



Water Reuse

University : Al Balqa Applied University
Country : Jordan
Web Address : bau.edu.jo

SDG 6.4.2

[6.4.2-A] Water re-use measurement



المركز الدولي لبحوث المياه والبيئة والطاقة
International Research Center for
Water, Environment & Energy

[BAU's International Centre for Water, Environment, and Energy](#)

(IRCWEE) Supports consciousness, education, and training on water conservation and recycling. Founded in 2009, the center works as a nucleus of seminars, workshops, and training programs involving integrated water resource management, wastewater reuse, environmental protection, and renewable energy.

دائرة الهندسة



اقسام الدائرة

- قسم الدراسات و المబادرة
- قسم اقتصاد
- قسم الماء و الدليل
- قسم الطاقة و الماء و الكهرباء
- قسم إدارة اعمال الدار
- قسم الماء
- قسم الدراسات
- قسم الدراسات

كلام أقسام دائرة الدراسات

تقوم الدائرة بإعداد المفاهيم المائية و تطبيقها على الواقع من خلال إقامة العديد من الأنشطة والدراسات العلمية والبحثية و تطبيقها في الواقع من خلال إقامة العديد من الأنشطة والدراسات العلمية والبحثية.

كلام عن أهم المشاريع المائية

- تخدم صناعة الأسمنت بجامعة البتراء للطاقة المائية - ٢٠٠٦ الذي تم افتتاحه من قبل العاهل الأردني الملك عبد الله الثاني.
- تخدم صناعة الورق العام لجامعة البتراء للطاقة المائية - العامل.
- تخدم مشروع الماء الذي أقامه الصناعيون للطاقة المائية وتطبيقاتها في الشرق الأوسط بمنطقة وادي عربة في الأردن.
- تخدم العامل الماء.
- تخدم مشروع الماء الذي أقامه الصناعيون للطاقة المائية - العامل العامل.
- تخدم مشروع الماء الذي أقامه الصناعيون للطاقة المائية - العامل العامل.

[Engineering Department](#)

The **Engineering Department** is responsible for the **planning, implementation, monitoring, tracking, and evaluation** of all **water management programs** across the university. It also develops and applies **enhancement methods based on water consumption tracking reports**, ensuring continuous improvement in water efficiency and sustainable resource use.



