



الجامعة الأورومتوسطية بفاس
EUROMED UNIVERSITY OF FES
UNIVERSITÉ EUROMED DE FÈS

SDG6 report

CLEAN WATER AND SANITATION

2025



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SDG6 Report: Clean Water and Sanitation

Water Policy at UEMF

The UEMF campus is an Eco-Campus that meets the highest international standards for sustainable development. It was certified by COP 22 and recently obtained the Francophone label for responsible innovation.

Actions taken

- Raising awareness among the university community regarding the reduction of water consumption and periodic rounds by the Heritage Department to detect possible leaks and monitor 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 on sustainable development (one of the seven pillars of cross-curricular teaching within UEMF) and environmental responsibility.
- Use of push taps
- Installation of pipes and basins for rainwater recovery in progress: the UEMF is connected to the urban network;
- Recirculation of gray water (in progress);
- Uses of wells for irrigation and watering;
- Closed circuit waterfall;
- Free drinking water fountains
- Drinking water available and free for the UEMF community;
- Well for watering and irrigation
- Supplying toilet flushes with recovered water
- Lake for rainwater collection
- Landscaping and management of green spaces: The UEMF adopts a rational management of its green spaces adapted to the hot and continental climate of the Fez-Meknes region. Drip irrigation allows significant water savings. The majority of trees are olive trees (which are heat-resistant and do not consume a lot of water).



Teaching and research-innovation actions

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, flows, water pollution, water saving, etc.

Technology platforms

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 through 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 Fez-Meknes region and nationally, and also to companies to support them in their innovation strategies and strengthening their competitiveness in a highly competitive international environment.

Partnership

Participation in policy development at local, regional and national levels to contribute to water conservation.

Reduction of drinking water consumption

Two objectives are defined for the demand for drinking water:

- Limiting sanitary water needs, for example through hydro devices- economical.
- 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 allocated to the different types of sanitary devices:

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

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

There are four types of water to be managed on site: - Rainwater - Grey water, or lightly loaded wastewater - Very loaded black water - Wastewater coming out of the kitchens.

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

The stored rainwater will be reused either directly for cleaning the 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 through the vegetated surfaces. The rainwater loaded with pollutants from the roads first passes through a hydrocarbon separator to decontaminate it and then joins the phytorestoration treatment. Similarly, gray water from showers and sinks is pre-filtered before reaching the filter basins.

Wastewater from the site's kitchens passes through an oil and grease filter and then a heat recovery system (heat pump) to recycle it, then ends up in the sewers. Black water is collected at the toilet outlet and sent directly to the sewers.



Water Conservation - Underground Water Reservoir (Fire and Sanitary and Cascade, Euromed University of Fez)



Water Conservation - Underground Water Reservoir (Irrigation, Euromed University of Fes)

Distinctions

The UEMF campus awarded the COP 22 label



UEMF finalist for The Green Gown Award (2022)

The Green Gown Award is an award that recognizes outstanding sustainability initiatives undertaken by universities and colleges worldwide. It is organized in partnership with the United Nations Environment Programme (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, representing 19 countries around the world. Among them are five member institutions of the Agence Universitaire de la Francophonie:

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



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



Responsible Campus of the Year



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

The "Responsible Establishment of the Year" category recognizes UEMF's commitment to the SDGs and its lasting impact in becoming a responsible organization with regard to 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



The Responsible Innovation Label was awarded to 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 institutions. Its objective is twofold: to map and promote responsible innovations from French-speaking universities around the world, but also to deploy the responsible innovation network to foster synergies between universities, civil society, and the socioeconomic sector working for the development of a responsible society.

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

People's Choice Award

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

Study of the hydraulic network of the DAM.MEDINA project inspired by the local oasis water system, and the ancestral systems (Khattarat 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 serves as a major water pump to irrigate the green spaces of the project.

