

## Template for Evidence(s) UI GreenMetric Questionnaire

University : Alexandria University  
Country : Egypt  
Web Address : <https://alexu.edu.eg/>

### [4] Water (WR)

#### [4.4] Consumption of treated water





100 m<sup>3</sup> Desalination Unit, Wadi El-Natroom (Faculty of Agriculture, Alexandria University)



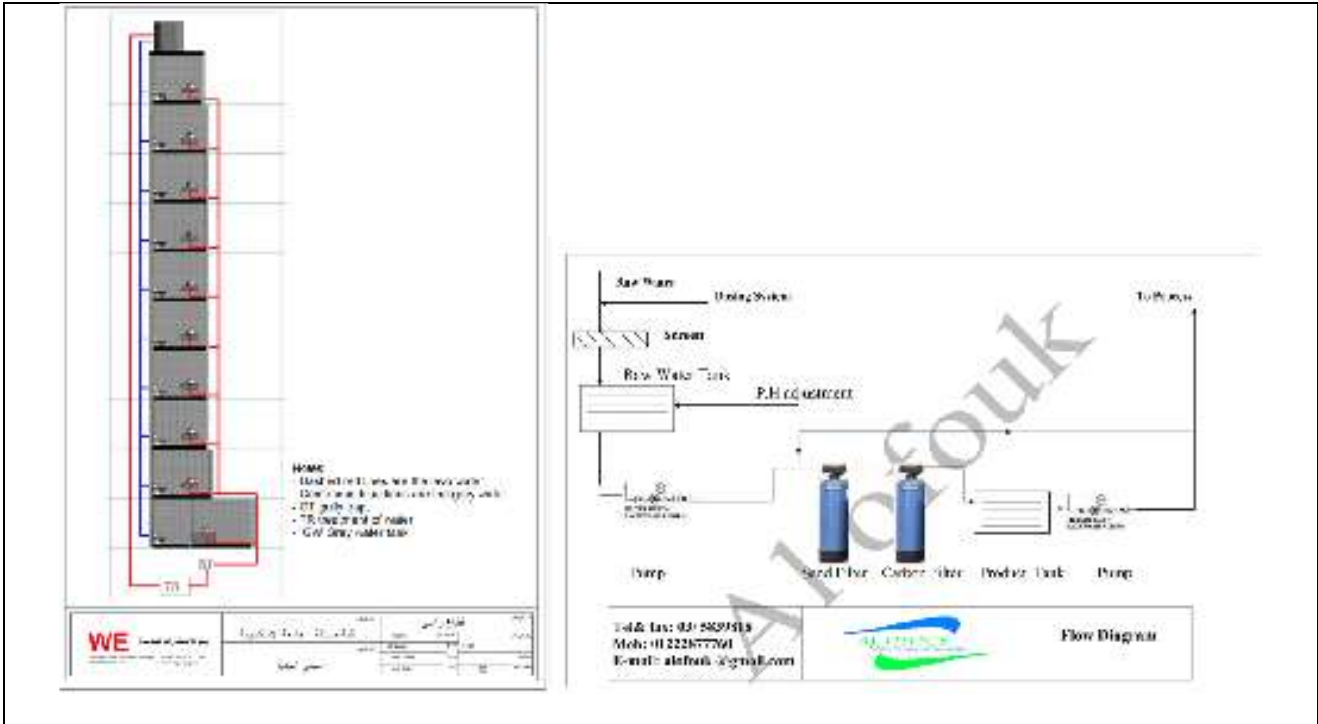
Innovative Renewable Energy (RE) Driven - Multi Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre Treatment (RE-NF-MSF). (Faculty of Agriculture, Alexandria University)



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



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.



## Rooftop Cultivation



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

### Description:

Alexandria University program to decrease the water consumption in its faculties and buildings:

The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette and bathroom bidet which can conserve about 50% of water consumption.



1. Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and high-efficiency bathroom devices. Supplying water taps with water conservation units.
2. Adopting a mechanism to maintain water pipes to prevent waste resulting from leaks.
3. Adopting plans and mechanisms for maintaining the taps and internal supply networks of the university to prevent water wastage.
4. Air conditioning water collection and reuse unit in Faculty of Engineering.
5. Wastewater treatment unit at the Faculty of Engineering
6. Providing a sewage treatment plant at the university to make it suitable for irrigating green areas and gardens inside the university campus.
7. Innovative Renewable Energy RE-Multi-stage flash system (MSF) with salt precipitator and nanofiltration (NF-MSF) to pre-treat feedwater (RE-NF-MSF) by Faculty of Agriculture, Alexandria University
8. A 100 m<sup>3</sup> desalination unit in Wadi Natroun (Faculty of Agriculture, Alexandria University)
9. 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. The recycled water is rich with natural fertilizers and enhances the crops production.
10. In addition, the water recycling in Fish Aquaculture of the Faculty of Agriculture, Alexandria University: The water sewage of the Aquaculture of the Faculty of Agriculture, Alexandria University which consist of eight ponds (one acre and quarter/each) in Abis region. Alexandria University used the recycled water for crops culturing in the adjacent agriculture research center in Abis.
11. The use of biochar produced from Agricultural waste and waste Forests in residual removal chlorpyrifos pesticide Imidacloprid is from water agricultural drainage. Cooperation project between the Egyptian Academy of Research Science and Technology and the Czech Academy of Sciences.
12. IOT Pilot Project in Egypt by Shanghai Water Saving Irrigation Corp. Etd performed an automatic controlled irrigation systems IOT project for modern irrigation technology. The company implanted the IOT platform project to irrigate economic crops and facilitate irrigation systems to overcome the water shortage problems in Egypt. This project will be performed in Alexandria University Farm for agroecological farming in Egypt.
13. Raising awareness among university staff and students about water conservation through seminars and workshops organized in collaboration with the Alexandria Drinking Water Company, in order to Strengthen the means of implementation and revitalize the global partnership for sustainable development.
14. The faculty members from the Faculty of Engineering are offering their expertise and advice on the construction of the Mahmoudiyah axis. These engineering consultations may include technical guidance, design recommendations, structural assessments, and other professional input to ensure the project's success, safety, and efficiency throughout the construction process.
15. The Faculty of Pharmacy won the third place in the Alexandria Governorate for the National Initiative for Green Smart Projects in its third edition (2024) with its 'Green Cycle' project, competing in the category of non-profit community initiatives and participations. Notably, this project has now won for the second consecutive year, having previously achieved first place in the Alexandria Governorate last year.
16. Raising awareness among Alexandria University students from various faculties—including Science, Engineering (Civil, Mechanical, and Mechatronics), Commerce, Arts (Surveying, mapping, and GIS), and Fine Arts (Architecture)—about wastewater treatment was achieved through summer training and periodic visits to the laboratories of the Alexandria Sewerage Company. This effort supports the achievement of the Sustainable Development Goals by enhancing partnerships for sustainable development and fostering collaborations that mobilize and share knowledge, expertise, and technology. The training aimed to provide students with essential scientific skills and practical experience to prepare them for the job market (September 2024).
  - **Faculty of Science:** Theoretical training introduced the role of the Sewerage Company, while practical training involved visits to treatment plants, central laboratories, and lectures on occupational safety and industrial sewage.



- **Faculty of Arts (Surveying, mapping, and GIS):** Training included surveying applications, urban planning, and the practical use of leveling instruments, total stations, and GPS devices, concluding with lessons on ArcGIS and sewage system design.
- **Engineering Colleges:** Civil Engineering students trained in network renewal and design, while Mechanical and Mechatronics students learned about pump components, welding, and electrical generators, with visits to various workshops.
- **Fine Arts (Architecture):** Students received training on project design drawings and estimating costs.

[https://www.facebook.com/profile/100068944998517/search?q=%D8%A7%D9%84%D8%B9%D9%84%D9%88%D9%85&locale=ar\\_AR](https://www.facebook.com/profile/100068944998517/search?q=%D8%A7%D9%84%D8%B9%D9%84%D9%88%D9%85&locale=ar_AR)

17. The Center of Excellence for Water is organizing a training program for scholarship students. This training is conducted in collaboration between the Water Excellence Center at Alexandria University and EPROM Company to provide a course for a group of students from the Water Excellence Center. This initiative reflects Alexandria University's commitment to equipping its students with practical skills related to water management, ensuring they possess the competencies needed by the business sector while aligning their studies with labor market requirements. The Center of Excellence for Water at Alexandria University has organized a training program for students in the Water Excellence Center Scholarship and the Civil and Environmental Engineering Program. Alexandria University, EPROM Company, and the students are participating in the following two training programs:

- **Water Treatment for Industrial Applications**
- **Wastewater Plant Operations and Troubleshooting.**

18. **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 organization of 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.

19. **Integrated strategy Project for rainwater management in Alexandria Governorate in cooperation with Alexandria University**

Remote sensing technology was used to know the current values of Rain and assess the current situation with the help of satellites. This is done with the help of the following artificial satellites:

-TRMM and GPM are two of the NASA satellites. (Administration National Aeronautics and Space Administration, United States of America)

- NOAA (National Oceanic, Atmospheric, and Space Administration, United States of America)

- NCEI (National Center for Environmental Information in the United States of America)

**Proposed rain management strategy**

A separate network will be created to drain rainwater for the nearest body of water for areas close to the body of water. The first area is the Corniche, where rainwater is collected and discharging it into marine estuaries. The second area is on both sides of the Mahmoudiyah and Beheira axis near the airport. The rainwater is collected and part of it is drained on the canal and the other part on the airport lake. In the third stage of the project, the two projects on the airport lake to exploit rainwater will be linked to the New Delta



project. The rainwater will be used to irrigate the crops, vegetables, and fruits in the New Delta.

**20. Elements of Green Building Implementation as Reflected in all new construction and renovation policies in the new buildings in Abis campus:**

- The area of the project is 160 acres, a general site for educational buildings, and 120 acres are complementary activities. The percentage of green areas and lake is about 52% in addition to 25% streets and lanes.
- Water-saving plots are used, which will reduce water consumption by about 30%. The sewage water will be treated and reused in the irrigation of green areas in the project.
- Wastewater will be treated and reused to irrigate green areas in the project.
- Rainwater is collected in the main lake and used for irrigation.
- The use of plants with few water rationed plants to reduce irrigation needs in addition to absorbing quantities of rainwater to reduce the severity of rain spells.

