

SUSTAINABLE WATER EXTRACTION TECHNOLOGIES

[In view of the role of Princess Nourah bint Abdulrahman University in achieving environmental sustainability, and its belief in the importance of active students' participation in various international forums and events related to the environment.](#)

There is a wastewater connection line from the building of the King Abdullah Petroleum Studies and Research Center with the station, where all the wastewater generated from the center is treated at the university's sewage treatment plant, and the quantities of water that are treated during the current period are about 300 cubic meters per day.

Princess Nourah University Water Station uses MBR technology

The wastewater treatment plant at Princess Nourah Bint Abdulrahman University uses MBR technology to treat wastewater, with a maximum capacity of 13,000 cubic meters per day, according to a plan to reach a future capacity of 13,000 cubic meters per day.

Wastewater is received from the university's sewage system and water lifting plants at the wastewater treatment plant and treated water is pumped from the plant to the main irrigation water reservoir in the service area where this water is used for irrigation purposes at the university, in addition to the water treatment membranes in the plant equipped with various reservoirs, equipment and equipment, as well as a control system for this plant and a laboratory for water sample analysis and quality control, producing high quality sterile water With chlorine according to the required concentrations before pumping it to the

irrigation tank, the production of the sewage treatment plant from treated water ranges from 2,500 to 3,500 cubic meters per day, and depends on the percentage of works at the university where production decreases during the summer vacation of the university.

There is also a sewage link from the Building of the King Abdullah Center for Petroleum Studies and Research with the plant, where all the amounts of sewage produced from the center are treated at the university's wastewater treatment plant, and the amount of water treated during the current period is about 300 cubic meters per day.

The university's irrigation work is mainly based on treated water from the sewage plant as well as water produced from the well treatment plant as well as treated sewage supplied by the National Water Company through a line established by the company for this purpose, and the irrigation water needs during the summer period are estimated at about 14,000 cubic meters per day, which drops to about 9,000 cubic meters during winter and low temperatures, where these waters are used. To irrigate the various crops found in the various university areas and in the following numbers and areas: palm trees with more than 16,000 palm trees, various shade trees with more than 12,000 trees, an estimated land grass area of about 270,000 square meters and a green vegetation cover with an estimated area of about 400,000 square meters and shrubs with an estimated area of about 230,000 square meters.



Figure(1)

[Water Recycling Program](#)

The purpose of the PNU Wastewater Treatment Plant is to treat the total wastewater that will be collected from various university applications,

both suspended solids and biodegradable organic matter will be reduced through the treatment stages to an acceptable limit . The plant is capable of producing treated water that meets the standards for water reuse in volume and quality. All the treated effluent is used for irrigation with an average of 3,500 m².

Water Recycling Program (Princess Nourah University)



Water Conservation Program

PNU is developing a water conservation program, which includes the following activities:

Rainwater harvesting

Recycle / reuse water within the facilities

Advise for the protection of water resources and acknowledge any success stories about conserving water within the campuses.

[Treated water consumed](#)

The purpose at PNU Sewage Treatment Plant is to Treat the total raw sewage that will be collected from various university applications, both of

suspended solids and biodegradable organic matters will be reduced through the treatment stages to an acceptable limit. The plant is capable to produce treated water that meets water reuse standards in volume and quality. All the treated effluent/water consumed are used for irrigation with an average of 3500 m².



Groundwater project

A water well was drilled in order to carry out groundwater monitoring at PNU. This project is under development and its purpose is to establish the amount of groundwater in the well and treat this water for human consumption or for some activities on campus.

Depth: 3-6 meters

Diameter: 1.5 inch