Award for Best Oral Communication at the 4th International Congress

The First Prize for the 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 Prof. Farah El Hassani (Euromed Faculty of Engineering of the UEMF) on the subject: *Water contamination by trace metal 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 viewed at the link:

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

Defense of Doctorate 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>

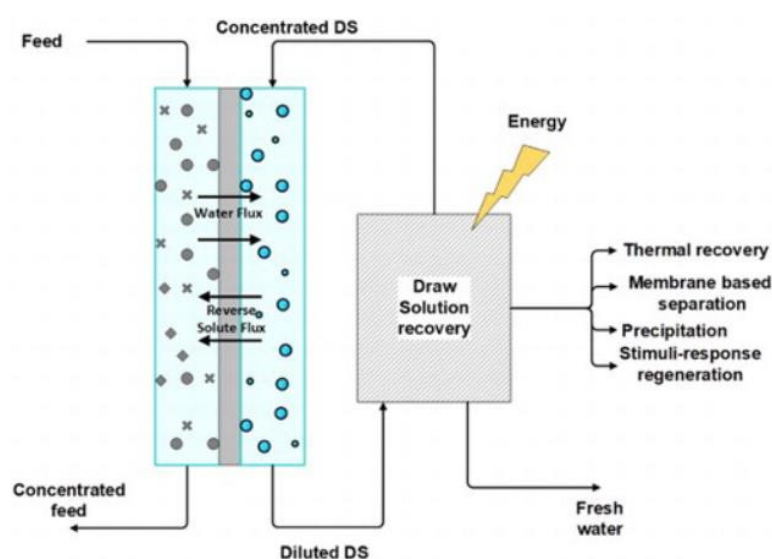
Water desalination by forward osmosis: stretch solutes and recovery methods – review

Imane Chaoui

Prof. Souad Abderafi

Prof. Sébastien Vaudreuil

Professor Tijani Bounahmidi



Water production has become a serious concern these days due to numerous environmental and social factors. Conventional desalination processes are considered energy-intensive, as energy consumption accounts for 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 was performed. Finally, the challenges, opportunities, and future prospects of FO technology were discussed.

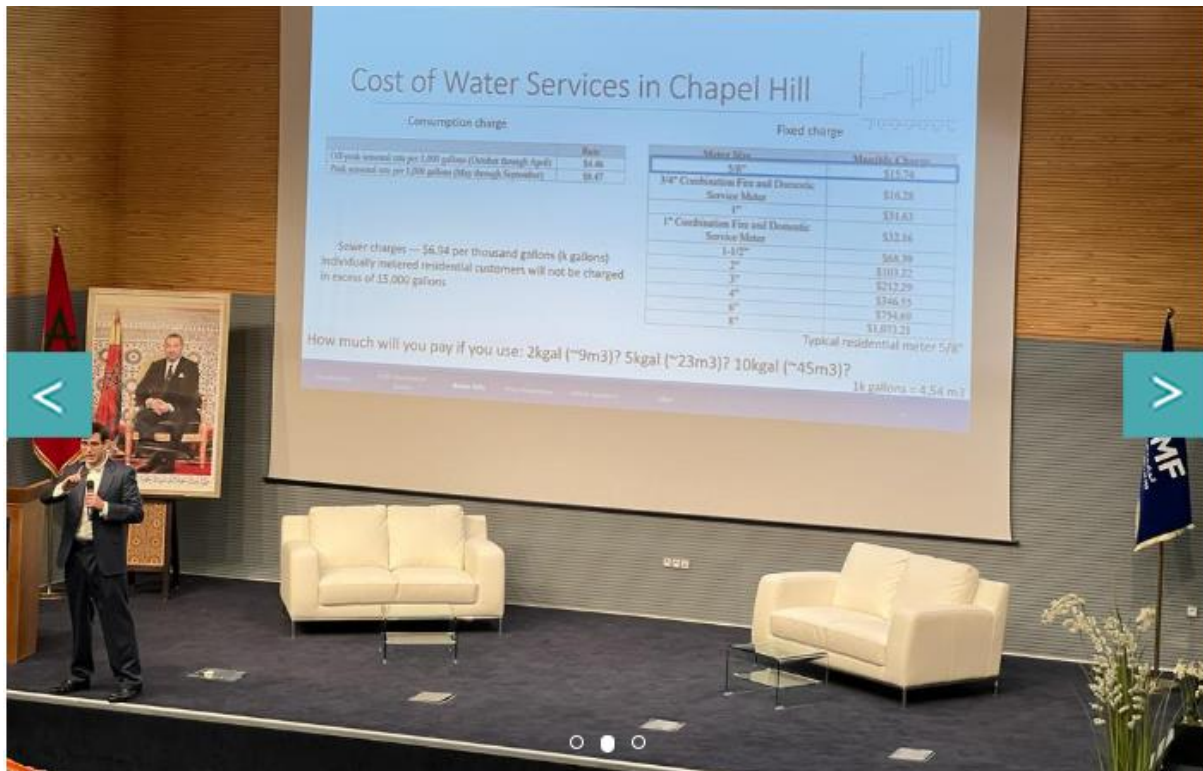
[Water Desalination by Forward Osmosis: Suction Solutes and Recovery Methods – Review: Environmental Technology Reviews: Vol 8, No 1 \(tandfonline.com\)](#)

