الجامعة الأورومتوسطية بفاس
EUROMED UNIVERSITY OF FES
UNIVERSITÉ EUROMED DE FÈS

SDG6 Report

Clean Water and Sanitation

2023

6 CLEAN WATER AND SANITATION

SDG6 Report : Clean Water and Sanitation

Water Policy at the UEMF

The UEMF campus is an Eco-Campus which meets the best international standards in terms of sustainable development. It was certified by COP 22 and recently obtained the French-speaking responsible innovation label.

Actions made

- Raising awareness among the university community regarding the reduction of water consumption and periodic tours of the Heritage Department to detect possible leaks and monitoring the application of the measures put in place;
- Recording of water consumption statistics and decision-making in the event of leaks or waste;
- Courses and seminars concerning sustainable development (one of the seven pillars of transversal teaching within the UEMF) and environmental responsibility.
- Using push taps
- Installation in progress of pipes and basins for rainwater recovery: the UEMF is connected to the urban network;
- Recirculation of gray water (in progress);
- Uses of wells for irrigation and watering;
- Closed circuit water cascade;
- Free drinking water fountains
- Drinking water available and free for the UEMF community;
- Well for watering and irrigation
- Supplying toilet flushes (WC) with recovered water
- Lake for rainwater collection
- Development and management of green spaces: The UEMF adopts reasoned management of its green spaces adapted to the hot and continental climate of the Fez-Meknes region. “Drip” watering allows significant water savings. The majority of trees are olive trees (which are heat resistant and do not consume much water).

Teaching and research-innovation actions

The UEMF has several training and research programs concerning sustainable development in general and water in particular:

- Master in Environmental Engineering and Water Management;
- Master in Renewable Energy and Energy Efficiency
- Master in Design and Engineering of Green Buildings;
- Master in Transport and Sustainable Mobility;
- Civil Engineering (water resources training modules, etc.)
- Architecture

Modules and courses taught:Water-water treatment-Fluid mechanics - Energy and environment-Analytical chemistry and environment, water, soil and air-Water quality in watersheds - Aquatic ecology -Remote sensing and GIS-Hydrology, urban hydrology and hydrogeology-Water treatment-Modeling of hydroecosystems- Water management, dams, runoff, water pollution, water saving, etc.

Technology platforms

The UEMF has several high-level technological platforms in different areas of water analysis and water chemistry:

Devices: spectrometers, spectrophotometers, water chemistry, sensors, turbidimeters, process photometers, metal analyzers, COD analyzers, etc.

These platforms are shared and are used for training by and for research and also to conduct partnership and finalized research. They are also the tool allowing teacher-researchers and students to imagine, design and develop new devices, processes and products with the objective of technological transfer to the national private sector or the creation of new startups and spinouts. They are also made available to partner universities, particularly those in the Fès-Meknes and national regions, and also to companies to support them in their innovation strategies and strengthening their competitiveness in the face of a very competitive international environment.

Partnership

Participation in the development of policies at local, regional and national levels to contribute to the water economy.

Reduction in drinking water consumption

Two objectives are defined for the demand for drinking water:

- Limitation of sanitary water needs, for example thanks to hydro devices- ethrifty.
- Limit the use of drinking water for uses other than “food” and “personal hygiene” (HQE).

Thus, to meet the first requirement, targets for maximum flow rates are assigned to the different types of sanitary devices:

Dual-control flush 3L/6L-Urinal 1L-Sink faucet 3L/min Shower 6L/min.On the other hand, drinking water is not necessary for some uses such as WC, watering and maintenance (cleaning) of the building.

In such cases-Lhas, gray water as well as rainwater can afteres treatment replace l'potable water. This therefore requires a second water network which is not potable on the plot and involves significant water savings.

The water to be managed on the site is of four types: - Rainwater - Gray water, or lightly loaded wastewater - Highly loaded sewage water - Wastewater leaving the kitchens.

Are rainwater-same to be divided into two parts which are the clear reusable rainwater collectable on roofs and with other storage devices as well as the charged rainwater running off on parking lots and roads. In the planned water management and in order to make the best use of the project's potential, clear rainwater is collected over the entire roof surface of the site and then stored in underground concrete tanks distributed regularly throughout the site.

The stored rainwater will be reused either directly for cleaning facades and irrigation or indirectly after a phytorestoration treatment. The water reused directly for cleaning will then be drained via the trenches at the foot of the facades and infiltrated at the same time as the irrigation water thanks to the vegetated surfaces. Contaminated rainwater from roads first passes a hydrocarbon separator in order to decontaminate it and then joins the phytorestoration treatment. Likewise, gray water from showers and sinks is pre-filtered before entering the filter basins.