No.	Sustainable Development Goal
6	Clean Water and Sanitation

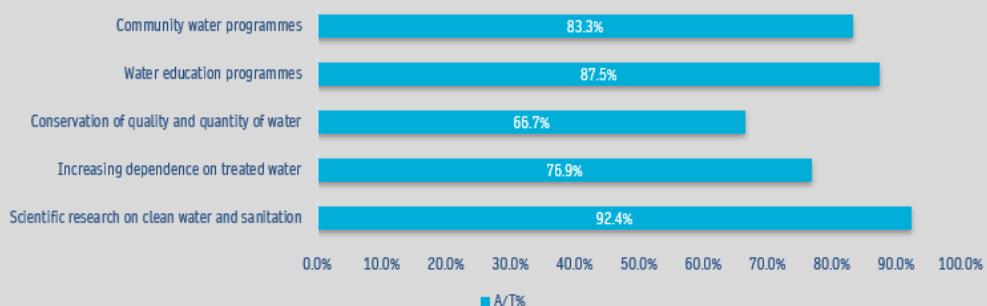
81.4%

6 CLEAN WATER
AND SANITATION



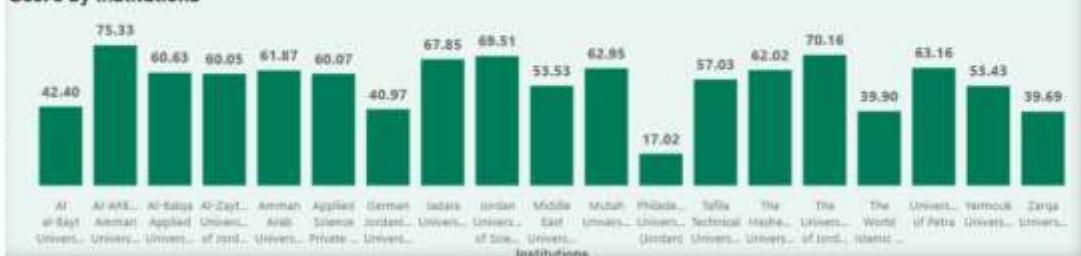
Code	Sub-Goal	2025		
		Achieved	Target	A/T%
A	Scientific research on clean water and sanitation	171.00	185.00	92.4%
B	Increasing dependence on treated water	50.00	65.00	76.9%
C	Conservation of quality and quantity of water	4.00	6.00	66.7%
D	Water education programmes	7.00	8.00	87.5%
E	Community water programmes	10.00	12.00	83.3%

Clean Water and Sanitation



SDG 6 – Clean Water and Sanitation: Institutional Progress and Achievements (2025)

Score by Institutions



SDGs Name

SDG01	SDG18
SDG02	SDG11
SDG03	SDG13
SDG04	SDG15
SDG05	SDG09
SDG06	SDG19
SDG07	SDG17
SDG08	
SDG09	

Note: Click On any [\[Institution\]](#) OR [\[SDG\]](#) for Details.

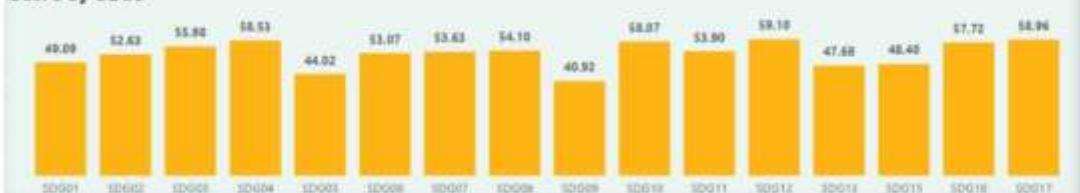
4

SDG-Institution Participation Count

24%

Institution Participation Percent of 17 SDGs

Score by SDGs



HOME



THE Impact Rankings 2025

Data & methodology

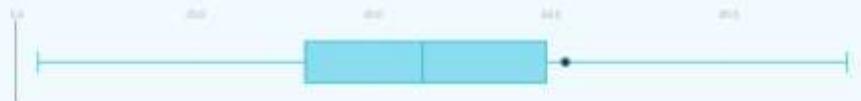
SDG 6

6

CLEAN WATER AND SANITATION

QUALIFYING: 20% OF OVERALL

SCORE 61.7 201-300 out of 1042 institutions



Select reference group
Institutions with > 10 ranked institutions cannot be selected
Worldwide

Select individual peers
Search by institution name
Continent or country or region
Filter by
Sort by: Name A-Z
Clear search

1841 listed 0 of 102 selected

Name	Rank
IIIE - International Institute for Water and Environmental Engineering	401-600
Aalborg University	5
Abdes Lekhous University of Khon Kaen	401-600

57.2 Research on water

21% OF THE 500



59.2 Water consumption per person

11% OF THE 500



Tracking the Achievement of SDG6 by Dashboard

THE Impact Rankings 2025

Data & methodology

SDG 13

13
CLIMATE ACTION

41.1 401-600 out of 1089 institutions



Select reference group
Institutions with > 10 ranked institutions cannot be selected
Worldwide

Select individual peers
Search by institution name
Continent or country or region
Filter by
Sort by: Name A-Z
Clear search

1988 listed 0 of 251 selected

Name	Rank
IIIE - International Institute for Water and Environmental Engineering	401-600
Aalborg University	5
Abdes Lekhous University of Khon Kaen	401-600

