13.3.1 Local education programmes or campaigns on climate change risks, impacts, mitigation, adaptation, impact reduction and early warning

Climate change is one of the most significant global challenges, with increasing risks and impacts on ecosystems, communities, and economic development. In Alexandria, Egypt, climate change is particularly important because of the city's coastal location and its vulnerability to sea-level rise, coastal flooding, extreme weather events, and water-related challenges. Addressing these risks requires public awareness, education, and active participation in climate action.

In this context, Alexandria University plays an important role in promoting local education programmes and campaigns that raise awareness of climate change risks and impacts and encourage practical solutions. Through workshops, research projects, student activities, and environmental initiatives, the university contributes to climate change mitigation, adaptation, impact reduction, and the development of sustainable practices. These activities also support knowledge sharing and community engagement, helping students, staff, and the wider community better understand climate-related challenges and possible responses.

Furthermore, climate education can strengthen understanding of early warning systems and the importance of timely information in preparing for climate-related hazards and reducing potential damage. Documenting Alexandria University's local education programmes and campaigns during 2025 provides an opportunity to assess its contribution to climate awareness, resilience, and sustainable development in alignment with Sustainable Development Goal 13, particularly Target 13.3, which emphasizes education, awareness-raising, and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.

- Alexandria University adopts a sustainable land cover strategy that balances academic development with environmental protection across all campuses and international branches. The University's infrastructure planning prioritizes green conservation landscapes, efficient land utilization, and healthy learning environments that contribute to ecosystem resilience and climate change adaptation.
- The University has achieved 55.6% implementation of smart building technologies through the progressive integration of digital infrastructure and intelligent management systems across campus facilities. Key applications include QR code–based smart attendance systems, automated monitoring and reporting platforms, fire alarm and smoke detection systems, video surveillance, and digital access and safety controls. Training programs have also been conducted to support effective system adoption and operation. These initiatives contribute to improved operational efficiency, enhanced safety and security, reduced manual processes, and the advancement of a connected, data-driven campus environment promoting sustainability and climate action.
- Alexandria University has established a comprehensive portfolio of 26 innovative programs and projects that promote renewable energy, energy efficiency, climate change mitigation, and sustainable resource management. These initiatives integrate education, research, infrastructure, and community engagement through renewable energy centers, solar and wind power systems, green building technologies, biofuel research, circular economy projects, and international academic partnerships. The University operates renewable energy centers at the Faculty of Agriculture, Faculty of Science, and Faculty of Engineering, where hybrid solar–wind systems, photovoltaic installations, and Building-Integrated Photovoltaic (BIPV) technologies support both campus operations and applied research. In addition, Alexandria University offers specialized postgraduate programs in climate change, sustainable fisheries, natural resource sustainability, and the blue economy through Erasmus+ and other international collaborations. Campus

sustainability projects, including the Green Cycle initiative, greywater recycling, energy-efficient buildings, solar power stations, and plastic recycling laboratories, further demonstrate the University's commitment to reducing carbon emissions, improving resource efficiency, and preparing graduates to address global environmental challenges.