The wastewater leaving the site's kitchens passes through an oil and grease filter then a heat recovery system (heat pump) in order to recover it and then ends up in the sewers. Sewage water is collected at the outlet of the toilets and sent directly to the sewers.

Water conservation - Underground water tank (fire and sanitary and waterfall, Euromed University of Fez)

Water conservation - Underground water tank (watering, Euromed University of Fez)

Honors

The UEMF campus certified by COP 22

UEMF finalist for The Green Gown Award (2022)

The Green Gown Award or commonly known as "The Green Gown Award" is an award that recognizes outstanding sustainability initiatives undertaken by universities and colleges around the world. It is organized in partnership with the United Nations Environment Program (UNEP) and supported by the AUF, the Association of Commonwealth Universities (ACU) and the International Association of Universities (IAU).

This year, 56 finalists were selected and they represent 19 countries around the world. Among them, we find five establishments that are members of the Agence Universitaire de la Francophonie:

- In Canada: HEC Montreal;
- In France: Institut Mines-Télécom Nord Europe;
- In Morocco: Euromed University of Fez (UEMF);
- In Mexico: National Autonomous University of Mexico and Veracruzana University.

https://ueuromed.org/actualites/annonces-diverses/luemf-finaliste-au-prix-green-gown-award-pour-ses-initiatives

Responsible Campus of the Year

The Euromed University of Fez was named winner of the "RESPONSIBLE CAMPUS OF THE YEAR" Prize, during the ceremony organized in Paris, on Tuesday October 4, 2022, under the effective presidency of the Minister of Higher Education and French Government Research.

The "Responsible Establishment of the Year" category rewards UEMF's commitment to the SDGs and its lasting impact to become an organization responsible for the challenges of the transition in four main areas:

- Leadership and governance;
- Real Estate and Operations;
- Learning, teaching and research;
- Partnership and commitment.

http://ueuromed.org/actualites/annonces-diverses/luemf-laureate-du-prix-campus-responsable-de-lannee

Responsible innovation label


AUF

LABEL INNOVATION RESPONSABLE

INSTITUTION :

Université Euromed de Fès (UEMF), Maroc

PORTEUR DU PROJET :

M. Mustapha BENNOUNA

TITRE DU PROJET :

«PROGRAMME UEMF DURABLE»

Validité : du 26 octobre 2021 au 25 octobre 2024

Prof. Slim KHALBOUS
Recteur

Jean-François LANCELOT
Directeur des Réseaux

Danielle PAILLER
Directrice AUF-MAGHREB

AUF - *Révélateur du génie de la Francophonie scientifique*

AGENCE UNIVERSITAIRE DE LA FRANCOPHONIE

The Responsible Innovation Label was awarded to the UEMF during its first 2020/2021 edition for its project entitled "**Sustainable UEMF program**". This label is valid from 25 10 2021 to 26 10 2024.

The Responsible Innovation Label is intended for higher education and research establishments. Its objective is twofold: to map and promote responsible innovations from French-speaking university establishments around the world, but also to deploy the responsible innovation network to promote synergies between universities, civil society and the socio-economic sector working for the development of a responsible company.

https://ueuromed.org/file/label_innovation_responsable.pdf

People's Choice Award

https://ueuromed.org/es/news/anuncios-varios/trois-etudiantes-de-lemadu-rommagent-le-peoples-choice-award-dune-competition

Study of the hydraulic network of the DAM.MEDINA project inspired by the local oasis water system, and ancestral systems (Khettarat and Seguia) existing in the southern region of Marrakech. Students from the EMADU School of Architecture of the UEMF proposed, in reference to the bordering dam, a veil, a single reinforced concrete element, which acts as a major water pump to irrigate the green spaces of the project.