Conference and broadcast

Water Supply Management by Dr. Ahmed Rachid El Khattabi

Dr. Ahmed Rachid El-Khattabi, a renowned specialist in urban and regional planning at the University of North Carolina at Chapel Hill, gave a seminar to civil and environmental engineers studying at the Euromed Polytechnic School of 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-approvisionnement-en-eau-par-dr-ahmed-rachid-el>

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

Professor Farah El Hassani, a professor at the Euromed Polytechnic School, was a guest on a flagship program on Al Oula where she spoke about water resource management, a topical and much-discussed issue.

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

<https://www.youtube.com/watch?v=gdYOymhpRuw>

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

A conference led by Professor Lhoussaine BOUCHAOU on 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 issue of water stress, as well as the necessary characteristics of a balanced integrated water management process. He then discussed the research structures dealing with water at the national level, as well as some ongoing development projects.

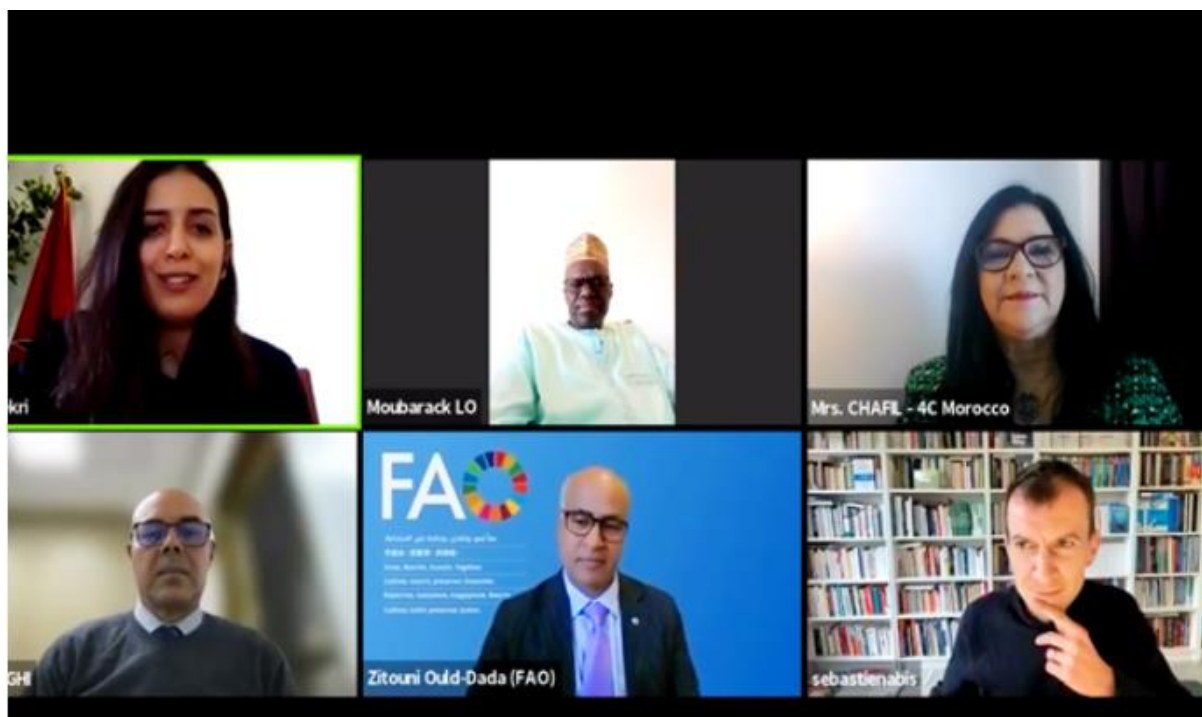
The speaker closed his seminar by detailing various research topics including:

- Climate 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>

Roundtable: Water, Agriculture and Food Security, Building a Nexus Approach to Africa's Climate Change Narrative February 2, 2023



The Research Institute for European, Mediterranean, and African Studies (RIEMAS), a Think-Tank at the Euromed University of Fez, organized its first roundtable 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 led by RIEMAS, 4C Maroc, 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, lecturer at the 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 tour of the Al Wahda Dam, currently the largest hydraulic infrastructure in the Kingdom May 6, 2023



First-year civil engineering students at Euromed Polytechnic School, accompanied by their professor Mr. Issam Al Korachi, carried out an educational visit to the Al Wahda Dam, currently the largest hydraulic infrastructure in the Kingdom, on May 6, 2023.

The students received detailed explanations from Mr. Kassemi, engineer at the Sebou Hydraulic Basin Agency, and Mr. Tantaoui, head of the dam, particularly regarding the type and structure of the development, the nature of the hydroelectric station, as well as the operating principle of the dam's ancillary structures, such as the flood spillways and valves.

[Educational visit to the Al Wahda Dam, currently the largest hydraulic infrastructure in the Kingdom](#)

CLUB WE GREEN IN ACTION: "ENHANCING 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 its members through visits to several environmental centers as well as a clean-up action in the Ifrane National Park.

As part of these social activities, the "We Green" club kicked off this day aimed at raising public awareness of environmental issues with the main objective of: Encouraging reflection on environmental issues, creating ecological habits through a cleaning action and

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 lake in Ifrane with the ambition of reducing the negative impact of waste and residues that affect the environment.

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

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

It is a fairly sheltered trout lake, somewhat interesting for birds. It is home to few wintering birds (less than 400 birds), the population being composed mainly of divers: coots and crested coots, little grebes, pochards, tufted ducks and ferruginous wagtails, with occasional shovelers and/or mallards. Among the breeders, the common coot (20-25 pairs), the crested coot (about 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 that meets international standards and provides a pleasant and stimulating environment for its students from more than 40 nationalities.

UEMF graduates are equipped with training in soft skills, study skills, life skills and professional skills and this profile; based on several pillars; allows students to acquire numerous skills related 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 students are instilled with 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/>

2024: Euromed University of Fez at the heart of action for the SDGs

Wahid BENKHADDA wins the Best Oral Communication Award at the ISMESH 2024 International Symposium



We are proud to announce that Mr. Wahid BENKHADDA, a fourth-year doctoral student, won the prestigious award for best oral presentation at the ISMESH 2024 International Symposium. This distinction was awarded to him for his outstanding presentation during the event, which was held on May 7 and 8 at the Ecole Supérieure de Technologie in Fez.