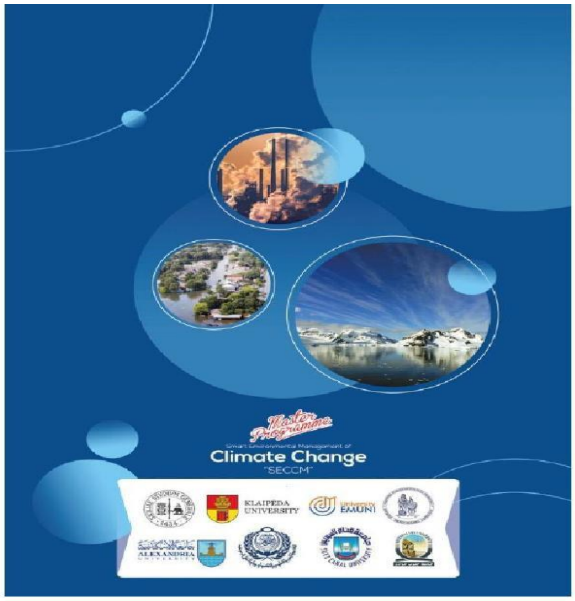
- The University's commitment to waste reduction extends beyond campus operations through research, innovation, and community engagement. Alexandria University established the PECA Fab Lab for recycling plastic waste into new products using digital manufacturing technologies, while students and researchers have developed innovative projects such as converting used cooking oil into environmentally friendly plasticizers. Community initiatives, including beach-cleaning campaigns, recycling workshops, environmental awareness programs, and partnerships with national and international organizations, further promote responsible consumption, environmental stewardship, and public participation in SDG 13 – Climate Action, sustainability, and greenhouse gas emission reduction.
- The University's Central Laboratory and specialized research facilities perform chemical and physical analyses of water quality in accordance with internationally recognized standards, ensuring effective environmental monitoring and protecting surrounding ecosystems. Community initiatives, including coastal cleanup campaigns, marine conservation activities, and environmental awareness programs, further strengthen the University's contribution to protecting aquatic environments and supporting climate change action.
- The University has implemented 22 sustainable transportation initiatives designed to reduce private vehicles and greenhouse gas emission levels. These include shuttle services, carpooling programs, bicycle parking facilities, pedestrian-friendly campus design, awareness campaigns, sustainable mobility competitions, smart parking management, and incentives encouraging environmentally responsible travel. Together, these initiatives help decrease traffic congestion, improve campus safety, and enhance air quality protection.
- Alexandria University continues to strengthen its role as a leading research institution by advancing high-impact sustainability research that addresses global environmental, social, and economic challenges. During the 2025 academic year, the University published 6,690 scholarly publications related to sustainability. These publications span a wide range of disciplines, including climate change, renewable energy, environmental protection, water resources, waste management, air pollution control, biodiversity conservation, ecosystem restoration, sustainable agriculture, and green technologies, reflecting the University's multidisciplinary approach to sustainable development.
- Research and innovation are supported through the Alexandria University Water Resilience Center of Excellence (AWR-CoE), which serves as a national platform for applied research, capacity building, professional training, and international collaboration. The Center advances sustainable water technologies through research on wastewater treatment, desalination, water reuse, circular economy approaches, and climate change resilience while offering specialized academic programs, workshops, scholarships, and partnerships with leading national and international institutions.



Natural Resources Sustainability for Land Development (Erasmus+ Project, European Union) in collaboration of Alexandria University (Egypt) with Aachen University (Germany)



Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project, Faculty of Science, Alexandria University, Egypt. Fuded by CBCMED-ENPI (CROSS BORDER COOPERATION IN THE MEDITERRANEAN-European Neighborhood and Partnership Instrument)





Smart Environmental Management of Climate Change in collaboration with Catania University, Italy. (AdapTm-Erasmus project) – Faculty of Science, Alexandria University, Egypt.

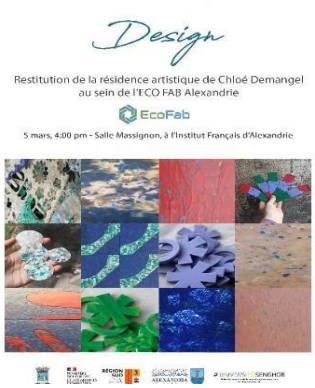


Sustainable Management of Fisheries and Aquaculture Science, in collaboration with University of Aveiro, Portugal (Erasmus+ Project, European Union) - Faculty of Science, Alexandria University, Egypt.



Alexandria University Center for Maritime Archaeology & Underwater Cultural Heritage was established as a European Union project under the EU-Tempus III Program