30.2 Research on climate action

11% OF THE 500



40.9 Low carbon energy use

11% OF THE 500



Tracking the Achievement of SDG13 by Dashboard



Policy Name:	Water Re-Use		
Code:	BAU 025	Issue date:	2016
Issue No:	2018, 2020, 2023	Confidentiality status:	Public
Accreditation:	Quality Assurance and Continual Improvement Council (QACIC)		

Responsibilities:

Implementation:	All BAU's Academic Colleges, Administrative Units, Scientific Centers
Revision and improvement:	Development and Quality Assurance Center

Policy (Arabic):

تلتزم جامعة البلقاء التطبيقية بالحفاظ على مصادر المياه المتنوعة ودعم الهدف السادس من أهداف التنمية المستدامة لائتمان المتحدة، والذي يركز على المياه النظيفة والصرف الصحي. ونهدف إلى تحقيق ذلك من خلال البحث العلمي التطبيقي، وبناء شراكات محلية وإقليمية ودولية قوية، وتنفيذ المشاريع والبرامج والمبادرات التي تدعم الاستخدام المستدام للمياه. وتشمل جهودنا توظيف التكنولوجيا المناسبة لتحسين استهلاك المياه، وزارة البياتات المرنة، وحماية مصادر المياه من التلوث، وتعزيز حصاد مياه الأمطار، وتطوير برامج معالجة وإعادة استخدام مياه الصرف الصحي، وتعزيز ثقافة الحفاظ على المياه، وتشجيع ممارسات إعادة التدوير داخل الجامعة والمجتمع الأوسع.

Policy:

Al-Balqa Applied University is committed to conserving diverse water resources and upholding the United Nations' Sustainable Development Goal 6, focused on clean water and sanitation. We aim to achieve this through applied scientific research, building strong local, regional, and international partnerships, and implementing projects, programs, and initiatives that support sustainable water use. Our efforts include employing appropriate technology to optimize water consumption, planting resilient vegetation, protecting water sources from pollution, enhancing rainwater harvesting, developing wastewater treatment and reuse programs, promoting a culture of water conservation, and encouraging recycling practices within the university and the broader community.

Water Re-use Policy



BAU Water Consumption Tracking



About the Project

The WATER4MED project aims to develop innovative solutions for water management in the Mediterranean region, focusing on adaptation to increasing climate change challenges.

Our goal is to improve water governance models and propose solutions for water storage and flood mitigation.



WATER4MED



MODIFIED SEPTIC TANKS TREATING DOMESTIC WASTEWATER: COMPARISON BETWEEN SUSPENDED AND ATTACHED GROWTH SYSTEMS

Dead Sea Project



Objective

This research project investigates the potential use of a low-cost modified septic tank using two modules of bacterial growth (suspended and attached) to treat domestic wastewater. The plants will be optimized to comply with the Jordanian Standard JS893-2006.

Technology description

Two septic tanks with dual operational conditions (anaerobic and aerobic) are constructed and operated in parallel. Unlike the suspended growth reactor, the anaerobic/aerobic fixed bed reactor contains conjugated plastic sheets, where the microorganisms are attached to the surface of the packing material and degradation processes take place.

The wastewater flows into the first pre-treatment chamber and transferred by gravity to the next two anaerobic chambers and eventually to the aeration chamber. Compressed air is introduced to the aeration chamber through diffusers and serves as a mixing device that promotes the growth of microorganisms and thus degradation processes.

Research topics

Treatment process will be optimized by varying operational parameters that affect the treatment performances and efficiencies, e.g. hydraulic loading (retention time) rate, organic loading rate, aerobic and anaerobic conditions, intermittent aeration rate etc.

The influences of microorganisms growth module on removal process will be monitored by measuring TSS, pH, Temp, COD, BOD, nutrients, faecal indicators, pathogens (both influent and effluent) on a regular basis.

Adaptation of the technologies under local climatic conditions in Jordan, depending on changes of influent suspended solids and organic loading.

