF-MSF) to pre-treat feedwater (RE-NF-MSF). Faculty of Agriculture, Alexandria University

A 100 m^3 desalination unit in Wadi Natroun (Faculty of Agriculture, Alexandria University)

م	البيان	الوحدة	الكمية	ما تم تنفيذة	المتبقى
١	خطوط انحدار (٢٠٠ – ٨٠٠ مم)	متر	٣٥٠٠	٢٣٣٦	١١٦٤
٢	خط طرد (٧١٠ مم)	متر	٢٥٠	-	٢٥٠
٤	محطات رفع	عدد	١	-	١
٥	مطابق	عدد	٢٤	٢٤	-
٦	شنايش مطر	عدد	٩٨	٥٠	٤٨
٧	أسفلت	م٢	٥٢٠٠٠	-	٥٢٠٠٠

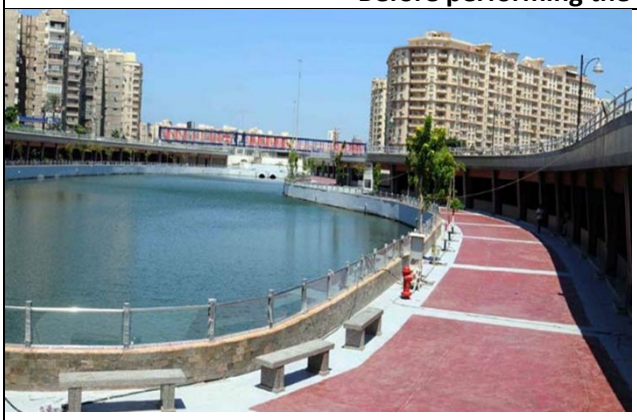


Integrated strategy project for rainwater management in Alexandria Governorate in cooperation with Alexandria University



Integrated strategy project for rainwater management in Alexandria Governorate in cooperation with Alexandria University

Before performing the integrated strategy project



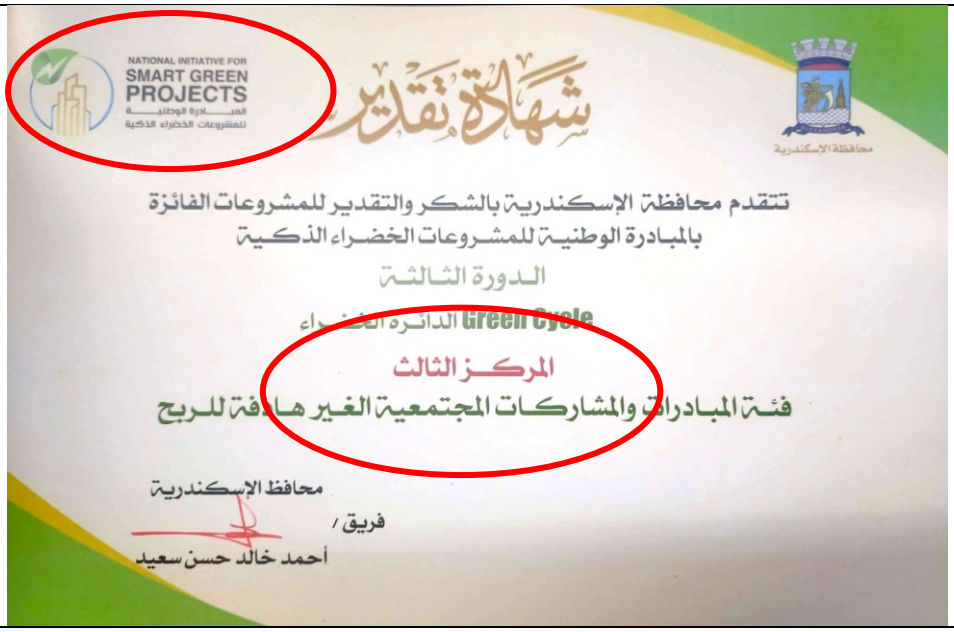

After performing the integrated strategy project

Mahmoudiyah Axis Project before and after performing the project


Raising awareness among university staff about water conservation through seminars and workshops organized in collaboration with Alexandria Drinking Water Company at the Faculy of Science.

An environmental impact assessment was conducted by academic members of the Faculty of Science - Alexandria University to evaluate the rate of shoreline erosion caused by urbanization in Alexandria's North Coast region.

The faculty members from the Faculty of Engineering are providing engineering consultations and supervision concerning the construction of the Mahmoudiyah road.



The Faculty of Pharmacy won third place in the Alexandria Governorate for the 2024 National Initiative for Green Smart Projects with its 'Green Cycle' project, competing in the non-profit community initiatives category. This marks the project's second consecutive year of recognition, having previously secured first place last year.

ELSEVIER

Regional Studies in Marine Science
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Shoreline displacement along the Mediterranean coast of Egypt between El-Dabaa – Ras El-Hekma

Esraa A. El-Masry [a], Asmaa Magdy [b], Baher Mahmoud [a], Ayman El-Gamal [b], Mahmoud Kh. El-Sayed [a]

[a] Department of Oceanography, Faculty of Science, Alexandria University, Alexandria, Egypt
[b] Marine Geology Department, Coastal Research Institute, National Water Research Center, Alexandria, Egypt

Home › SN Applied Sciences › Article

Water quality indices as tools for assessment of the Eastern Harbor's water status (Alexandria, Egypt)

Research Article
Volume 5, article

Alaa A. El-Dahhar
Faculty of Agriculture (Saba Basha), Alexandria University, Alexandria, Egypt

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Wagdy Labib, Alaa A. El-Dahhar, Shimaa A. Shahin, Mona M. Ismail, Shimaa Hosny & Mohamed H. Diab

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Ain Shams University, Cairo, Egypt.
ISSN 1110 – 6131
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Monitoring of Microplastics in the Marine Environment and Their Ecological Risks; the Coastline of Alexandria, Egypt as a Case study

Nourhan Hamdy, Amany M. Osman, Hassan Awad, Nashwa A. Shaaban*
Oceanography Department, Faculty of Science, Alexandria University, Egypt
*Corresponding Author: Nashwa.shaaban@alexu.edu.eg

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Sustainable Water Research Funding and Water Quality Challenges in Agricultural Practices: An Economic Analysis in Egypt

Document Type : Original Article

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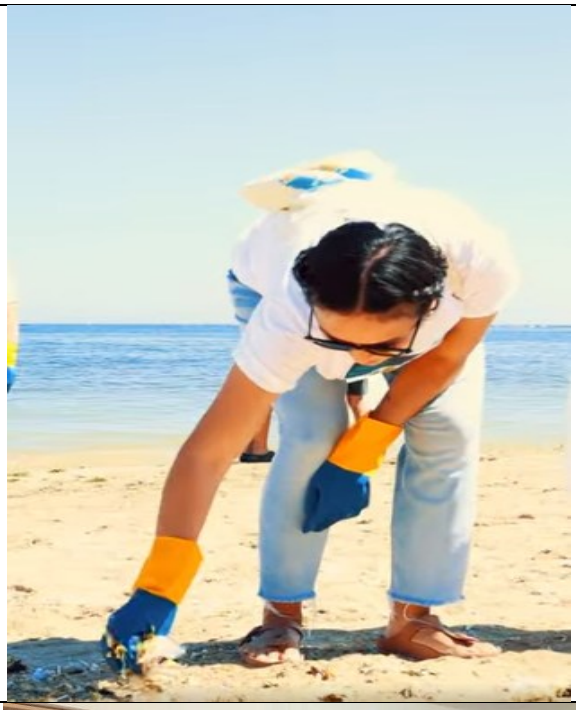
10.21608/ASEJAIQJSAE.2023.316410

Researchers at Alexandria University are conducting studies to conserve the marine environment near the university campus

Raising awareness among Alexandria University students about wastewater treatment was achieved through summer training activities conducted at Alexandria Sewerage for students from various faculties, including Science, Engineering (Civil, Mechanical, and Mechatronics), Commerce, Arts (Surveying, Mapping, and GIS), and Fine Arts (Architecture), September 2024.