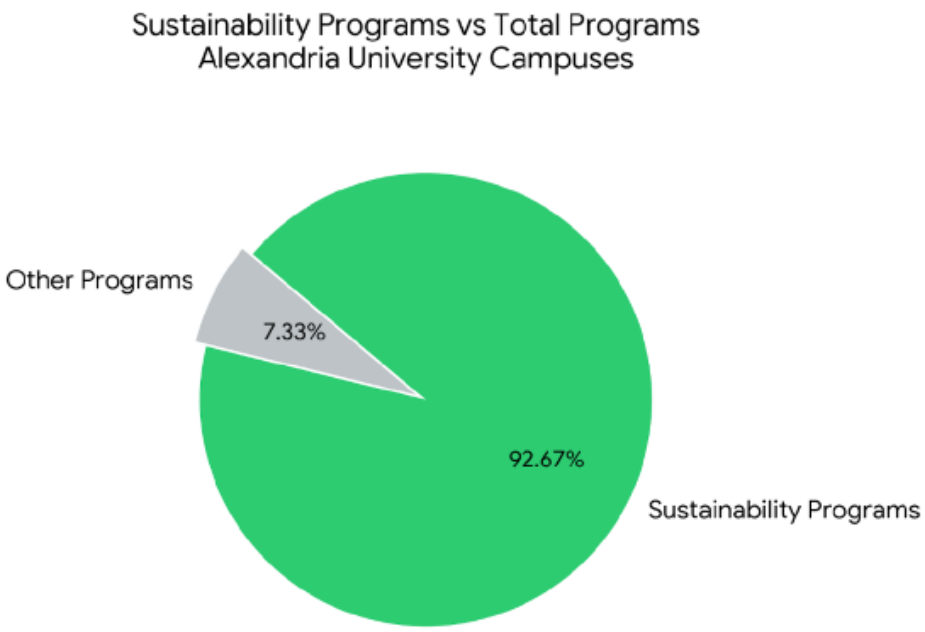


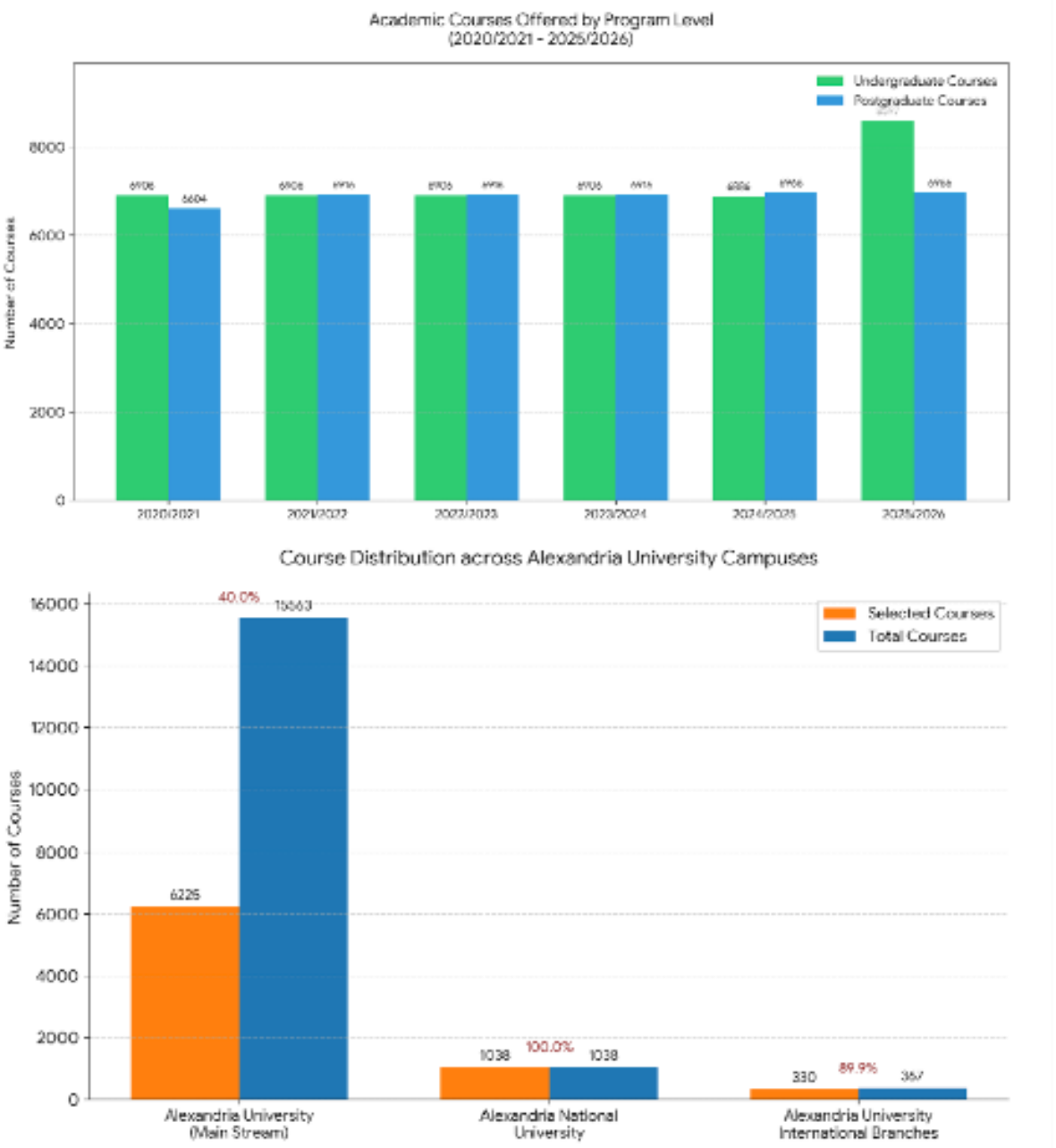




The Eco Fab is a fab lab dedicated to plastic recycling in Alexandria, Egypt and part of PECA project (Circular economy hub in alexandria).

- The University benefits from diverse funding sources, including national agencies such as the Science, Technology and Innovation Funding Authority (STDF) and the Academy of Scientific Research and Technology (ASRT), as well as international organizations including the European Union, Erasmus+, and other global research partners. Sustainable development initiatives also support researchers through publication strategy agreements, open-access assessment opportunities, and data systems published in both Arabic and English, several of which offer free solutions for policy researchers.





