



الجامعة الأورومتوسطية بفاس  
EUROMED UNIVERSITY OF FES  
UNIVERSITÉ EUROMED DE FÈS

# SDG6 Report

## Clean water and sanitation



# SDG6 Report: Clean Water and Sanitation

## Water policy at UEMF

The UEMF campus is an Eco-Campus that respects the best international standards in terms of sustainable development. It was labeled by the COP 22 and recently obtained the French label for responsible innovation.

### Actions made :

- Sensitization of the university community concerning the reduction of water consumption and periodic tours of the Heritage Department to detect possible leaks and follow-up of the application of the measures put in place;
- Record of water consumption statistics and decision-making in the event of a leak or waste;
- Courses and seminars on sustainable development (one of the seven pillars of transversal teaching within the UEMF) and environmental responsibility.
- Use of push valves
- Installation in progress of pipes and basins for the recovery of rainwater;
- Gray water recirculation (in progress);
- Uses of wells for irrigation and watering;
- Closed circuit waterfall;
- Free drinking fountains
- Wells for watering and irrigation
- Supply of toilet flushes with reclaimed water
- Lake for rainwater harvesting

### 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 Energies 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, ...

## Awards

- People's Choice Award

<https://ueuromed.org/es/news/anuncios-varios/trois-etudiantes-de-lemadu-remporentent-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. The students of the EMADU School of Architecture of UEMF proposed, with reference to the adjacent dam, a wall, the only reinforced concrete element, which acts as a major water pump to irrigate the green spaces of the project.

- The First Prize for Best Oral Communication at the 4th International Congress on "Treatment of Liquid Effluents 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: Contamination of water by metallic trace elements from mining wastes 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 Sciences and Techniques for the Engineer by Mrs. Fayrouz EL HAMDANI, under the topic:

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>

## Technological platforms

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

Equipment: 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 aim of technological transfer to the national private sector or the creation of new startups and spinouts. They are also made available to partner universities, in particular those of the Fès-Meknes and national region, and also to companies to support them in their strategies for innovation 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 economy of water

## Reduction of drinking water consumption

Two objectives are defined for the demand for drinking water:

- Limitation of sanitary water needs, for example through hydro devices- é savings.
- 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 tap 3L / min Shower 6L / min

On the other hand, potable water is not necessary for certain uses such as toilets, watering and maintenance (cleaning) of the building.

In such cases-theTo, gray water as well as rain water canès treatment replace l'potable water. This therefore requires a second water network which is not drinkable on the plot and implies significant water savings.

There are four types of water to be managed on the site: - Rainwater - Gray water, or wastewater with low content - Highly charged tap water - Wastewater leaving the kitchens.

Rainwater is it-mêmy To divide into two parts which are clear rainwater réusable collectable on roofs and with'other storage devices as well as heavy rainwater flowing on parking lots and roads. In the water management envisaged and in order to make the best use of the potential of the project, 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 phytorestitution 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. The heavy rainwater coming from the roadways first passes a hydrocarbon separator in order to decontaminate it and then rejoins the phytorestitution treatment. Likewise, gray water from showers and sinks is pre-filtered before reaching the filter basins.

The wastewater leaving the site kitchens passes through an oil and grease filter then a heat recovery system (heat pump) in order to recover it and then finish its course in the sewers. The black water is collected at the exit of the toilets and is sent directly to the sewers.