The Center of Excellence for Water at Alexandria University is organizing a training program for scholarship students in collaboration with EPROM Company. This initiative aims to equip students with practical skills in water management including training courses about Water Treatment for Industrial Applications, and Wastewater Plant Operations and Troubleshooting, ensuring they are well-prepared for the business sector and aligned with labor market requirements (March, 2024).

Students from the Faculty of Sport Education at Abu Qir took part in a week-long initiative to clean the eastern harbour of Alexandria, starting on July 8, 2024. The initiative aims to promote sustainable tourism, improve waste disposal practices, and raise awareness about the dangers of plastic waste to marine life, while encouraging recycling efforts and maintaining clean beaches. The project included the Alexandria university, El-Raml Rotary Club, and the Egyptian Diving and Rescue Federation.

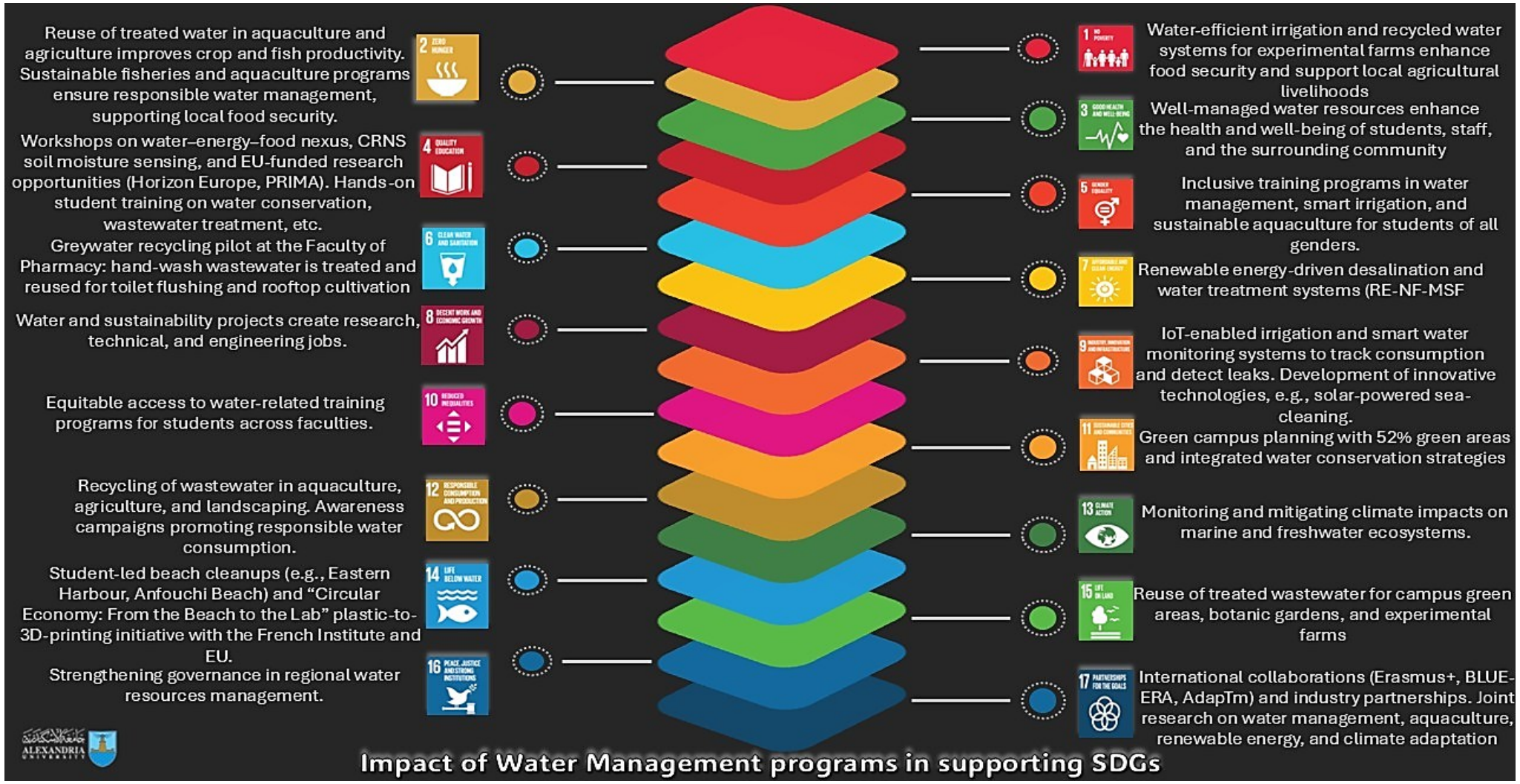




Students from various schools in Alexandria, alongside those from the French Institute, participated in a large-scale cleanup campaign at Anfouchi beach titled “Our Sea is Clean Without Trash ♻🌊.” Following the cleanup, participants explored the process of transforming plastic waste into usable materials through 3D printing at the Fab Lab at Alexandria University. This initiative is part of the "Circular Economy: From the Beach to the Lab" project, led by the French Consulate and the French Institute, with financial backing from the European Union and collaboration with the Alexandria Governorate. The project aims to foster partnerships for sustainability and actively engage the local community in environmental efforts.

[4.7] Alexandria University's Sustainability of Water Management

Alexandria University actively implements a range of programs to advance sustainability across its campuses, focusing on **water conservation, renewable energy, green building practices, climate action, and education**. These initiatives support multiple Sustainable Development Goals (SDGs) and serve as a model for promoting sustainability in higher education in Egypt.



[5]Transportation (TR)

Alexandria University has established a comprehensive and integrated sustainable transportation system that aligns with *Egypt's Vision 2030* and the *United Nations Sustainable Development Goals (SDGs)*. Central to this strategy is a strong institutional commitment to reducing private vehicle dependency, minimizing the parking footprint, and promoting zero- and low-emission mobility across all campuses. The University operates a fleet of 35 modern shuttle buses, each with a capacity of 51 passengers, running twice daily on fixed routes to serve faculty, staff, and students. This system has significantly reduced on-campus traffic congestion and carbon emissions. Complementary partnerships with private transport providers and public minibuses further enhance accessibility, particularly for students commuting from distant areas such as Borg El Arab, where a dedicated evening shuttle departs daily at 8:30 PM from the Faculty of Commerce.

To actively discourage private car use, Alexandria University enforces a strict **policy minimizing parking**. Since 2022, no new surface parking has been permitted within academic zones, and the total parking capacity across all campuses is capped at 1.425% of the **total land area** below the 1.5% sustainability benchmark. Student park their cars outside the University Campus, while surplus or underutilized parking areas are systematically repurposed into green spaces, pedestrian zones, and stormwater management sites. This "land return" strategy enhances biodiversity, improves thermal comfort, and supports the creation of more walkable, human-centered campus environments.

The University actively promotes active and shared mobility through a range of targeted initiatives. It currently supports **1,960 bicycles, e-bikes, and e-scooters**, including a student bicycle program that offers affordable monthly rentals through partnerships with national banks. Designated bicycle parking areas are located throughout the faculties to encourage daily use. Annual events, such as the "Running for Green" marathon and the "Our Health is in Our Planet" awareness run, as well as university-wide cycling festivals, promote physical activity and foster climate awareness among students and staff. The award-winning *"Green Cycle"* carpooling application, developed by the Faculty of Pharmacy, facilitates safe ride-sharing for staff and students and has received regional recognition for two consecutive years in green innovation competitions.