- Alexandria University actively empowers its students to lead sustainability initiatives that foster environmental awareness, innovation, community engagement, and social responsibility. During the reporting period, more than 30 sustainability-related activities were organized by student organizations across the University, demonstrating a vibrant culture of student participation in advancing the Sustainable Development Goals (SDGs). These activities included global climate conferences, scientific symposia, green chemistry campaigns, ecosystem awareness events, water entrepreneurship bootcamps, research and innovation frameworks, engineering competitions, sustainability workshops, environmental exhibitions, and community outreach programs.

- Student organizations such as the ACS Alexandria University Student Chapter, Society of Petroleum Engineers (SPE), Alexandria Engineering Students Union, and the Alexandria Scientific Pharmaceutical Students' Association (ASPSA) played a leading role in delivering these initiatives. Their activities promoted green chemistry, circular economy principles, SDG 13 – Climate Action, sustainable materials, water innovation, biodiversity conservation, scientific communication, entrepreneurship, and environmental education through practical workshops, public awareness campaigns, interactive exhibitions, field training, and global research collaborations.
- Alexandria University actively promotes sustainability-driven entrepreneurship through a dynamic innovation ecosystem that supported 46 sustainability-related startups during the reporting period. The University provides comprehensive incubation, mentoring, training, and commercialization support through initiatives such as the Artificial Intelligence Minds Incubator (AIM) and the Alexandria University Technology Incubator for Smart Systems (AUTISS), which foster innovative solutions in artificial intelligence, smart infrastructure, healthcare, agriculture, energy, and digital technologies. Student-led startups, including Samdha Company, develop environmentally friendly products by converting organic and agricultural waste into natural fertilizers and biodegradable materials, thereby reducing waste, supporting sustainable agriculture, and conserving water. In addition, entrepreneurship competitions such as Startup Olympics and international programs, including Bio-iChallenge and Hult Prize, encourage student teams and researchers to transform data ideas into market-ready businesses with significant environmental impact.



Alexandria University Technology Incubator for Smart Systems (AUTISS) Incubator (Faculty of Engineering, Alexandria University)



Artificial Intelligence Minds Incubator (Faculty of Engineering, Alexandria University)



Artificial Intelligence Minds Incubator (Faculty of Engineering, Alexandria University)



Samdha Company, founded by Musaad Darwish, a student in the Department of Civil and Environmental Engineering at the Faculty of Engineering





Samdha Company: The plants in the 2 photos on the left are planted in presence of natural organic fertilizers

Verified programmes and campaigns from 2025

1. “Flow and Foresight” climate workshop

18 April 2025 · Faculty of Engineering and partner venues

Alexandria University’s Faculty of Engineering worked with the University of Toulon and the Barcelona Supercomputing Centre through the Pharos project. The two-day workshop examined climate change, hydrodynamic processes, marine hazards and coastal submersion risks in the

Mediterranean region. It is the strongest documented 2025 match for climate-risk education and adaptation.



2. Green Universities for a Better Future

Launched 11 May 2025 · Faculty of Pharmacy

The Bibliotheca Alexandrina launched this project in cooperation with Alexandria University's Faculty of Pharmacy, the Earth's Climate for Sustainable Development Foundation and the Global Environment Facility Small Grants Program. Its goals include embedding sustainability in university education, developing students' climate-action awareness and building young people's green-economy and environmental-entrepreneurship skills.



3. Green Circle environmental sustainability project

Reported October 2025 · Faculty of Pharmacy

The project promotes waste sorting and recycling, reduced energy consumption, greywater reuse, greener laboratory practices and student participation in sustainability activities. It also describes training in carbon-footprint awareness and waste management. These are practical ways to reduce environmental impacts, although they are not the same as a formal early-warning programme.



4. “Our Sea Is Clean Without Trash” and circular-economy education

Students from Alexandria schools and the French Institute took part in an Anfouchi beach cleanup, followed by demonstrations of converting plastic waste into usable materials through 3D printing at the university's Fab Lab. This is relevant to climate mitigation through waste reduction and circular-economy practices, but should be classified as a broader sustainability activity rather than a dedicated climate-risk campaign.



5. AG-WaMED: Sustainable water resources under climate change

31 August 2025 · Faculty of Agriculture

Alexandria University reported the successful completion of an STDF-funded research project investigating sustainable use of unconventional water resources under climate-change conditions in the coastal dry valleys of Matrouh Governorate. This is relevant to adaptation, water security and reducing climate impacts, although it is a research project rather than a general student awareness campaign.