Mr. BENKHADDA's participation in this symposium was part of his thesis project in the field of materials and environmental chemistry, in which he raised the issue of olive margins; a widespread problem at the regional, national level but also throughout the Mediterranean basin region.

We extend our sincere congratulations to Mr. Wahid BENKHADDA for this well-deserved recognition, which underlines the commitment of UEMF and its community to academic excellence and innovative research.

<https://ueuromed.org/actualites/cedoc/wahid-benkhadde-remporte-le-prix-de-la-meilleure-communication-orale-au-symposium>

UEMF celebrates International Mountain Day differently



On March 1, 2024, the Euromed University of Fez organized an international conference entitled "Restoring mountain ecosystems: the case of the Fez-Meknes region," in collaboration with several partners, including the Institute of Legal and Political Sciences (ISJP) and the African Network for Sustainable Development (RA2D). The event, organized in conjunction with International Mountain Day, addressed the challenges of restoring mountain ecosystems, in line with the initiative of the United Nations Decade on Ecosystem Restoration (2021-2030).

Over two days, the conference brought together experts, researchers, and field stakeholders to discuss ecological issues and sustainable development in the mountains through panels focused on the social, economic, and political challenges of this theme. The second day took place in the municipality of Tazouta, with practical activities such as hiking, awareness-raising workshops, and local product exhibitions. This edition highlighted the importance of preserving mountain ecosystems while involving local populations and strengthening the solidarity economy.

<https://ueuromed.org/actualites/congres-et-colloques/luemf-celebre-la-journee-internationale-de-la-montagne-autrement>

2025: Euromed University of Fez intensifies its commitment to the SDGs

2nd edition of the Students' Innov'UP 2024 Hackathon: Innovating in the face of water stress



The 2024 Students' Innov'Up Innovation Hackathon, organized by the European Union in Morocco, the EIB, and the Euromed University of Fez, took place on December 16 and 17 under the theme "Transforming Water Stress into a Driver of Resilience." Following a three-week pre-hackathon phase, 11 finalist teams presented their innovative projects to address water-related challenges.

Three teams were awarded prizes:

- Hydrovision (1st prize) for the "Aqua" application **Noah**,
- Pure Aqua White (2nd prize) for a wastewater reuse system,
- Créatech (3rd prize) for a solar device for producing drinking water.

The "coup de cœur" prize was awarded to Raha for HydroPoly, an educational game on water management.

<https://ueuromed.org/actualites/recherche-developpement/2eme-edition-du-hackathon-students-innovup-2024-innover-face-au>

UEMF at the heart of discussions on renewable energies at EnerGaïa



The Euromed University of Fez participated, as part of the Moroccan delegation led by the Green H2 Cluster, in the renewable energy forum EnerGaïa from December 10 to 12, 2024.

Several contacts have been made, in particular with the Vice-Presidency for the Economy of the Occitanie Region for partnerships in terms of training with universities and institutes in the Region, incubation and cultural and sporting activities with the ambition of initiating lines of research in these fields alongside the creation of courses in sports and team management.

Green hydrogen and the entire inherent value chain were also at the center of discussions with France Hydrogène, as were the theme of water and the underlying technologies, in addition to the AgriTech or precision agriculture sector.

The participation of the Euromed University of Fez in the Technocampus Hydrogène Occitanie, which aims to be the largest center in France for research, testing, technological innovation and teaching in the field of green mobility, was also discussed.

