6.5.5 Cooperation on Water Security

2023–2024

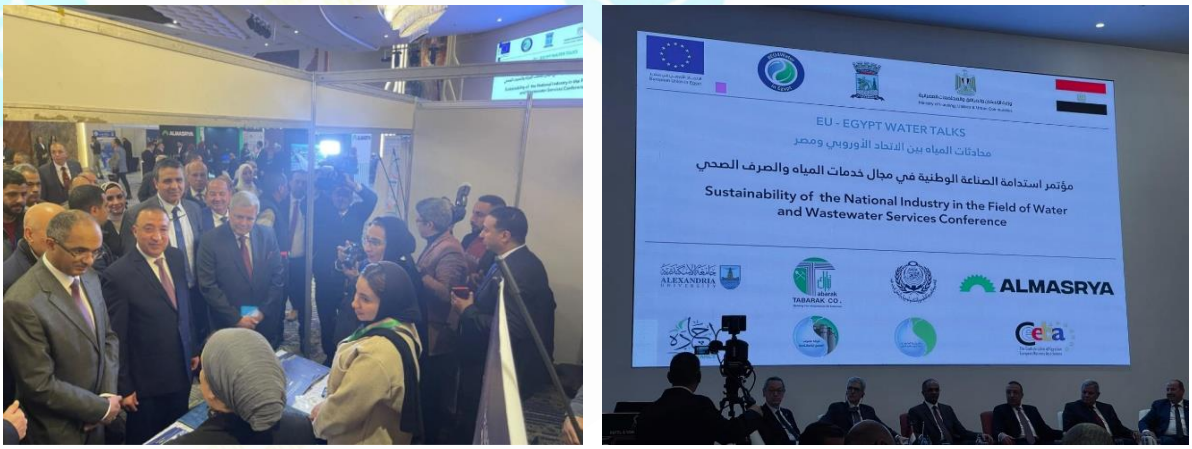
AASTMT actively promotes water security through research collaborations, educational programs, and public awareness campaigns. The institution engages in joint research projects with local and international partners to improve water resource management and tackle water security challenges. AASTMT also offers specialized training and academic programs focused on sustainable water use, equipping students and professionals with the knowledge and skills needed to address issues like water scarcity and pollution. Additionally, through seminars and workshops, AASTMT raises public awareness on the importance of water conservation, supporting global efforts aligned with SDG 6.

Local & Regional Cooperation:

Sustainability in Water and Sanitation: AASTMT at EU–Egypt Conference

As part of promoting sustainability in water and sanitation services, the Arab Academy for Science, Technology and Maritime Transport (AASTMT) participated as a golden sponsor in the EU–Egypt Water Talks conference, "Sustainability of the National Industry in Water and Sanitation Services," held February 26–27, 2024, in Alexandria.

The event, organized under the patronage of the Ministry of Housing and Urban Communities, the European Union Delegation in Cairo, and the Holding Company for Drinking Water and Sanitation, addressed key issues in water management, wastewater treatment, sanitation services, and sustainable water resources. AASTMT representatives highlighted initiatives in wastewater management, drinking water quality, groundwater protection, and desalination technologies, while also showcasing academic programs in education, training, and consulting to support water supply, pollution control, and resource management.



AASTMT at EU–Egypt Conference Water Talks

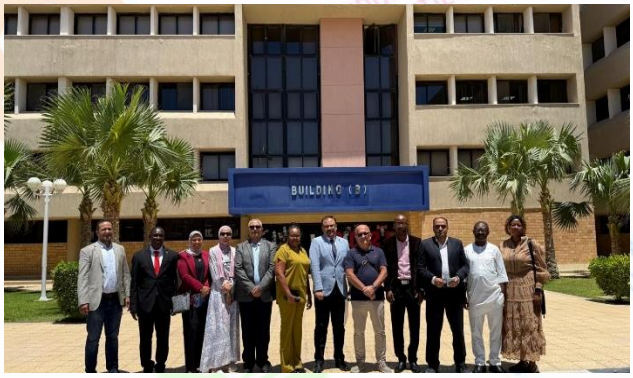
Sustainability in Water and Sanitation: AASTMT at EU–Egypt Conference on AASTMT webpage
Sustainability in Water and Sanitation: AASTMT at EU–Egypt Conference on AASTMT webpage