In preparation for the transition to electric mobility, Alexandria University is piloting the installation of **four electric vehicle (EV) charging stations** in staff parking areas. It has adopted a procurement policy that prioritizes hybrid and electric light-duty vehicles. The existing fleet already includes buses powered by **Compressed Natural Gas (CNG)**, which provide immediate reductions in greenhouse gas emissions and operational costs. Complementing these initiatives is a formal **Pedestrian Path Policy**, which ensures that all walkways across campus are safe, shaded, well-lit, and fully accessible, with ramps and smooth surfaces designed to accommodate individuals with disabilities.


Shuttle Services (Alexandria University)

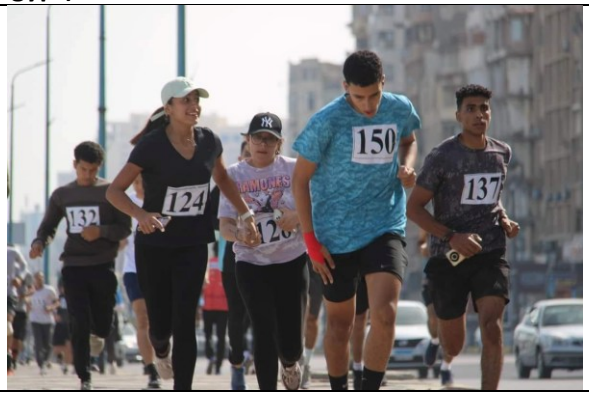
Alexandria University Shuttle Service Station

Alexandria University Shuttle bus parking outside the Campus

Rabbit Mobility operates in Alexandria; they offer "Day Rentals" that deliver an e-scooter or and e-bikes to all districts in the city their application.

The Faculty of Commerce at Alexandria University has introduced a new public transport bus service to support students living outside the city. The service will provide direct transportation from the university campus to the Borg El Arab area, aiming to reduce travel time and ease the burden of commuting to student housing, particularly during late hours. With lectures concluding as late as 8:30 PM.

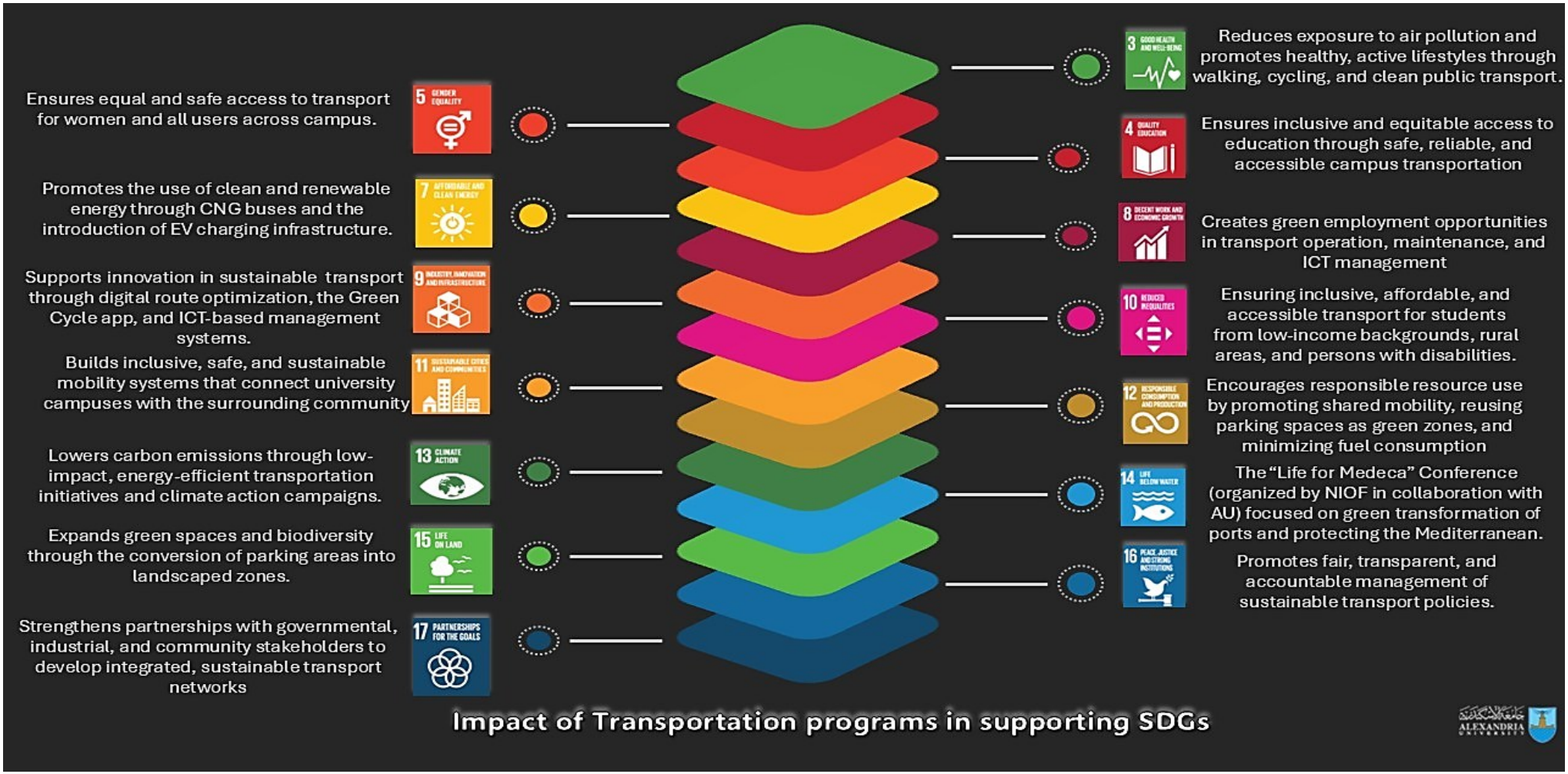
Carpooling application for smartphones - Green Cycle project in the Faculty of Pharmacy (Alexandria University, Egypt)



Support and encourage student participation in awareness initiatives that urge them to use environmentally friendly transportation on campus.

