

WATER STATION AT PRINCESS NOURAH BINT ABDULRAHMAN UNIVERSITY

6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all

6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity

6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

6.A By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

[6.B Support and strengthen the participation of local communities in improving water and sanitation management](#)

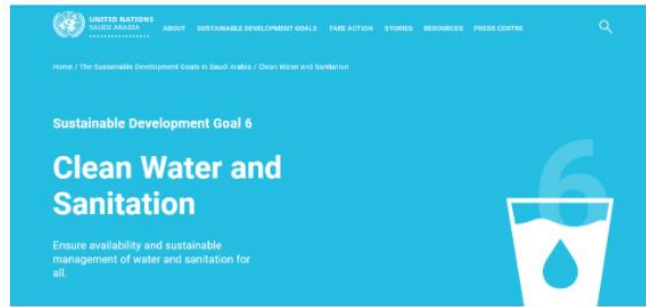


Figure (1)

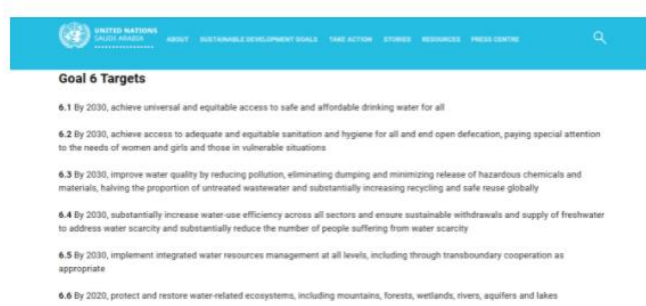


Figure (2)

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.



Figure (3)



Figure (4)

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



Figure (5)

[Water Conservation Program Implementation](#)

Princess Nourah University has opted for policy formulation leading to the implementation plan and water conservation guidelines at the university.



جامعة الأميرة نورة بنت عبد الرحمن
Princess Nourah Bin Abdulaziz University

السادة الزملاء والزميلات،
حيث أن تعاون مستخدمي المباني ودعوتهم هم عنصر مهم لنجاح برنامج توفير الطاقة والمياه في الجامعة،
فكما يلي بعض الأساليب المقترحة لتوفير استهلاك الطاقة والمياه تتمثلها من قبل مستخدمي المباني:

- الالتزام بأعدادات منظم الحرارة (الثرموستات) لتبقي ضمن المدى من 21-24 درجة مئوية
- استهلاك الطاقة الكهربائية للأجهزة بطريقة موفرة والتشجيع على الاستفادة من الإضاءة الطبيعية و وحدات اضاءة المكتب الشخصية.
- إغلاق الأتار في المكاتب عند الخروج منها لوقت طويل، وإغلاق الأتار في المساحات المشتركة وقاعات الاجتماعات وغيرها عند خروج آخر شخص من هذه المسائل.
- جعل ترشيد استهلاك المياه أولوية يومية، والحفاظ على مصادر المياه كحط حياض
- التكد من إغلاق جميع الأجهزة الإلكترونية والكهربائية تماماً عند الانتهاء من استخدامها.
- الحرص على حذف النفايات في المسائل المكونة لها نسبة من قدر الطاقة التبريدية وخاصة توازن الهواء و توزيعه داخل المباني وبالتالي استخدام أكثر لطاقة الغير ضروري.

وشكراً لعنن تعاونكم!

Dear Colleagues,

As we consider Occupants' cooperation and support is a crucial element of success to the Energy Conservation Program, kindly find below, several "No-cost" energy conservation opportunities to be circulated between building occupants:

- Keep healthy HVAC thermostat setting ranges in your space (20 °C- 24 °C)
- Whenever possible, try to ensure responsible energy use for lighting, and utilize day-lighting and task-lighting.
- Turn-off the lights if you intend to leave your office for a long period, and turn-off the lights in shared spaces (conference room, common areas, etc...) if you are the last one to leave.
- **Keep responsible use of water as a priority & water-saving as a lifestyle**
- Make sure to turn-off equipment when not used and avoid stand-by mode whenever possible. ("Shut down" takes a second, but makes a difference)
- Avoid opening windows in Air-conditioned spaces, as it disrupts air-balance, alters inside air conditions, and causes unnecessary loss of cooling energy.

Thank you for your cooperation!

Figure (6)



Figure (7)

Dear Villa Occupants,
As we consider Occupants' cooperation and support is a crucial element of success to the Energy Conservation Program, below are several energy saving habits, and it is appreciated if they are circulated and encouraged between building occupants:

- Keep healthy Air-conditioning thermostat setting ranges in your space (20 °C- 24 °C).
- Make sure to turn-off the lights when leaving your villa.
- Make sure to set Air-conditioning temperature to 28 °C when leaving for long periods.
- Keep responsible use of water as a priority & water-saving as a lifestyle.
- Kindly do not waste water on activities such as: Irrigation and Floor cleaning using hoses; protecting water is our shared responsibility.
- Please note that water-use for manual car-washing is prohibited.
- Make sure to turn-off equipment when not used and avoid stand-by mode whenever possible. ("Shut down" takes a second, but makes a difference)
- Kindly cooperate with maintenance personnel; their job is for your service and benefit.
- Avoid opening windows in Air-conditioned spaces, as it disrupts air-balance, alters inside air conditions, and causes unnecessary loss of cooling energy.



جامعة الأميرة نورة بنت عبدالرحمن
Princess Nourah Bin Abdulrahman University

**الأساليب المقترحة لسكان الفلل
لترشيد استهلاك الطاقة و المياه**

**Recommended Energy and Water
Conservation Habits
For Villa Occupants**

Figure (8). Brochures posted as an energy conservation program which support the water conservation program

Unit on water protection and conservation:

PNU has a unit on water protection and conservation. The unit must supervise and conduct a series of maintenance and inspection of water savings. Some of their task are as follows:

- Inspection each single piping layout within the campus for the routine works.
- Reports any failure/problem incurr during the utility bill record.
- Conduct a series of self-monitoring within the zoning and perimeter of water coverage.
- Training staff for the competencies of water works.
- Analyze the water saving level each month.
- Yearly workshop/meeting for the improvement of data collection.
- Promote the sustainable water conservation and protection.

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[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.

[Sewage Disposal](#)

The purpose at PNU Wastewater 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.



Figure (9)



Figure (10)

Technology used:

A combination of both Extended Aeration system and MBR technology in order to achieve the best water quality (micro-filtrated water) among other typical wastewater treatment processes and at the same time it saves space and cost. The primary treatment is designed to handle up to a daily flow of (10,400 m³/d) in phase I, and will adsorb the future expansion up to (13,000 m³/d) all in one stream.

In the another hand, phase I-biological treatment will be able handle up a daily flow of 10,400 m³/d in four streams, and able to handle the future expand up to (13,000 m³/d) in five streams.



Figure (11)



Figure (12)

[Recycling Program for University Waste](#)

Recycling programs, policy and posters encouraging staff and students to recycle waste. Program to reduce the use of paper and plastic in Campus. The recommendations emphasized the importance of effective and supportive participation in the elimination of contamination by

limiting the use of all types of plastics, and the need to move to the use of safe alternatives such as biodegradable plastics alternatives.



Figure (13)



Figure (14)



Figure (15)



Figure (16). Brochures posted related to a two awareness programs prepared to encourage student and staff to reduce the use of paper and plastic.



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