**Additional evidence link:**

**Link for Sustainable Development:** <https://alexu.edu.eg/index.php/en/sustainable-development>

<https://alexu.edu.eg/index.php/en/2015-11-24-10-38-07/ranking?id=6011>

<http://sustainability.alexu.edu.eg/>

**Link for Green University:**

[https://alexu.edu.eg/index.php/?option=com\\_content&view=article&id=5932&catid=21&lang=ar-AA](https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA)

### **Renewable Energy and Water Desalination Activities at Alexandria University**

Renewable Energy Center site is a host of different RE technologies and different RE-Desalination technologies. The site “ East of EL-Gaar Village” at Wadi El-Natroon has both predictable wind energy as well as an abundance of sunlight. Thus, this is a natural application for a hybrid system.

The modular hybrid power supply concept proposes the coupling of all sources of energy, storage media and loads on the AC-side.

**Advantages of the Modular Hybrid RE systems:**

- Simplicity in System Design
- Expandable, can be run autonomously or be connected to a larger grid
- Offer higher reliability and supply security
- Lower power cost for the consumers
- Production of AC single phase or three phase
- The AC-side structure provides standardization, quality assurance and serial production
- The coupling on the generation technologies on the AC side offers the possibility of placing the generators far apart from each other (distributed generation).

REC site is planned to be a host of different RE technologies and different RE-Desalination technologies such as:

- Hybrid RE technologies (solar, wind, biomass, Hydrogen and fuel cell)
- Hybrid Desalination technologies (RO, MSF, NF,... Etc)
- Different types of solar cell technologies (thin film, Mono crystalline, Polycrystalline cells)
- Different solar energy technology (PV, CSP, Solar water heating systems, solar dryers)
- Solar Greenhouses.



**Activity:** Innovative Renewable Energy (RE) Driven - Multi Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre Treatment (RE-NF-MSF)-, contract # RDI - C2/S1/148.

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**Link for Green Cycle Project:**

<https://fb.watch/mzqhBHazV4/?mibextid=j8LeHn>

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## Alexandria University program to decrease the water consumption in its faculties and buildings:

Campus water use is an important indicator in the sustainability scale. The aim is to urge universities to reduce water use, increase water conservation programs, and protect the environment. Among these criteria:

- The water conservation program,
- The water recycling program
- The use of water-saving equipment
- The treatment of wastewater

1. The University has applied a strategy in the faculties to decrease water consumption through installation of special parts on water taps, showers, toilette and bathroom bide: which can conserve about 50% of water consumption .
2. Water saving devices are used instead of traditional devices. For example, the use of a hand-washing faucet with automatic control via a sensor, and high-efficiency bathroom devices. Supplying water taps with water conservation units.
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**Proposed rain management strategy**

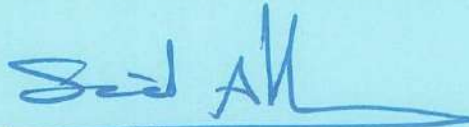
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Sincerely,



**Prof. Said Mohamed Allam**

**Vice PRESIDENT**

**Community Service & Environment Development**

**Alexandria University**

VICE PRESIDENT  
Community Service & Environment Development

## Renewable Energy and Water Desalination Activities at Alexandria University

Renewable Energy Center (REC) site is a host of different RE technologies and different RE-Desalination technologies. The site "East of EL-Gaar Village" at Wadi El-Natrocn has both predictable wind energy as well as an abundance of sunlight. Thus, this is a natural application for a hybrid system. The modular hybrid power supply concept proposes the coupling of all sources of energy, storage media and loads on the AC-side.

The Center Goals are to:

- Remove the knowledge barriers against the installation of RE systems in Egypt.
- Enhance the utilization of renewable energy.
- Develop educational and e-learning program about renewable energy.
- Educate students, graduates, public and key stakeholders in Egypt and the Arab world on the various sources of renewable energy and its successful applications.
- Build the infrastructure necessary to develop, install and maintain renewable energy applications.
- Present a show case or a model for the successful utilization of renewable energy in Egypt.
- Continue excellence in all of our educational programs.

Advantages of the Modular Hybrid RE systems:

- Simplicity in System Design
- Expandable, can be run autonomously or be connected to a larger grid
- Offer higher reliability and supply security
- Lower power cost for the consumers
- Production of AC single phase or three phase
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- Different solar energy technology (PV, CSP, Solar water heating systems, solar dryers)
- Solar Greenhouses.

Activity:

- Hybrid System at Wadi El-Natroon, Egypt (HYRESS system).
- Innovative Renewable Energy (RE) Driven - Multi Stage Flash (MSF) System with Salts Precipitator and Nano Filtration (NF) Feed Water pre Treatment (RE-NF-MSF).

Sincerely,



**Prof. Said Mohamed Allam**  
**Vice PRESIDENT**  
**Community Service & Environment Development**  
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