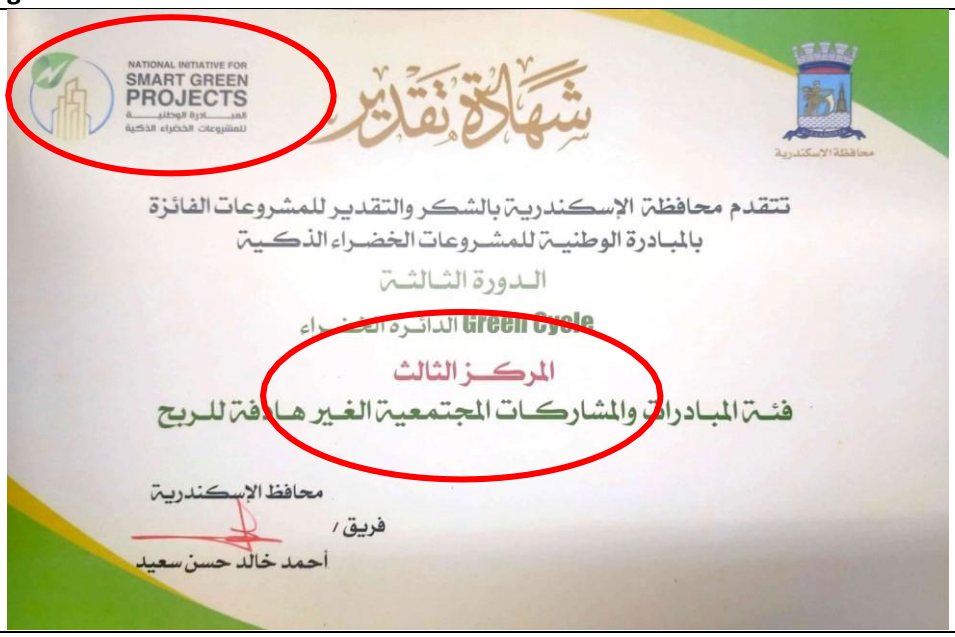
6.5.1 Educational opportunities for local communities to learn about good water management

Alexandria University offers educational opportunities for local communities to learn good water management through awareness programs, workshops, and practical training on water quality and wastewater treatment. These activities teach simple methods such as greywater recycling, rainwater harvesting, and efficient irrigation to help reduce water waste and protect water resources. By introducing basic water testing and pollutant removal concepts, the university strengthens community understanding of clean surface water and groundwater. These efforts empower residents to adopt sustainable practices that support environmental protection and a more resilient water supply.

- Alexandria University has organized in collaboration with the Alexandria Drinking Water Company and the Holding Company for Water and Wastewater comprehensive awareness campaigns, engage students, faculty, and staff in adopting sustainable water-use practices.
- 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.

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

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Monitoring of Microplastics in the Marine Environment and Their Ecological Risks; the Coastline of Alexandria, Egypt as a Case study

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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.

Water Excellence Center - Alexandria University

The Center of Excellence for Water is a USAID- funded program, managed by the American University in Cairo. Its goal is to catalyze long-term improvement in Egyptian water resources management by improving its innovative applied research and educated enterprise.

Located at Alexandria University, and in cooperation with four Egyptian Universities (Ain Shams University – Aswan University – Beni Suef University – Zagazig University) and four U.S. Universities (University of California, Santa Cruz, Temple University, Utah State University, and Washington State University).

The Center of Excellence for Water is designed to be a state-of-the-art center that raises the quality of all aspects of higher education, including curriculum, teaching, and applied research to international standards.

The Center supports the Egyptian government, academia, and industry to address water challenges, and prepare a new generation of graduates and entrepreneurs to be change agents that stimulate economic growth.

Leveraging on the public-private partnerships established, the Center of Excellence for Water will be the hub for research and a vibrant network of Egyptian industries, research centers, and ministries.