Prize for Best Oral Communication at the 4th International Congress

The First Prize for Best Oral Communication at the 4th International Congress on "Liquid Effluent Treatment and Environmental Preservation" TELPE-2019 in Hammamet - Tunisia (from December 20 to 22, 2019) was awarded to Pr. Farah El Hassani (Euromed Faculty of Engineering of the UEMF) on the subject: *Contamination of water by metallic trace elements from mining waste in the mining district of Tighza, central Morocco.*

https://ueuromed.org/actualites/cedoc/prix-de-la-meilleure-communication-orale-au-4eme-congres-international

Research work

Our publications can be consulted at the link:

https://ueuromed.org/innovation/scientific-production

Doctoral defense in Science and Technology for Engineering by Ms. Fayrouz EL HAMDANI, under the theme:

Simulation and optimization of a CSP plant for coupling to a direct osmosis desalination process.

https://ueuromed.org/actualites/cedoc/soutenance-de-doctorat-genie-des-procedes

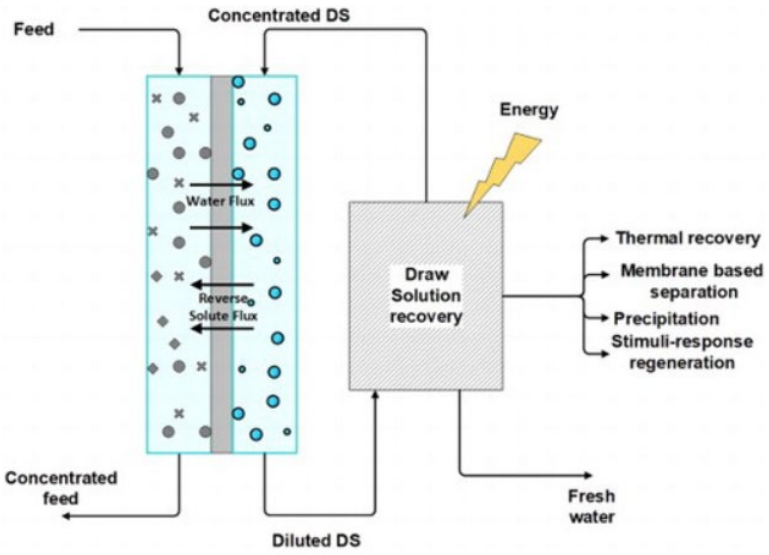
Water desalination by forward osmosis: drawing solutes and recovery methods – review

Imane Chaoui

Teacher. Souad Abderafi

Teacher. Sébastien Vaudreuil

Professor Tijani Bounahmidi



Water production has become a serious concern nowadays due to many environmental and social factors. Conventional desalination processes are considered energy-intensive, as energy consumption represents 50 to 60% of the cost of water production.

In this article, a state-of-the-art update of newly developed suction solutes such as deep eutectic solvents, ionic liquids, smart materials, and conventional FO suction solutes has been carried out. Finally, the challenges, opportunities and future prospects of FO technology were discussed.

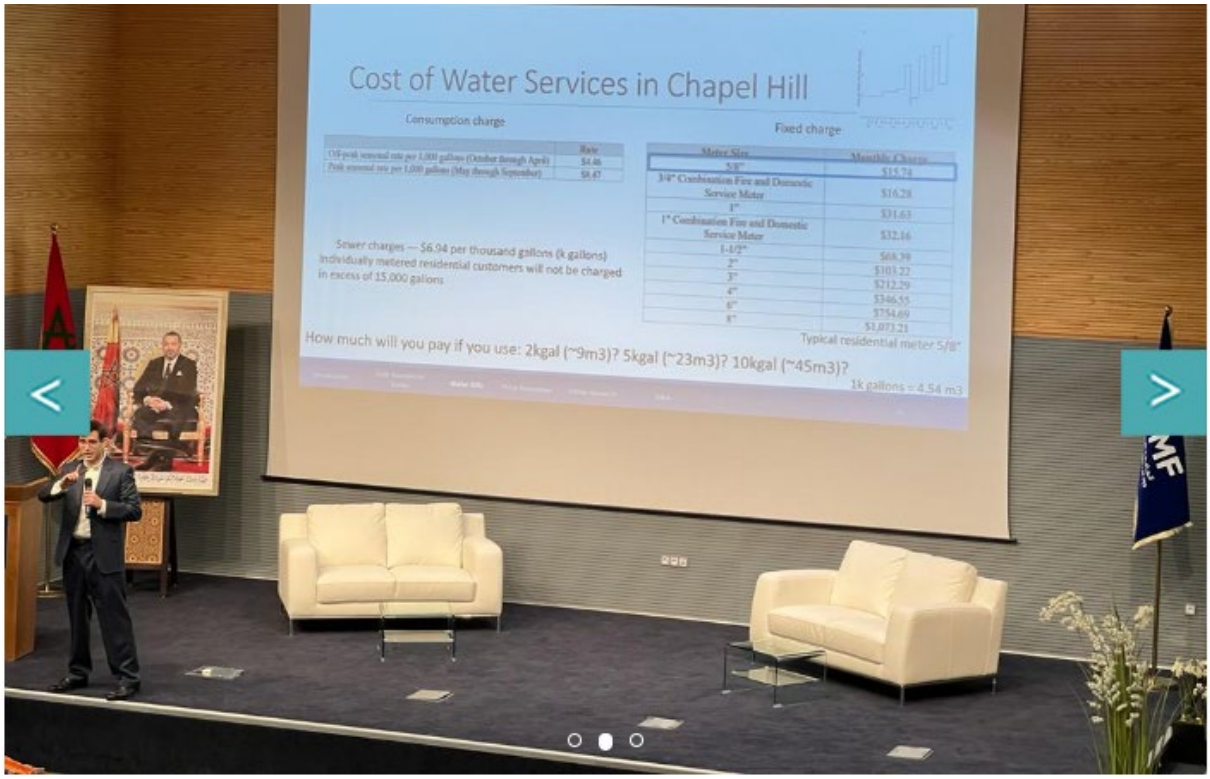
Forward osmosis water desalination: suction solutes and recovery methods – review: Environmental Technology Reviews: Vol 8, No 1 (tandfonline.com)

