6.3.5 Plant landscapes to minimize water usage

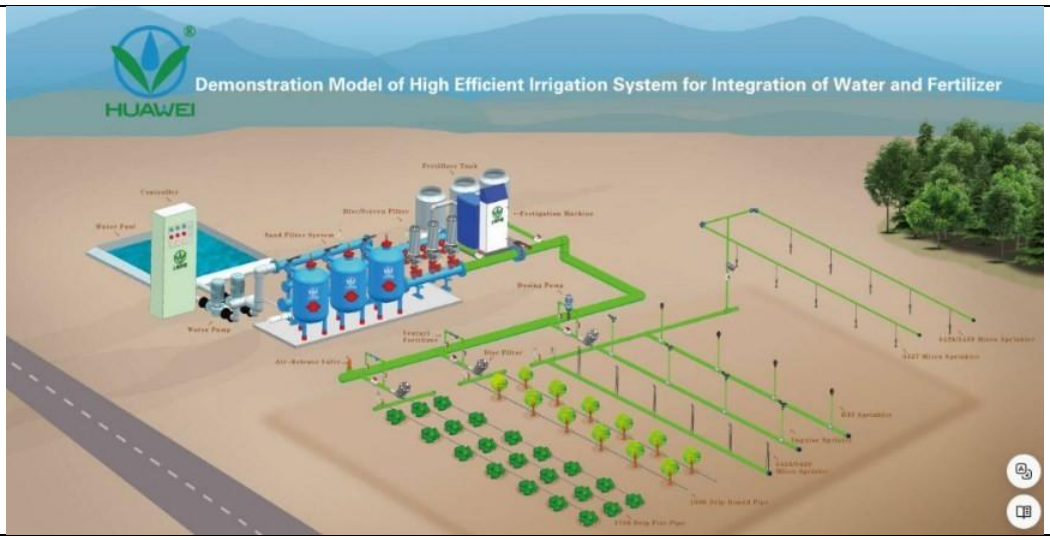
Parks Management Center in Alexandria University

Objectives:

- Carrying out the process of establishing, maintaining, renovating, and developing the university's gardens and green spaces for the various colleges at the university.
- Producing ornamental plants to cover the needs of the university's green spaces.
- Marketing plant products inside and outside the university.
- Participate in providing and presenting scientific plant models to some practical faculties.

- **Green buildings of Alexandria University are designed to reduce environmental impact through efficient use of resources and sustainable practices. The main elements of green building include:**
  - Site Selection,
  - Landscaping and plantations,
  - Water Efficiency (Water Conservation, Rainwater Harvesting, and GreywaterRecycling),
  - Energy Efficiency (Integrating Renewable Energy, and Lighting systems: Installing energy-efficient lightingsystems such as LED)
  - Waste Management (waste reduction, and composting).

- All pedestrians must use designated pathways for walking, which are clearly marked and maintained. All covered walkwaysare lined with cultivated plants, not only increasing the greenery on campus but also providing a refreshing environment for students and staff as they walk through.
- Alexandria University new initiative is to use all the roofs of Alexandria University buildings that are suitable for the implantation of the new Solar Station is completed.
- IoT-based agroecological farming project has been launched at Alexandria University Farm, spearheaded by Shanghai Water Saving Irrigation Corp.



An innovative IoT-based agroecological farming project has been launched at Alexandria University Farm, spearheaded by Shanghai Water Saving Irrigation Corp.

