

SmaCuMed PRIMA project :

Smart irrigation cube for sustainable agriculture in the Mediterranean region

The International Conference on WATER-ENERGY-FOOD-ECOSYSTEM NEXUS in the Mediterranean Region

Tuesday 15 – Friday 17, November 2023

**The Mohammed VI Museum of Water Civilization in
Morocco, Marrakech (Morocco)**

Topics

- Bioresources valorization
- Climate Change and Water Resources
- Ecotoxicology & Environmental Remediation
- Environmental Chemical Engineering
- Environmental modelling
- Farming systems
- Food Characterization and Quality
- Food losses: innovations and waste management
- Food Security & Food Safety and Toxicology
- Governance and Policy
- Renewable energy and energy efficiency
- Sustainable Agriculture and Water Efficiency
- Terrestrial and Aquatic Ecosystems
- Water Pollution and Water Quality
- Water Technologies and Innovations

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- Prof. Fatima JAITI (Moulay Ismail University, Morocco)
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WEFE2023

The SmaCuMed International Conference on Water-Energy-Food-Ecosystem Nexus in the Mediterranean (WEFE2023) will take place from 15th to 17th November 2023 in the Mohamed VI Museum of Water Civilization in Morocco (Marrakech, Morocco).

The SmaCuMed WEFE Nexus Conference is organized by the Cadi Ayyad University of Marrakech (Morocco) and the Karlsruhe University of Applied Sciences (Germany), under the framework of the PRIMA project SmaCuMed (www.smacumed.eu).

SmaCuMed "Smart irrigation Cube for sustainable agriculture in the Mediterranean region" is a joint research project from the European Union's EU-Prima initiative - A joint program focused on developing and applying solutions for food systems and water resources in the Mediterranean basin.

The Water-Energy-Food-Ecosystem Nexus (WEFE Nexus) approach highlights the interdependence of water, energy and food security and ecosystems – water, soil, and land – that underpin that security. The Nexus approach identifies mutually beneficial responses that are based on understanding the synergies of water, energy, and agricultural policies. It also provides an informed and transparent framework for determining the proper trade-offs and synergies that maintain the integrity and sustainability of ecosystems.

The Conference focuses on the Mediterranean dimension, but it is open to participants from outside the region who share the same interests and wish to learn from the Mediterranean experience.

Honorary committee

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- El Hassan EL MOUDEN (Dean of the Faculty of Sciences Semlalia)
- Moha TAOURIRTE (Dean of the Faculty of Sciences and Technologies of Marrakech)
- Driss BELKHAYAT (Director of the Innovation City of the Cadi Ayyad University)
- Abdennabi EL MANDOUR (Director of the Mohamed VI Museum of Water Civilization in Morocco)

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Investigating the Impact of Human-Induced Pollution and Seasonal Variations on the Water Quality of ZAT River in Morocco: A Comprehensive Analysis

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The quality of water resources in the Tensift basin, specifically in the ZAT sub-basin, is under increasing pressure due to population growth, urbanization, industrial, and agricultural development. For most urban and rural centers and industrial units, wastewater is discharged into the receiving environment (surface water) without prior treatment, this state exacerbates the eutrophication processes, due to the contributions of point and diffuse pollution. These combined processes lead to considerable degradation of the physicochemical quality of water resources, especially surface waters. In this study, we assess the surface water quality of the ZAT river in different spatial and temporal contexts by a monitoring network consisting of 9 sampling stations. The location of these stations was chosen to monitor the respective natural and anthropic contributive loads entering the main river. The monitoring campaigns were conducted on a bi-monthly basis during the summer, winter, and spring 2021 periods. They included sampling, on-site measurements, and laboratory analyses and ultimately led to the use of the Weighted Index (WI) and the Biotic Index of the Iberian Working Group on Biological Monitoring (IBMWP). The results showed that in terms of quality and using both indices, the upstream river ranges from good (WI) to medium (IBMWP) quality, while it varies from medium (WI) to poor (IBMWP) quality in the downstream river. As for the temporal variation, the (WI) index exhibited a good quality during spring and from good to medium quality during winter and summer. On the other hand, the (IBMWP) displayed a medium-poor quality during winter and summer. The findings also indicated that Anthropogenic contamination and the decline in slope with temperature increase are variables impacting the worsening of water quality in the summer. Downstream stations in summer, which were substantially lower than the stations upstream, served as evidence of this. The outcomes also demonstrated that urban pollution has a significant impact on water quality degradation and low quality. The results of the current study indicate thus that it is essential to review the management policy and change the vision towards a more descriptive, holistic, and sustainable management of water quality.

Keywords: Anthropogenic, Pollution, Seasonal variation, River, Quality indices, Morocco.