Conference and broadcast

Management of water supplies by Dr. Ahmed Rachid El Khattabi

Dr. Ahmed Rachid El-Khattabi, recognized specialist in urban and regional planning at the University of North Carolina at Chapel Hill, gave a seminar to engineers in Civil Engineering and Environmental Engineering, students at the Euromed Polytechnic School in the UEMF.

The seminar focused on the concept of water demand management as an approach that treats supplies as fixed in the short term while aiming to adjust demand.



https://www.ueuromed.org/actualites/cycle-de-conferences/gestion-des-aalimentation-en-eau-par-dr-ahmed-rachid-el

Pr. Farah El Hassani analyzes the problem of water stress in Morocco on Al Oula

Pr. Farah El Hassani, professor at the Euromed Polytechnic School, was the guest of a flagship program on Al Oula where she spoke about the management of water resources, a topical theme that causes a lot of controversy of ink.

https://www.ueuromed.org/actualites/annonces-diverses/pr-farah-el-hassani-analyse-la-problematique-du-stress-hydrique-au

https://www.youtube.com/watch?v=gdY0ymhpRuw

Conference: The impact of climate change on water resources March 8, 2023

A conference led by Pr. Lhoussaine BOUCHAOU around the impact of climate change on water resources illustrated by case studies applied to the Moroccan context.

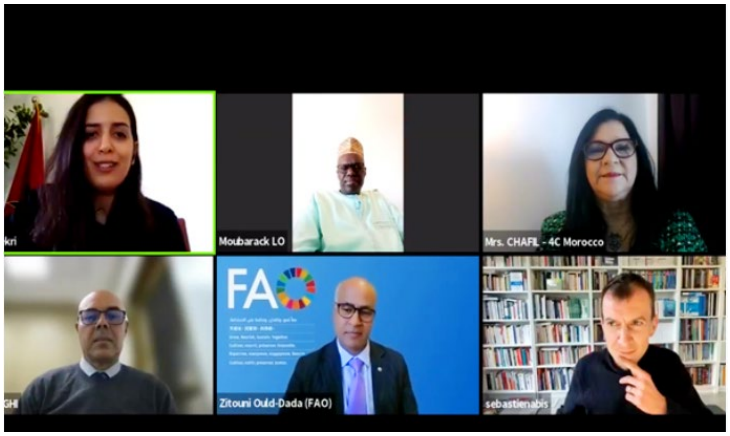
During this event organized by the Euromed Polytechnic School (EPS), Professor BOUCHAOU gave a general overview of existing water resources in Morocco, focusing on the water cycle and linking it to the country's climatic context. in order to introduce the problem of water stress, as well as the necessary characteristics of a balanced process of integrated water management. He then discussed the research structures treating water at the national level, as well as certain current development projects.

The speaker closed his seminar by detailing various research topics including:

- Climatic processes and atmospheric circulation;
- Snow dynamics in the Moroccan Atlas Mountains;
- Groundwater dynamics and water quality;
- Agricultural water management: water saving techniques.

https://ueuromed.org/actualites/cycle-de-conferences/conference-limpact-du-changement-climatique-sur-les-ressources-en

Round table: water, agriculture and food security, building a Nexus approach for the climate change narrative in Africa February 2, 2023



The Research Institute for European, Mediterranean, and African Studies (RIEMAS), Think-Tank of the Euromed University of Fez organized its first round table of the 1.5 Hours for Climate - Africa Moonshot

Initiative, which focused on the theme "Water , Agriculture and Food Security: Building a Nexus Approach to the Climate Change Narrative in Africa".