Conventional anaerobic septic tank

غران التخلل المعلق الأفوار

الأهداف
يهدف هذا المشروع العربي لتحسين إمكانية استخدام نظام معلق
النفاث العلوي على معايير التكنولوجيا (العلوي والعلوي) لمعالجة
مياه الصرف الصحي، بينما معافاة المعايير من أعلى الحصول على هذه
سلسلة المراسيم التقنية الأردنية (JS893-2006).

توضيف التقنية

يتم تغطية الماء الخام إلى الماء (العلوي حيث يتم عملية
النفاث العلوي) ويمكن نظام الماء الكثيف العلوي، فإن النفاث
العلوي والعلوي في غرفة التخلل هو نظام الماء الكثيف
النفاث العلوي على معلق سلسلة بذريعة يحيط بهم طبقة رقيقة
من الكثافة على جدرانها السطحية بحيث تم ذلك على معلق
النفاث.

يتم تغطية الماء الخام إلى الماء (العلوي حيث يتم عملية
النفاث العلوي) ويمكن تغطية الماء إلى الماء العلوي بذريعة
العلوي ويعدها إلى الماء العلوي العلوي يتم من العوارض داخل الماء
العلوي تزويق الكثافة بالذريعة بالذريعة تزويق الماء العلوي
نقاء الالات العلوي (العلوي) في الرسم التفصيلي وذريعة في
غرفة التخلل العلوي هو الماء العلوي.

موضع النجع

1. سوق يتم تغطية معلق النفاثة من خلال تغطية المعايير
النفاثة التي تؤثر على نقاء وذريعة الماء العلوي على معلق
تغطية النفاثة التي تغطي الماء العلوي (تغطية العلوي العلوي)
النفاثة العلوي والعلوي والعلوي والعلوي والعلوي والعلوي
العلوي والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي

2. سوق تغطية تغطية الماء العلوي (الماء الكثيف العلوي والعلوي)
على معلق الماء العلوي من خلال تغطية الماء العلوي العلوي العلوي
والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي
والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي

3. تغطية النفاثة المستخدمة على طرفي الماء العلوي في المعلق
العلوي على التغطية في أعلى الماء العلوي العلوي والعلوي
العلوي والعلوي والعلوي والعلوي والعلوي والعلوي والعلوي

Anaerobic/aerobic modified septic tank

غران التخلل المعلق الأفوار

Benchmarking Study on Modified Septic Tanks for Domestic Wastewater Treatment Using Suspended and Attached Growth Systems



[!\[\]\(47d1411aadf4583e0f0c35490d7d8747_img.jpg\) SMART
International Research Project](#)

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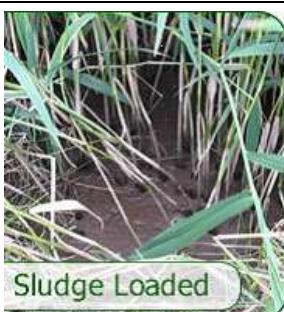
SMART

Sustainable Management
of Available Water Resources
with Innovative Technologies

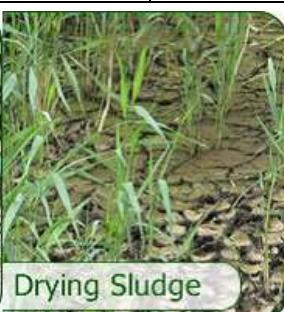
[SMART](#)

Sustainable Management of Available Water Resources with Innovative Technologies





Sludge Loaded



Drying Sludge



Final Product



Integrated Wastewater Management in Jordan

In view of climate change, a dynamic population development and increasing refugee influx, efficient water management has become an existential challenge, especially for arid and semi-arid regions. Jordan is one of the world's most water scarce countries, where groundwater resources are indispensable for water supply.

Jordan is striving to set a regional example of a successful implementation of IWRM concepts and it is expected that it will be the reference case for IWRM knowledge, methods, and application in the Middle East.