[5.19] Alexandria University's Sustainability of Transportation

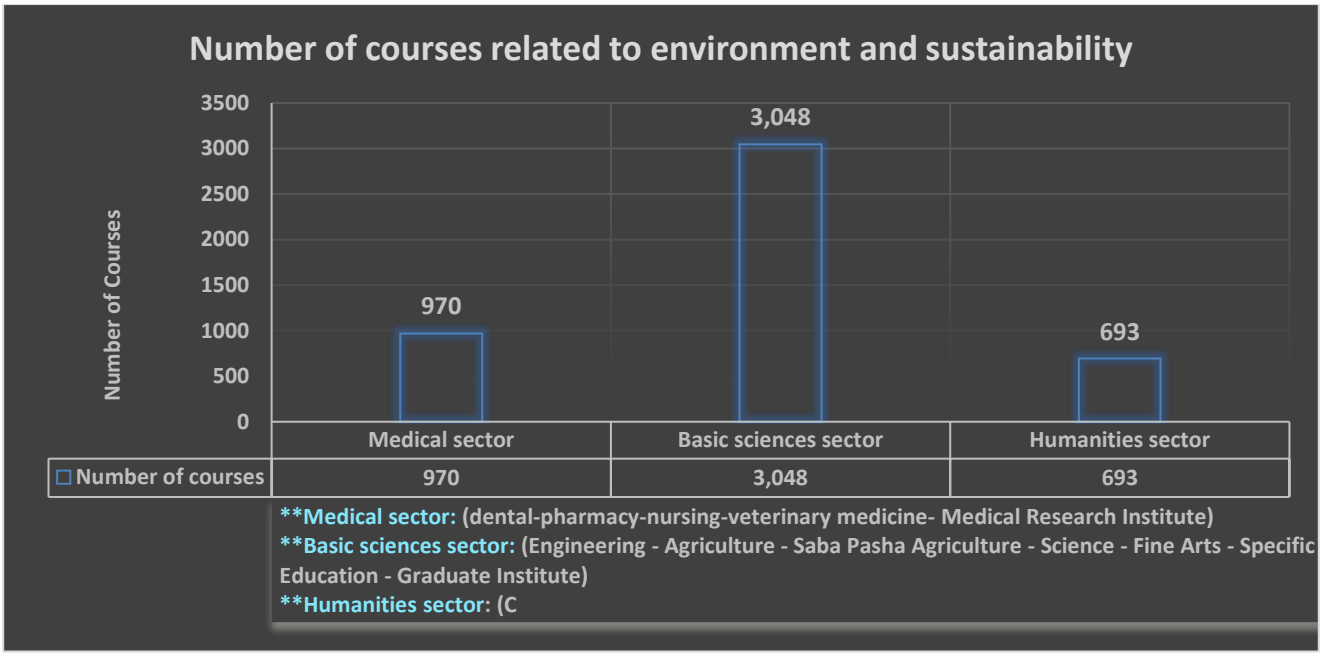
Alexandria University has implemented a comprehensive suite of sustainable transportation programs that actively contribute to achieving multiple Sustainable Development Goals (SDGs). These initiatives reflect the university's institutional commitment to reducing carbon emissions, improving air quality, promoting inclusive mobility, and fostering a culture of environmental responsibility among students, staff, and the wider community. Key programs include:

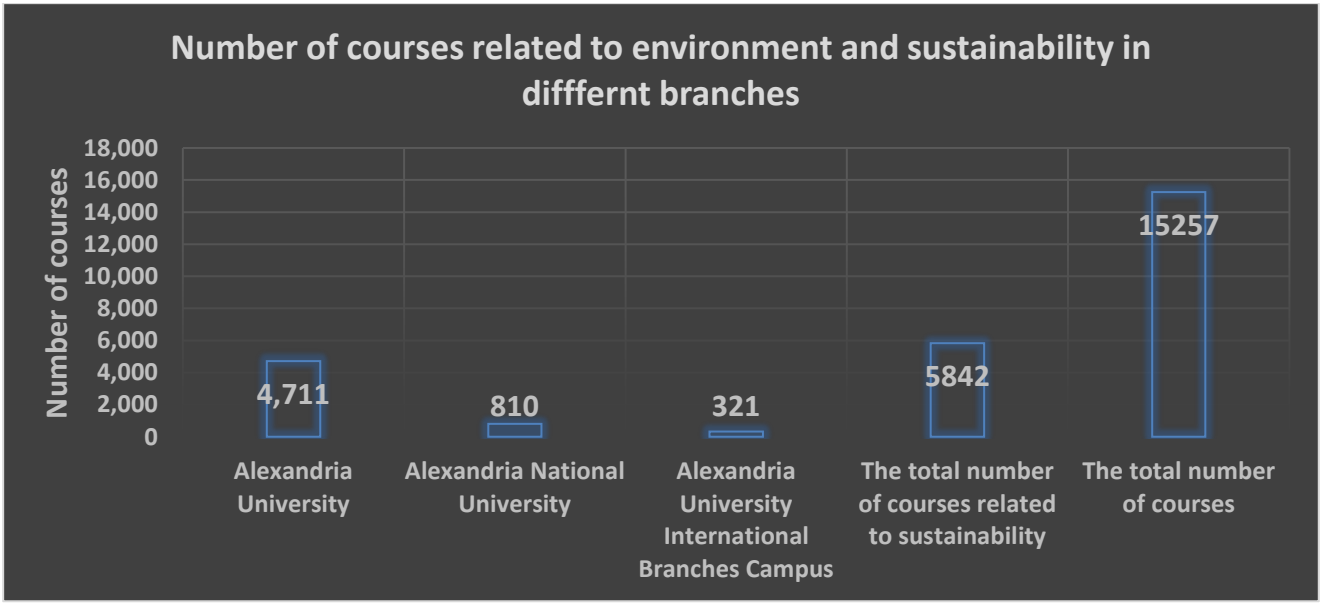


[6] Education and Research (ED)

During the academic year 2024–2025, the total number of undergraduate and graduate courses related to the environment and sustainability across various university sectors is 4,711 courses. Overall, 34% of the total 13,852 undergraduate and postgraduate courses were focused on environment and sustainability. A new International Dual Master Program was established at the Faculty of Science in this academic Year, titled:
MSc: SUSTAINABLE BLUE ECONOMY AND MANAGEMENT OF COASTAL RESOURCES (SBEM) (Dual degree)

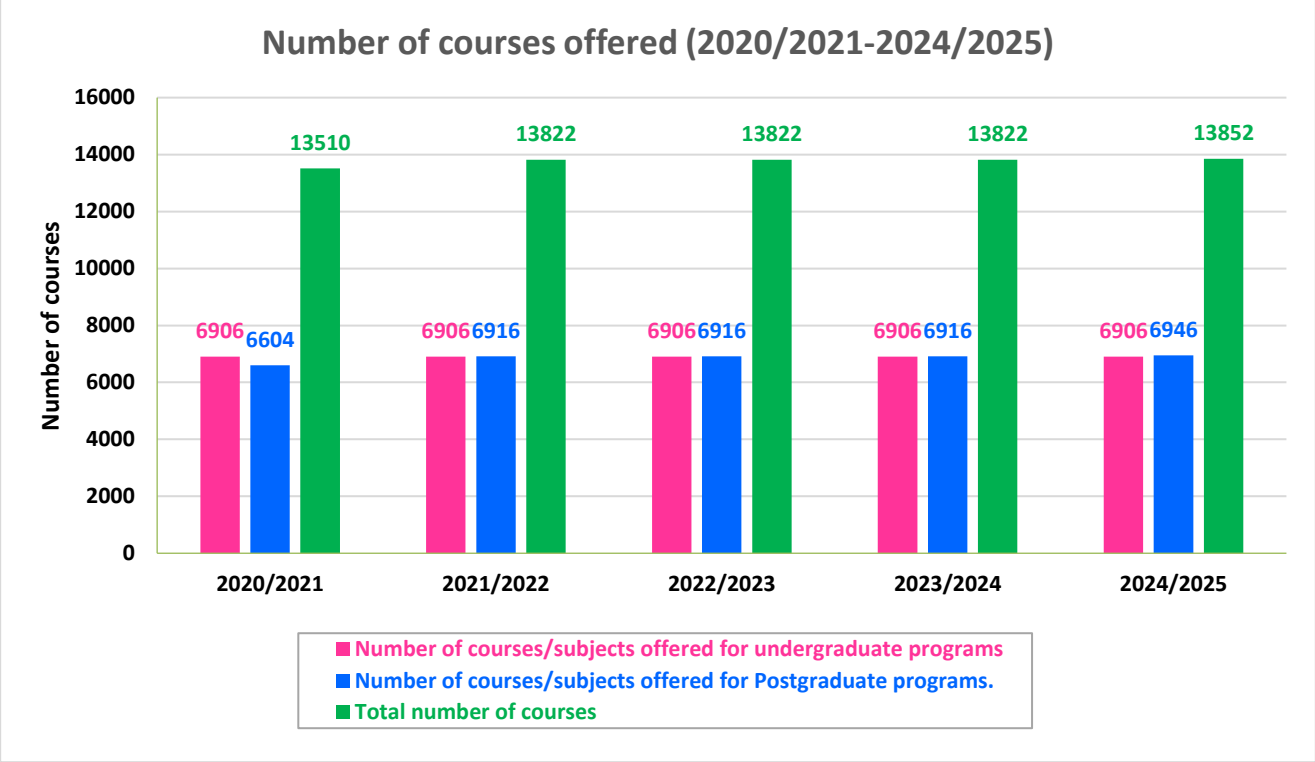
Across the various branches of the Alexandria University system, there is a notable variation in the number of courses focused on environmental sustainability. Alexandria University leads with 4,711 such courses, followed by Alexandria National University with 810, and the International Branches Campus offering 321. Together, these institutions account for a total of 5,842 courses dedicated explicitly to sustainability topics. This represents approximately 38.29% of all courses offered across the entire university system, which stands at 15,257. The data highlight that while sustainability-focused education is a significant component of the curriculum, it still accounts for less than half of the total academic offerings.