1.5 hours for Climate – Africa Climate Moonshot Initiative, is a project supported by RIEMAS, 4C Morocco, Euro-Mediterranean Economists Association - EMEA, Mercure Cab Fatima B. NDOYE and Positive Agenda Advisory. These monthly thematic meetings aim to bring together high-level guests and regional experts around major issues related to climate action in order to contribute to the creation of a dynamic conducive to advocacy in favor of a climate agenda anchored in African realities ahead of COP28.

This round table was moderated by Professor Hafsa El Bekri, teacher at Euromed Business School and Co-Director of RIEMAS.

https://ueuromed.org/actualites/ateliers-workshops/table-ronde-eau-agriculture-et-securite-alimentaire-construire-une

https://www.youtube.com/watch?v=MCPCJ-UocqA

Educational visit to the Al Wahda dam, currently the largest hydraulic infrastructure in the Kingdom May 6, 2023

Students of the first year of the civil engineering cycle at Euromed Polytechnic School, accompanied by their teacher Mr. Issam Al Korachi, carried out, on May 6, 2023, an educational visit to the Al Wahda dam, currently larger hydraulic infrastructure of the Kingdom.

The students received detailed explanations from Mr. Kassemi, engineer at the Sebou Hydraulic Basin Agency, and Mr. Tantaoui, head of the dam, particularly with regard to the type and structure of the development, the nature of the hydroelectric station, as well as the operating principle of the ancillary works of the dam, such as spillways and gates.

Educational visit to the Al Wahda dam, currently the largest hydraulic infrastructure in the Kingdom

CLUB WE GREEN IN ACTION: » IMPROVE THE IFRANE NATIONAL PARK: LET'S OPEN OUR EYES! »

Saturday October 28, 2023; the "We Green" club of students from the Euromed University of Fez (UEMF) organized an awareness day for the benefit of its members through the visit of several environmental centers as well as a cleaning action in the national park from Ifrane.

As part of these social activities, the "We Green" club kicked off this day aimed at raising awareness among the general public regarding environmental issues with the main objective: To encourage reflection around environmental issues, create ecological habits through a cleaning action and an awareness of biodiversity issues through a visit to the Ifrane national park, its fish farming station in Ras El Mae and its cedar house. The day was marked in particular by a cleaning action in the forest of the Zerouka I water body of Ifrane with the aim of reducing the negative impact of waste and residues which affect the environment.

Note that Zerrouka I is a small, shallow drainable artificial fish pond. It is located on the Zerrouka wadi (or Zrouka), the main tributary of the Tizguite wadi. The dike is located approximately 300m from the source, so that the waters from it flow directly into it. The reservoir is limited by a concrete wall, at least on the west bank. The waters of the spring are also used to supply the city of Ifrane with drinking water.

At this body of water which is an integral part of the Oued Tizguite Ramsar Site; The vegetation is not very varied (around fifteen species with a wide geographical distribution) and is very limited in space, the edges of the lake being concreted and mowing is frequent.

It is a fairly protected trout body of water, somewhat interesting for birds. It is home to few winter residents (less than 400 birds), the population being mainly composed of divers: coots and crested coots, little grebes, pochards, tufts and nyrocas, with sometimes shovelers and/or mallards. Among the breeders, the Eurasian Coot (20-25 pairs), the Crested Coot (around 10 pairs) and the Little Grebe (5-8 pairs) are the most regular.

Finally, it should be noted that the Euromed University of Fez is a public utility, non-profit institution with an eco-campus meeting international standards which constitutes a pleasant and stimulating environment for its students coming from more than 40 nationalities.

UEMF winners are equipped with training on soft skills, study skills, life-skills and professional skills and this profile; based on several pillars; allows students to acquire numerous skills linked in particular to multilingualism, multiculturalism, innovation and entrepreneurship, the digital environment, international mobility, and sustainable development in addition to the pillar of social responsibility and eco-citizenship through which we instill in students the values of respect for the environment, sustainable development and civic responsibility.

https://www.oujdacity.net/national-article-157654-fr/club-we-green-en-action-sublimez-le-parc-national-difrane-ouvrons-les-yeux.html

https://premiumtravelnews.com/2023/10/30/club-we-green-parc-national-difrane/