Water Excellence Center - Alexandria University
Training for civil and environmental engineering students at the Eastern Wastewater Treatment Plant Alexandria

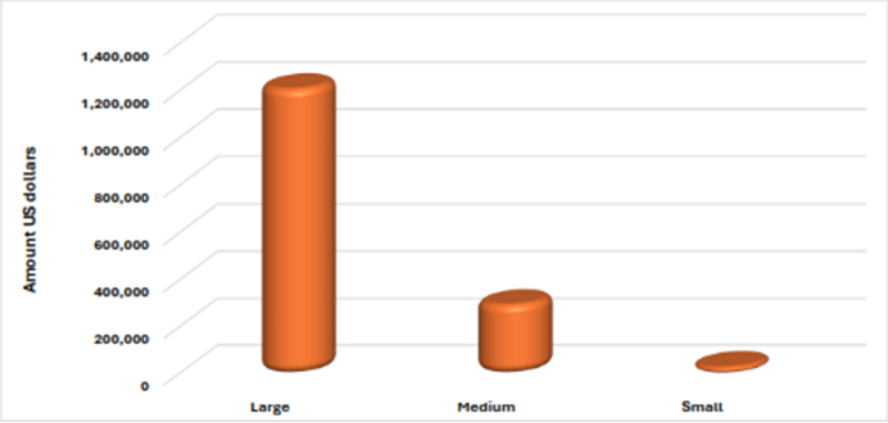
The following tables illustrate the projects funded through the Water Excellence Center – Alexandria University.

USAID FROM THE AMERICAN PEOPLE | ALEXANDRIA UNIVERSITY | The American University in Cairo

Center of Excellence for Water

First Call Projects

Type	No.	Amount in US dollars	Amount in Egyptian pound
Large Size Projects	5	1,209,183	37,275,726
Medium Size Projects	6	296,245	9,132,404
Small Size Projects	3	29,500	909,402.4
Total	14	1,534,928	47,317,532



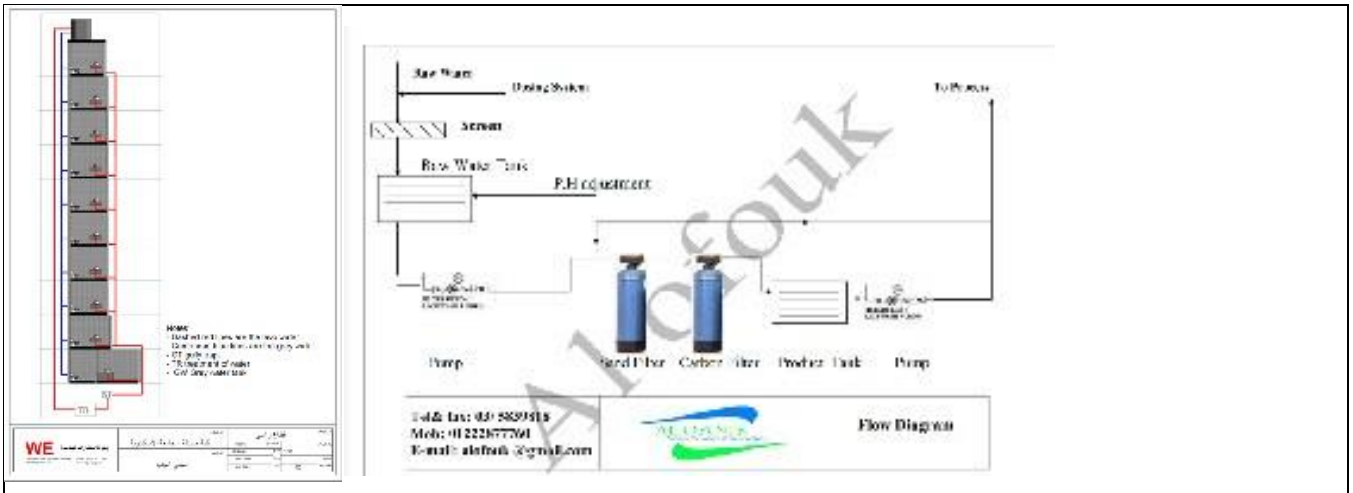
No.	Name of Egyptian PI	Name of US PI	Project Title	Budget	Size
Large size projects					
1	(Ain Shams University)	(American University in Cairo)	Sustainable Low-cost Solution for Decentralized Sanitation System in Rural Egypt	215,000	Large
2	(Ain Shams University)	(American University in Cairo)	Using AI Tools to Optimize the Development of Novel Nano-enhanced Membranes for Water Desalination	250,000	Large
3	(Ain Shams University)	(Washington State University)	SMART Irrigation for Maximizing Water Use Efficiency (SIMWUE)	250,000	Large
4	(Beni Suef University)	(American University in Cairo)	Tailored enzymatic and nano-based treatment of wastewater to detoxify heavy metals and degrade antibiotics	250,000	Large
5	(Zagazig University)	(American University in Cairo)	Reducing pollution intensity in Egyptian drains using innovative techniques of electric coagulation using Direct Current by solar cell	244,183	Large
Medium size projects					
6	(Ain Shams University)		Low Cost Technology for Treating Industrial Wastewater for Irrigation Purposes	50,000	Medium
7	(Ain Shams University)		Optimizing Crop-Water Productivity Using Remote Sensing and Multi-Sources Data (WatSens)	46,400	Medium