[6.1] Total Number of Courses/Subjects Offered:

In the academic year 2024–2025, **Alexandria University** offered a total of **15,257 courses** across all its campuses and branches. This includes **1,038 courses** at **Alexandria National University** and **367 courses** at **Alexandria University International Branches**.

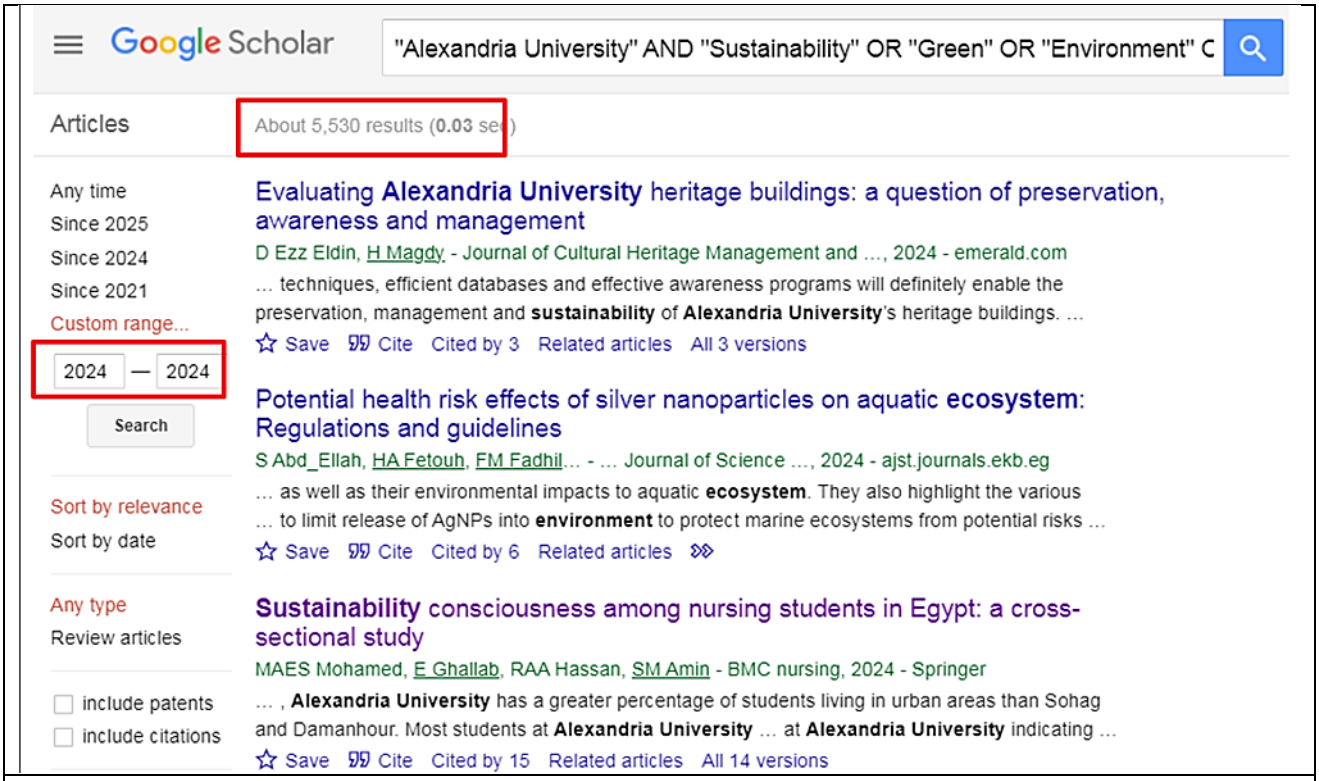


The accompanying histogram illustrates the progression in the number of courses offered at Alexandria University's main campus **in Alexandria, Egypt**, across different academic years. The data, encompassing both undergraduate and postgraduate programs, reveal a gradual increase from the academic year **2020/2021 to 2024/2025**. While **undergraduate courses** remained steady at **6,906**, **postgraduate courses** rose slightly from **6,604 to 6,946**, resulting in a total growth from **13,510 to 13,852 courses**.
This steady upward trend underscores the university's ongoing expansion of its academic portfolio and its robust commitment to **curriculum diversification** and the **integration of sustainability** across its educational offerings.

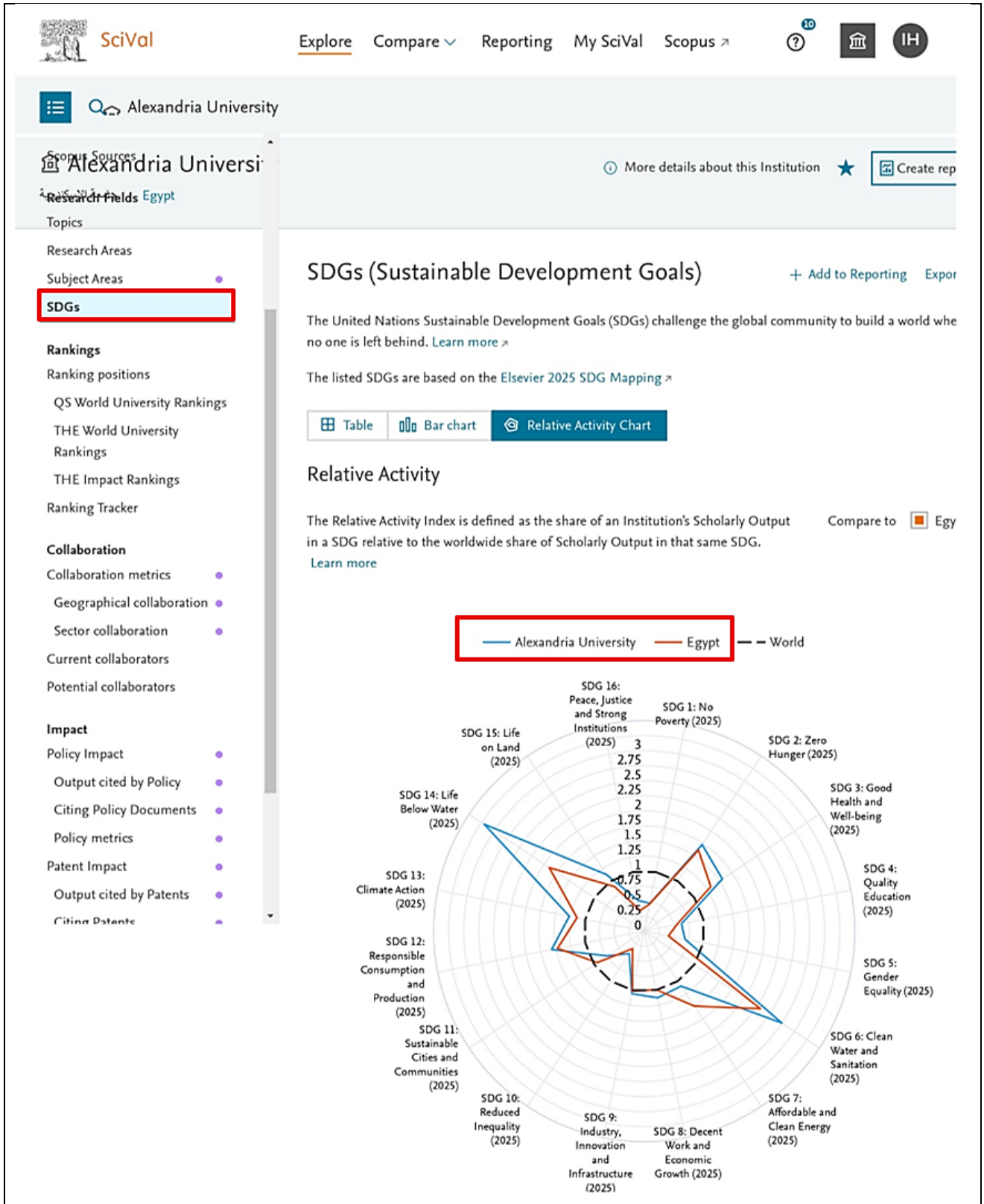
Additional information:
https://www.alexu.edu.eg/index.php/en/branches
https://alexu.edu.eg/index.php/en/branches/8-2015-11-18-08-45-03/8834-alexandria-university-branch-in-ndjamena-%E2%80%93-chad?utm
https://www.alexu.edu.eg/index.php/en/faculties-centers/au-branches/south-sudan