AquaVET — Knowledge Exchange in Aquatic Animals Medicine and Ecosystem Health in the Mediterranean and sub-Saharan Regions (2024- 2027)

The AquaVET is an Erasmus + project that addresses the growing challenges in aquaculture and aquatic veterinary medicine in Egypt and Nigeria by establishing an interdisciplinary MSc program in "Aquatic Animals Medicine and Ecosystem Health" (AQAMEH). The program aims to bridge the gap between aquaculture and veterinary sciences, ensuring a new generation of highly skilled

professionals. The Egyptian and Nigerian aquaculture sectors face major challenges, including:

- High fish mortality rates due to disease outbreaks.
- Environmental pollution from agricultural and industrial activities.
- Limited research in aquatic veterinary medicine.
- Lack of trained specialists in fish health and ecosystem management.



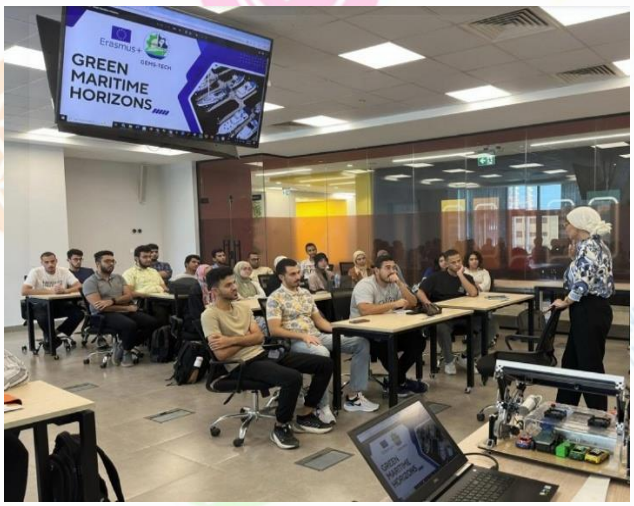
AquaVet Project

AquaVET — Knowledge Exchange in Aquatic Animals Medicine and Ecosystem Health in the Mediterranean and sub-Saharan Regions (2024- 2027)
AquaVET — Knowledge Exchange in Aquatic Animals Medicine and Ecosystem Health in the Mediterranean and sub-Saharan Regions (2024- 2027) on AASTMT webpage

GEMS-TECH—Green Maritime Horizons: Collaborative Innovation in Ship Engineering and Sustainable Technologies (2024-2027)

The GEMS-TECH project aims to modernize maritime education in Egypt and Kenya by integrating sustainable maritime practices and green technologies into higher education. GEMS-TECH aims to develop new multidisciplinary modules, modernizing curricula, and introducing Massive Open Online Courses (MOOCs) on sustainable maritime solutions. This initiative aligns with UN SDGs, the EU's Green Deal, and the International Maritime Organization (IMO) 2050 decarbonization strategy. The project will establish strong academia-industry partnerships, ensuring that students and professionals acquire both theoretical knowledge and practical skills. It will also facilitate collaboration between European, Egyptian, and Kenyan higher education institutions to create sustainable, high-impact learning outcomes. Project Objectives

1. Enhancing Green Maritime Education – Develop new interdisciplinary courses integrating sustainable maritime solutions.
2. Bridging Industry & Academia – Strengthen partnerships between universities and maritime stakeholders to ensure relevance.
3. Modernizing Curricula – Introduce sustainability-focused curricula updates to align with industry needs.
4. Building Capacity – Train students, faculty, and professionals in green maritime technologies.
5. Developing Training Infrastructure – Establish interconnected labs for hands-on experience.
6. Fostering Innovation – Encourage research and technological advancements in green shipping.



GEMS-TECH project

GEMS-TECH—Green Maritime Horizons: Collaborative Innovation in Ship Engineering and Sustainable Technologies (2024-2027) on AASTMT webpage
GEMS-TECH—Green Maritime Horizons: Collaborative Innovation in Ship Engineering and Sustainable Technologies (2024-2027)

Updates for Mobilizing new Areas of Investments and Together Aiming to increase Quality of life for All MAIA TAQA Funded Project (2019- 2024)

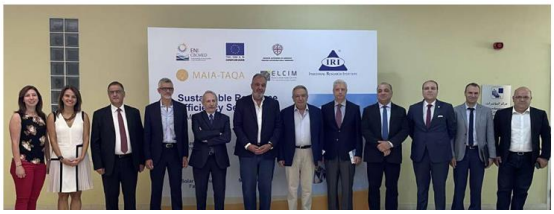
The MAIA-TAQA (Mobilizing new Areas of Investments And Together Aiming to increase the Quality of life for All) project, funded by the EU under the ENI CBC Med Programme, promotes resource efficiency, renewable energy, wastewater treatment, and sustainable water management across the Mediterranean. With key partners including AASTMT (Egypt), CEEBA (Egypt), the Industrial Research Institute (Lebanon), and the Jordan Chamber of Commerce, the project has introduced innovative eco-friendly solutions to address regional sustainability challenges.