<https://ueuromed.org/actualites/recherche-developpement/luemf-au-coeur-des-echanges-sur-les-energies-renouvelables>

Doctoral Thesis Defense in “Chemical Engineering” by Mr. Ali Seid ALI



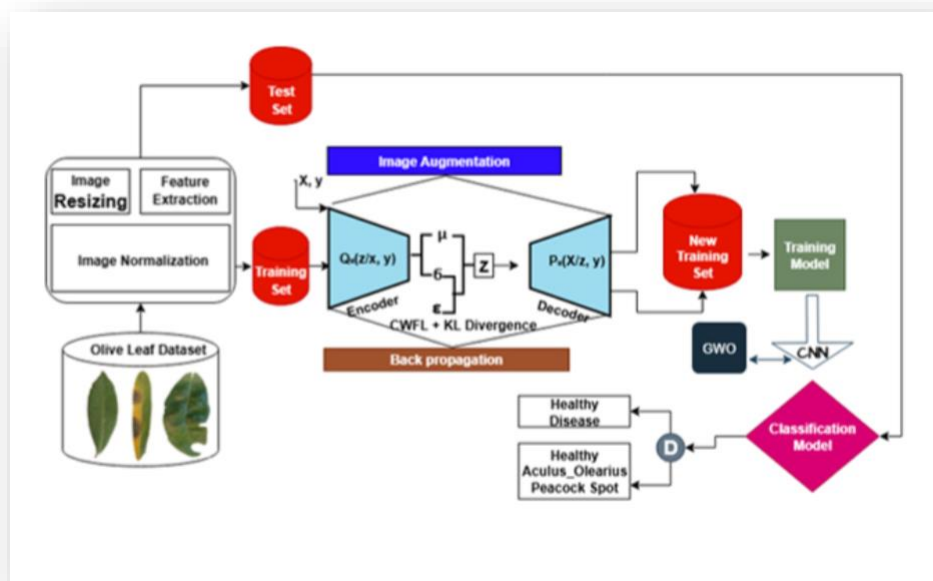
The Euromed University of Fez (UEMF) is pleased to announce the upcoming doctoral thesis defense in Chemical Engineering by Mr. Ali Seid ALI. The defense will take place on June 21, 2025, at 10:00 am, in The Great Hall of the Incubator (LOC001994) at UEMF. The thesis, titled “Analysis of Photovoltaic Thermal (PVT) Driven Forward Osmosis and/or Membrane Distillation Water Desalination”, explores innovative and sustainable methods for water desalination using renewable energy technologies. This research contributes to advancing scientific knowledge in the fields of clean energy, water resource management, and environmental sustainability.

<https://ueuromed.org/actualites/cedoc/soutenance-de-these-de-doctorat-en-chemical-engineering-par-mr-ali-seid-ali>

SDG 6 – Clean Water and Sanitation: UEMF Ranking in THE Impact Ranking 2025

Rank ▲	Name ◆	Clean water and sanitation ◆	Overall ◆
101–200	Ibn Tofaïl University Morocco	64.4–74.5	70.3–76.1
201–300	Abdelmalek Essaâdi University Morocco	56.5–64.3	60.9–65.5
401–600	Mohammed V University of Rabat Morocco	41.7–51.3	60.9–65.5
601–800	Euromed University of Fez Morocco	31.8–41.6	65.6–70.2
601–800	International University of Rabat Morocco	31.8–41.6	70.3–76.1
601–800	Université Hassan 1er Morocco	31.8–41.6	1.7–49.7

Doctoral thesis defense in “Artificial Intelligence” by Mr. Kaloma Usman MAJIKUMNA



Thesis defense – Kaloma Usman MAJIKUMNA

Title: Managing plant survival and disease risks under water stress using artificial intelligence: the case of olive trees in Morocco

This thesis studies the impact of water stress and diseases on olive trees in Morocco, by combining artificial intelligence, remote sensing and field experiments. An innovative deep learning model has been able to detect diseases with 99.2% of predecision, while tests of irrigation have identified the varieties and most resilient indicators. The results provide concrete recommendations for sustainable and climate-adapted agriculture.

<https://ueuromed.org/actualites/cedoc/doctoral-thesis-defense-artificial-intelligence-mr-kaloma-usman-majikumna>