The university provides 769 sustainability-related study programs out of 838 total programs (91.77%), including 11 internationally accredited dual-degree programs such as the M.Sc. in *Sustainable Blue Economy and Management of Coastal Resources* (with Université du Littoral Côte d'Opale, France) and programs in *Smart Environmental Management of Climate Change*, *Natural Resources Sustainability for Land Development*, and *Sustainable Fisheries and Aquaculture*. These programs are developed through strategic Erasmus+ and international partnerships, ensuring alignment with global standards and labor market needs in sustainability sectors.

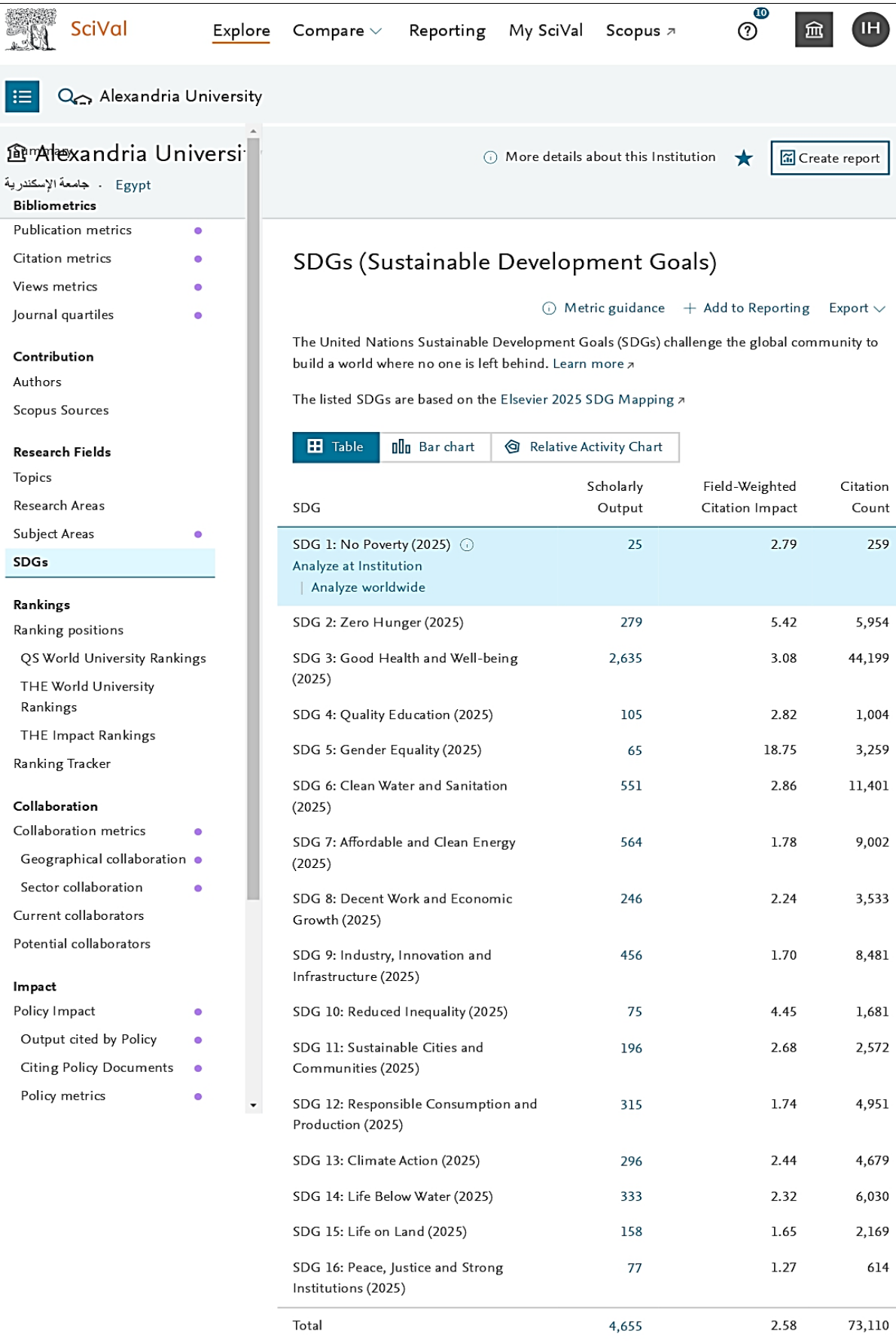
Research at Alexandria University is strongly oriented toward sustainability, with 5,530 scholarly publications on sustainability topics in 2024 and 512 theses currently in progress or recently completed on environmental and sustainability themes. Over the past three years, the university has dedicated an average of USD 1,512,729 annually to sustainability-focused research, supporting over 262 active projects including EU-funded initiatives such as BLUE-ERA, Med-Algae, SUREMAP, and FishAqu that address climate action, water security, the circular economy, and blue economy innovation. The university also hosts Centers of Excellence in Water, Regenerative Medicine, and Climate Change, further strengthening its research infrastructure.



Scholarly publications on sustainability (Alexandria University, Egypt, 2024)