- **2019–2020:** Identification of pilot areas and stakeholders in Egypt, Lebanon, and Jordan, alongside the design of innovative water and energy solutions.
- **2021:** Pilot implementation of a wastewater treatment plant in Lebanon (Industrial Research Institute, Hadat) and a 100 kWp photovoltaic system at El-Ameria Wholesale Market in Alexandria, Egypt.
- **2022–2023:** Operationalization of pilots with emphasis on treated wastewater reuse for irrigation and expanded solar energy deployment, reducing water pollution, supporting reuse, and cutting emissions.
- **2023–2024:**
  The final phase focused on scaling and consolidating results:
  - Innovation One-Stop-Shops (IOSS): Launched in Egypt, Lebanon, and Jordan to provide SMEs with access to resource efficiency services, renewable energy expertise, and innovation vouchers.
  - SME Innovation Vouchers: Six SMEs in Egypt and Lebanon were supported with up to €20,000 each to develop projects in solar thermal desalination, wastewater management, and sustainable construction materials.
  - **Capacity Building:** More than a dozen training programs and B2B events engaged over 200 SMEs and professionals, strengthening skills in wastewater treatment, building-integrated photovoltaics (BIPV), and solar cooling.
  - **Pilot Outcomes:**
    - In Egypt, the El-Ameria PV system delivered cleaner energy, reduced grid pressure, and cut CO_2 emissions.
    - In Jordan, a solar thermal cooling system in Aqaba saved significant energy and reduced emissions.
    - In Lebanon, a solar-powered MBBR wastewater treatment plant enabled irrigation reuse while avoiding diesel use and reducing 12 tons of CO_2 annually.

The AASTMT played a central role by hosting and supporting activities in Egypt, from piloting renewable energy at El-Ameria Market to launching the Innovation One-Stop-Shop, underlining its commitment to sustainability, energy efficiency, clean water, and resource management in the region.

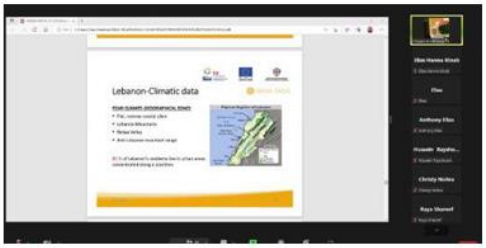
THE PILOT PROJECT IN EGYPT

THE PILOT PROJECT IN LEBANON



The MAIA-TAQA project developed a Three Courses program on Sustainable Technologies:

- **Wastewater Management in Lebanon:** This course is designed to educate participants on innovative wastewater treatment and management techniques, promoting environmental sustainability and resource conservation.
- **Building-Integrated Photovoltaics (BIPV) in Egypt:** Participants in this course gained expertise in the integration of photovoltaic systems within building structures, harnessing solar energy for sustainable power generation and architectural solutions.
- **Solar Cooling in Jordan:** Focusing on the use of solar energy for cooling applications, this course empowered participants to explore efficient and eco-friendly cooling solutions in a region with high energy demands.



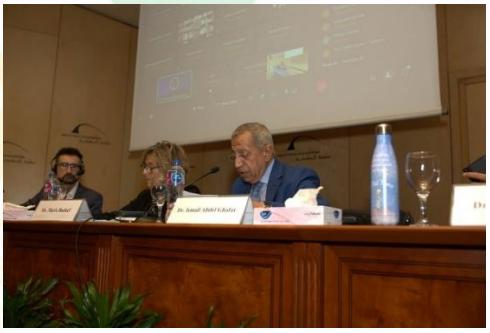
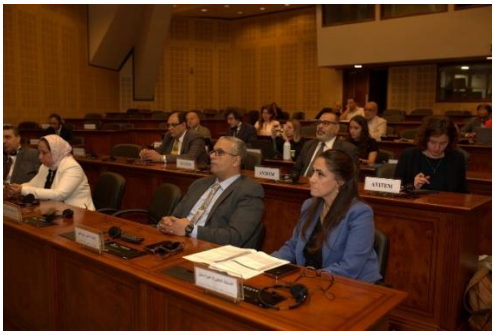