- **Samdha Company, founded by Musaad Darwish, a student in the Department of Civil and Environmental Engineering at the Faculty of Engineering in 2022.**
  Logo: Green growth, Granted Crops! Feeding natural, Eating Natural!
  Vision: Reaching agricultural planting free of chemicals and trying to reduce water use in desert lands.
  Activity: Making full use of organic waste and agricultural waste and converting them into products used for the purpose of developing the agricultural system, such as fertilizer.
  Process: Using natural organisms that decompose organic waste, from which vermi compost and Frass fertilizer are obtained without any chemicals, "100% natural process."
  Actual products: - Vermicompost powder, which has a high biological value and is used internationally.
  -Liquid Vermi-T fertilizer is used with irrigation or when spraying.
  -Frass fertilizer rich in chitin.
  Products in development: Extracting cellulosic materials from agricultural waste to obtain biodegradable materials that retain water for long periods for use in desert lands to combat the issue of water shortage that the country is currently suffering from.
  Roadmap: The idea began in October 2020 during the Local Conferences of Youth (LCOY) for getting rid of organic waste that causes a bad environmental impact, such as the emission of methane gas, which contributes greatly to the phenomenon of global warming and climate change that we are experiencing now.
  1- The project started with German Agency for International Cooperation (GIZ) with an initial idea, developed the business plan, and the competition ended with the fourth best project.
  2- Currently joining the Heliopolis University incubator and Intecmet Egypt, the project was selected from among 12 projects to compete for a financial prize worth 10-30 thousand euros for three of the 12 companies.
  3- An opportunity to travel to Greece affiliated with the incubator on May 25 (2021) to attend an investment conference and pitch the project in search of an investor.
  4- Engineer Fatima Badawi and Engineer Amr Al-Adawi, founders of ESSCo, are partners with the land and a sum of money as "business partners."
  5- The project was accepted into the Al-Forsa program with Lamis Al-Hadidi and filmed in May 2022 in Alexandria.
  6- The project was also funded by the European Union's MADE project to help manufacture water conservation products in desert lands.
  7- Participation in presenting products in the Cairo Techni Conference.
  What has been accomplished: Twenty tons of organic waste have been converted into fertilizer so far.
  By the end of 2023, we aim to produce 100,000 ton, in addition to teaching a number of farmers how to deal with waste leaving their land to reach zero waste and a sustainable environment.
  Clients: Organic farms - soilless crops - regular agricultural lands (the possibility of converting acres into organic agriculture within a period of time).
  Offending products: Black soldier larvae (BSF), which are a good source of high-protein casing, 40-60%. They can be squeezed to extract oils for cosmetics manufacture. Its protein extract can be sold to pharmaceutical companies.

The botanical garden (ALEX) at the Faculty of Science

- The Botanical Garden (ALEX) at the Faculty of Science in Moharram Bey, Alexandria University, was established in 1942. It is one of Egypt's richest scientific gardens, with over 500 plant species from various global regions. The garden supports both education and research, serving students from multiple faculties by providing hands-on learning in plant sciences like morphology, anatomy, and classification. It also houses four greenhouses, allowing cultivation of tropical and foreign plants.

- In the open areas of the garden, various trees and seasonal annuals are planted, providing students with a complete opportunity to study these different plant types. What makes the garden of heritage and environmentalimportance is that it contains plants from different geographical regions: tropical, subtropical, temperate, and some Egyptian and Arab species. Some of these species are rare, and others are threatened with extinction and degradation. The botanical garden's activities are not limited to education but extend to scientific research. The garden provides researchers from the departments of Botany, Zoology, and Marine Sciences with the facilities to conduct their research, continuing its mission of serving science.
- Currently, the garden is one of the richest scientific gardens in Egypt, with its diverse plant species. Internationally recognized and registered with the International Association of Botanical Gardens, ALEX actively participates in global conservation efforts, including preserving endangered species and maintaining a seed bank. A comprehensive inventory of species is underway, along with conservation efforts for rare plants. The garden holds significant environmental and heritage value due to its collection of rare and diverse species.
- A book cataloging 500 species is being published, supporting the garden's educational and research mission. Therefore, scientifically cataloging and identifying them is a preservation of this heritage. This is in addition to the primary goal for which the garden was established: educating students, scholars, and researchers in basic sciences, practicing and observing them practically to understand the value of this natural wealth and preserve itfor continuous benefit. Therefore, they have been collected and classified in a book containing approximately 500plant species, including ferns, conifers, gymnosperms, and angiosperms, in more than 540 pages supported by original colored photographs, which is now under publication.

Green House (Faculty of Veterinary Medicine)

Plantation (Faculty of Veterinary Medicine)

	
Green House (Faculty of Veterinary Medicine)	Plantation (Faculty of Veterinary Medicine)
	
Botanic Garden (Faculty of Science in Moharram Bek)	Botanic Garden, Green House (Faculty of Science in Moharram Bek)