8	(Ain Shams University)		Solar Driven, Low Cost, Water Desalination Unit with Minimum Environmental Impact SLoW ME	50,000	Medium
9	(Alexandria University)		Domestic Greywater Treatment and Reuse Prototype	49,845	Medium
10	(Beni Suef University)		Fabrication of hybrid treatment and desalination system for oily wastewater treatment using MOFs composites - Experimental and computational studies	50,000	Medium
11	(Beni Suef University)		For an Integrated Brackish Water Desalination System - The Application of Water Incompatibility in Siwa Oasis as an Innovative strategy for the Production of Low-Cost Irrigation Water using Eco-Friendly Nano-Filtration Self-Cleaning System	50,000	Medium
Small size projects					
12	(Beni Suef University)		Large-scale and sustainable synthesis of commercially feasible TiO2/GO nanostructured thin-film composite-based forward osmosis membranes for water desalination (TG-PES-Memb)	9,500	Small
13	(Beni Suef University)		Sensing heavy metals in drinking water using nanophotonic structure	10,000	Small
14	(Beni Suef University)		Salinity sensor for desalination method using photonic crystals	10,000	Small

Alexandria University Project (Accepted but didn't get administration approval)					
1	(Alexandria University)		Continuous Membrane Fabrication Module via Solvent or Emersion Casting technique for Desalination system by the application of Pervaporaton (PV) or Membrane Distillation(MD) techniques. (CMFM)	47,000	Medium
2	(Alexandria University)		Treatment of refinery waste by a novel supported solar photocatalyst system enabling zero liquid discharge	37,100	Medium
3	(Alexandria University)		Design of thermally-localized successive evaporation-condensation desalination unit (TSEC)	10,000	Small

Green Cycle project in the Faculty of Pharmacy - Alexandria University

The project began in October 2022 by organizing a number of events in cooperation between the Community Service and environmental Development Committee, ASPSA, and the Alexandria Rotary Clubs, under the supervision and organizationof Faculty of Pharmacy - Alexandria University.
Also, the faculty is seriously seeking to implement a grey water (wastewater) recycling system that depends on reusing wastewater from sewage basins only (without using wastewater from laboratory basins) by re-pumping it into the flushing bins in the toilets after work. Filtration and primary treatment. The grey water recycling initiative has a significant impact on rationalizing water use.
Also, taking advantage of rainwater for use in irrigation and regulatory operations.
Alexandria University have generalized this initiative in some of the faculties of Alexandria University in gradual stages.



Grey water recycling system by Faculty of Pharmacy (Alexandria University)

Alexandria University also has a large number of research projects in the field ofwaste recycling, treatment and reuse of sewage and industrial wastewater.

- Enhancing Resource Recovery and Improving Wastewater Reuse Through Synergistic Cooperation between Bioelectrochemical Systems and Forward Osmosis, (2019-2024).
- A novel combined approach for Poultry slaughterhouse wastewater treatment: prototype design and development, (2021-2024).
- Agricultural sustainability and water reuse in Egypt: innovative wastewater treatment and soil health, (2021-2024).
- Towards a green Economy Farm: Innovative Solar Collector for Biochar Production from Agricultural & Food Industry Wastes, Power Generation, and Crops Drying, (2021-2023).
- Wastewater Treatment by Integrated Green Coagulation and Membrane Technology for Reuse, (2021-2024).
- Construction of a Self-Charging Unit for Collecting Wasted Mechanical Energy from Basic Human Motion, (2023-2025).
- Production, modification and new prospects of biochar derived from biomass waste, (2023-2026).
- Microbial technology as a bioremediation tool for heavy metals removal from industrial wastewater through proteomic and nanotechnological approaches, (2023-2025).