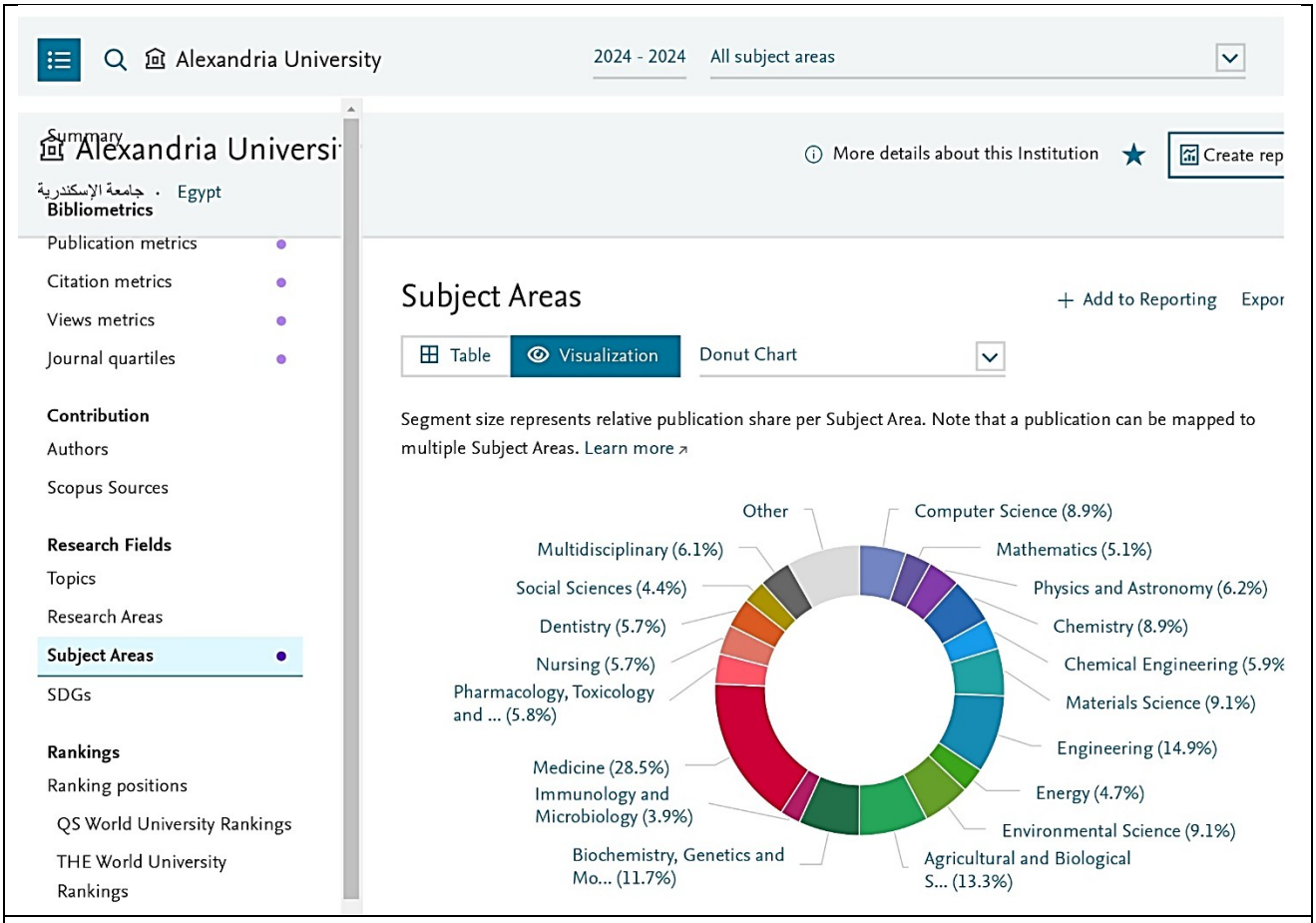


Number of scholarly publications on sustainability (by the 17 SDGs): <u>Alexandria University vs. all Egyptian</u> universities by SciVal



SDG	Scholarly Output	Field-Weighted Citation Impact	Citation Count
SDG 1: No Poverty (2025) Analyze at Institution | Analyze worldwide	25	2.79	259
SDG 2: Zero Hunger (2025)	279	5.42	5,954
SDG 3: Good Health and Well-being (2025)	2,635	3.08	44,199
SDG 4: Quality Education (2025)	105	2.82	1,004
SDG 5: Gender Equality (2025)	65	18.75	3,259
SDG 6: Clean Water and Sanitation (2025)	551	2.86	11,401
SDG 7: Affordable and Clean Energy (2025)	564	1.78	9,002
SDG 8: Decent Work and Economic Growth (2025)	246	2.24	3,533
SDG 9: Industry, Innovation and Infrastructure (2025)	456	1.70	8,481
SDG 10: Reduced Inequality (2025)	75	4.45	1,681
SDG 11: Sustainable Cities and Communities (2025)	196	2.68	2,572
SDG 12: Responsible Consumption and Production (2025)	315	1.74	4,951
SDG 13: Climate Action (2025)	296	2.44	4,679
SDG 14: Life Below Water (2025)	333	2.32	6,030
SDG 15: Life on Land (2025)	158	1.65	2,169
SDG 16: Peace, Justice and Strong Institutions (2025)	77	1.27	614
Total	4,655	2.58	73,110

Number of scholarly publications on sustainability according to each SDG for Alexandria University by SciVal in one year 2024-2024



The percentage of publications by subject area in one year- 2024

Community engagement is deeply embedded in the university's mission. In 2024/2025, it organized 392 sustainability-related events, including workshops, awareness campaigns, medical and veterinary convoys, literacy drives, and school outreach programs. The Faculty of Science alone hosted over 50 educational visits to its botanical garden, herbarium, and electron microscopy unit. Additionally, 46 sustainability-focused startups have emerged from university incubators, and 63,279 graduates over the last three years (55.37% of all graduates) are employed in green jobs, spanning renewable energy engineering, environmental law, sustainable tourism, and climate-smart agriculture.

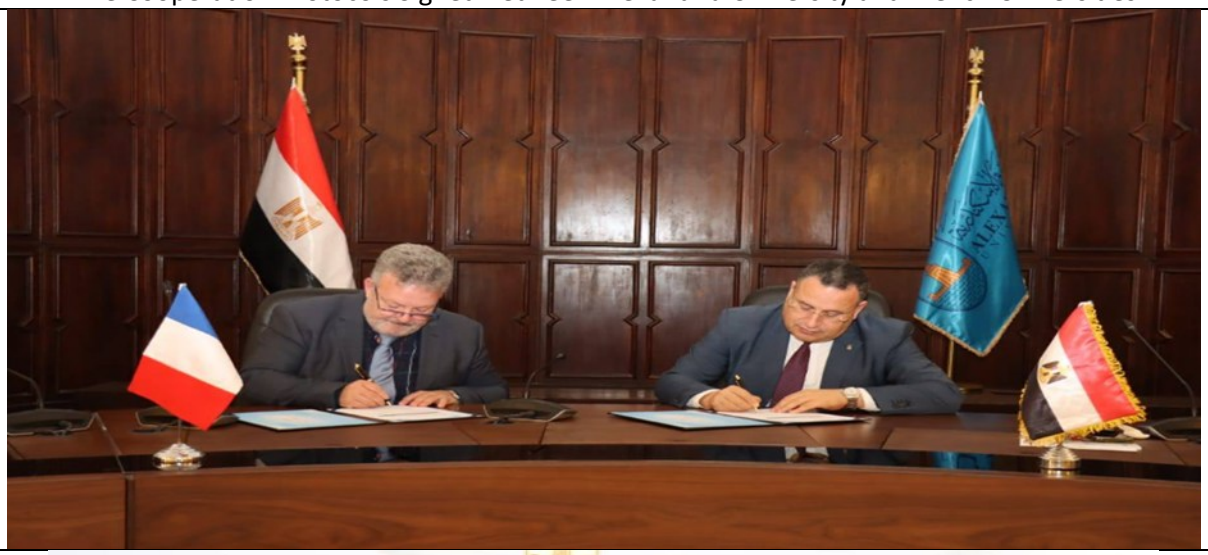
The university currently holds 118 fully active international agreements, with an additional 89 agreements pending final approval, spanning five global regions. These collaborations encompass dual and joint degree programs, Erasmus+ projects, academic exchanges, and collaborative research initiatives. All partnerships are strategically aligned with Egypt's Vision 2030 and the United Nations Sustainable Development Goals (SDGs), focusing on key priority areas such as climate action, the blue economy, sustainable agriculture, water security, and renewable energy.

Among the most notable initiatives are the M.Sc. in Sustainable Blue Economy and Management of Coastal Resources (Université du Littoral Côte d'Opale, France), the M.Sc. in Smart Environmental Management of Climate Change (University of Catania, Italy), and the M.Sc. in Natural Resources Sustainability for Land Development (RWTH Aachen University, Germany). Additional high-impact collaborations include the joint Bachelor's programs in Medicine and Dentistry with the University of Manchester (UK), dual engineering degrees with the University of Louisville (USA), and new agreements signed during President Macron's April 2025 visit to Egypt with leading French universities.