The implementation of IWRM concepts will help to mitigate extreme water scarcity and protect groundwater resources in Jordan. The Jordanian Ministry of Water and Irrigation has identified the treatment and reuse of wastewater as an essential component of IWRM and Jordan's water strategy.

Photo credits: Andre Künzlemann, Nabil Wafelj, Naser Almansoor, Al-Husni Lee

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Federal Ministry
of Education
and Research



Competence Facility for Decentralized Wastewater Management



Sustainable Management of
Available Water Resources with
Innovative Technologies (SMART)



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HELMHOLTZ
CENTRE FOR
ENVIRONMENTAL
RESEARCH – UFZ



Competence Facility for Decentralized Wastewater Management

Within the framework of the SMART project, the Fuheis Demonstration, Research and Training Facility started its operation in autumn 2009. It demonstrates various approaches for sustainable integrated wastewater treatment and reuse.

Different wastewater treatment systems were installed, as well as an onsite laboratory. The treatment systems are operated with raw wastewater and were further developed and adapted to the Jordanian conditions.

The aim is to demonstrate the robustness of the technologies, their low operation and maintenance requirements as well as the possibility to provide effluent qualities that meet the Jordanian standards for the reuse of treated wastewater.

French Design

- Combines sludge & wastewater treatment
- Raw wastewater applied directly to one filter at a time
- Alternating operation allows sludge to turn into compost.



The Fuheis Demonstration, Research and Training Facility is unique. It allows for direct comparison of technologies under the same climate and wastewater conditions.

Aerated Design

- Combined secondary treatment & disinfection
- Saturated operation
- Air pump provides oxygen & mixing for increased treatment
- Low maintenance requirements



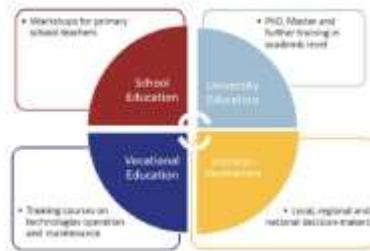
The wastewater treatment technologies at the site include the following technologies:

- Sequencing- and Continuous- Batch Reactors (SBR, CBR)
- Traditional and Modified Septic Tanks (MST)
- Membrane Bioreactor (MBR)
- Sludge Dewatering Reed Bed
- Anaerobic Bioreactors
- Ecotechnologies: Vertical Flow Treatment Wetlands, Aerated and French Design.

Research at the facility focuses on (i) technology optimization, (ii) nutrient recycling, (iii) pathogen removal, (iv) wastewater reuse, (v) sludge management & groundwater recharge.

Agricultural and garden plots are dedicated to study the reuse of treated wastewater. The test plots are planted with lemon trees that are commonly produced in Jordan and have relatively high irrigation requirements. Small garden plots demonstrate further possible ways to use treated wastewater at a household level.

Furthermore, the facility serves as Training and Capacity Development platform. It is used by students to conduct their PhD, Master and Bachelor studies or to gain further qualified training. Ministries, local companies, donors and further interested parties use the facility to increase their knowledge on the different wastewater treatment systems installed, including their operation and maintenance requirements.



Fuhais Station





Al-Karak Campus Site Wastewater Treatment Station



[New Recycled Water Treatment Station at Jerash Campus](#)



BAU Irrigation System Using Treated Wastewater



Training courses and workshops





The “[WATRA PROJECT](#)” a series of training workshops and study tours where organized by BAU, IHE Delft, and funded by the World Water Academy (WWA) in the Netherlands



Raising water and environmental awareness among children / water treatment techniques



[A workshop at Al-Balqa Applied University to review modern technologies for treating olive water resulting from olive presses.](#)



[Collaboration between BURDAA Germany and Al-Balqa Applied University](#)



Practical training for students of the Wastewater Treatment Department at inside Al Balqa Applied University Station for Excellence in Water and Environmental Engineering and Technology