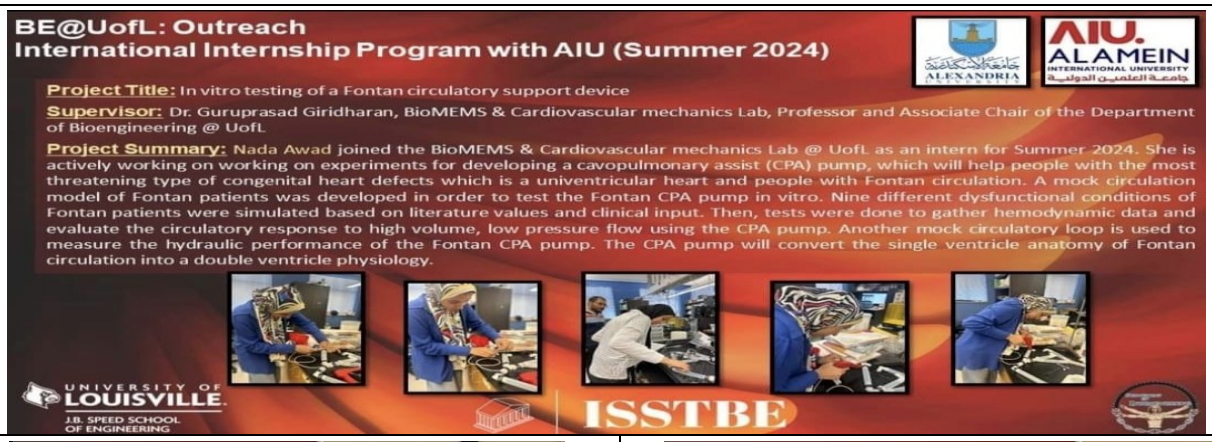
Through structured curricula, mandatory international mobility, co-supervised theses, and applied research projects with government and industry partners, these programs not only prepare graduates for sustainability-

oriented careers but also reinforce Alexandria University's leadership in advancing internationalized, sustainability-focused higher education across the region.

Five Cooperation Protocols Signed Between Alexandria University and French Universities



AU and Université du Littoral Côte d'Opale (ULCO) – Dual Degree Cooperation Programs

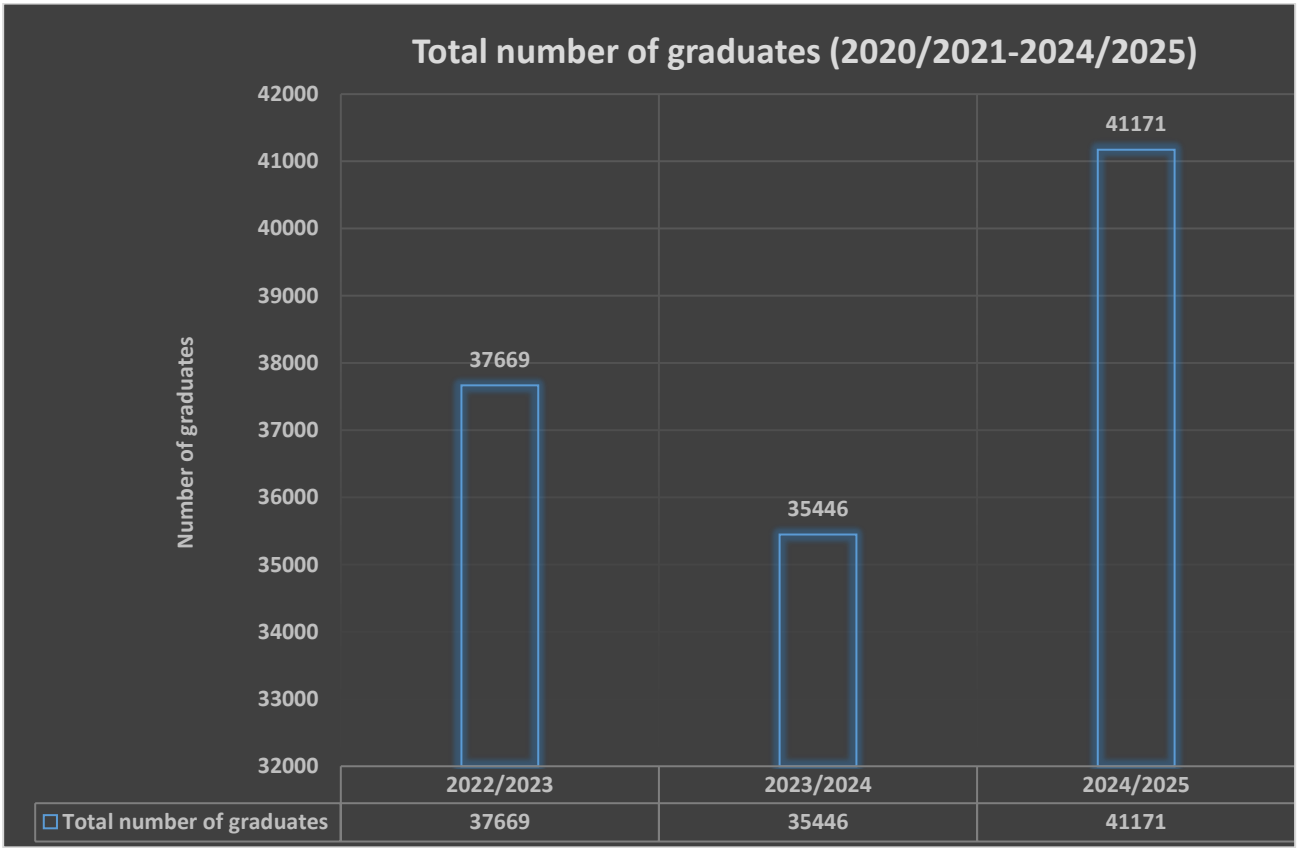


Alexandria University's Faculty of Engineering Students win First Places in Annual Summer Training Competition at University of Louisville, USA. The summer training program comes within the framework of the distinguished partnership between Alexandria University and the University of Louisville, USA, over the past years, which includes the partnership in summer training in research laboratories at the University of Louisville, and the partnership in the 2+2 bachelor's programs to grant double degrees in computer science and engineering, and biomedical engineering majors. This year was the graduation of the first group that joined the University of Louisville through this partnership in the field of biomedical engineering, numbering five students.

Links:

1. https://blue-era.univ-littoral.fr/aastmt-au-and-ulco-sign-mous-under-blue-era-during-the-franco-egyptian-higher-education-and-research-forum/
2. https://blue-era.univ-littoral.fr/blue-era-second-consortium-meeting-advancing-sustainable-blue-economy-education/
3. https://alexu.edu.eg/index.php/en/important-news/9857-alexandria-university-and-the-university-of-littoral-presidents-sign-cooperation-agreement-to-launch-dual-degrees-in-engineering%2C-computer-science%2C-marine-sciences%2C-and-the-blue-economy?

Over the three academic years presented, **Alexandria University** awarded degrees to **37,669 students in 2022/2023**, followed by a slight decrease to **35,446 graduates in 2023/2024**, and then a substantial rise to **41,171 graduates in 2024/2025**. Altogether, this represents a total of **114,286 graduates** over the three-year period.



[6.26] Alexandria University's Sustainability of Education and Research

Alexandria University demonstrates a comprehensive institutional commitment to advancing the United Nations' 2030 Agenda for Sustainable Development. Its policies, research, and partnerships directly contribute to the 17 Goals. The University integrates sustainability into academic curricula, governance, innovation, and community engagement while maintaining an extensive international cooperation network across five global regions.