MAIA-TAQA Project

For the full report of the project:
MAIA-TAQA Project
Mobilizing new Areas of Investments and Together Aiming to increase Quality of life for All MAIA TAQA Funded Project (2019- present)

AASTMT Strengthens Climate Resilience and Water Sustainability in Coastal Cities through International Participation

The AASTMT participated in the International Workshop on Climate Change Risks in Coastal Cities, held in Alexandria, in collaboration with the Mediterranean Cities and Regions Authorities and the French Consulate.

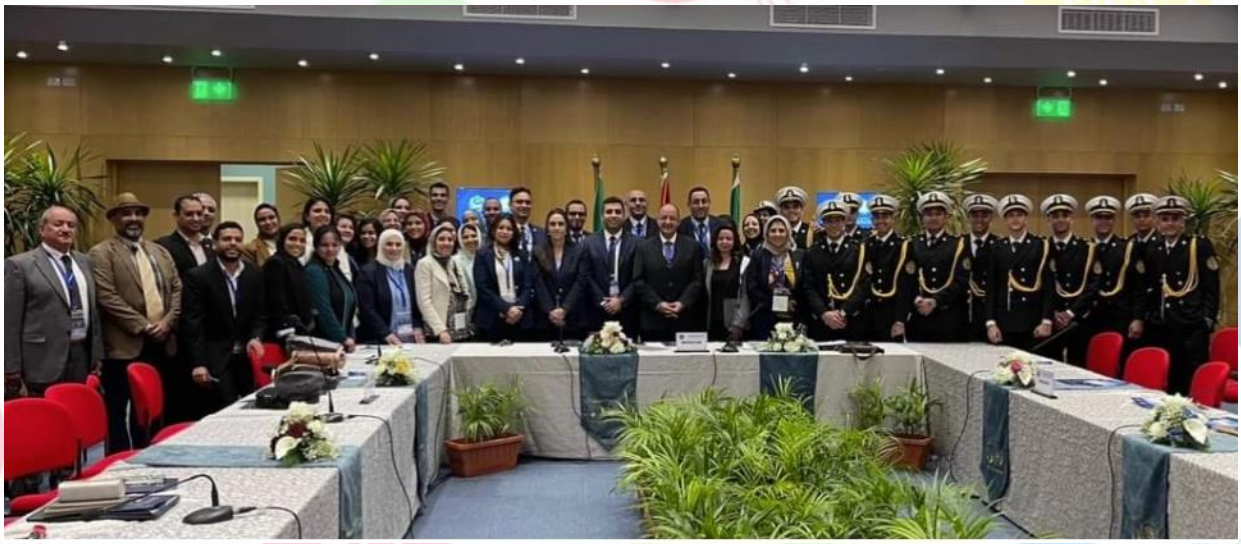
AASTMT President Prof. Dr. Ismail Abdel Ghafar Ismail Farag highlighted the Academy's long-standing commitment to marine research, climate adaptation, and sustainable water management. He emphasized the importance of resilient water infrastructure, stormwater drainage systems, and marine ecosystem protection as key measures to address climate impacts and ensure clean water and sanitation (SDG 6) in coastal regions. AASTMT researchers are currently working with Alexandria Governorate to develop an integrated climate adaptation plan that strengthens coastal protection and improves urban water systems. These joint efforts contribute to achieving sustainable water resource management and advancing Egypt's Vision 2030 and the UN Sustainable Development Goals.

AASTMT Strengthens Climate Resilience and Water Sustainability in Coastal Cities through International Participation

AASTMT Promotes Water Resilience and Sustainable Infrastructure on Arab Day for Disaster Risk Reduction

The AASTMT hosted a workshop marking the Arab Day for Disaster Risk Reduction 2024, in collaboration with the League of Arab States – Housing, Water Resources, and Disaster Reduction Department. Held under the theme "Resilient and Disaster-Resistant Arab Infrastructure," the event highlighted the importance of sustainable water resource management, flood resilience, and crisis preparedness to protect communities and support SDG 6.

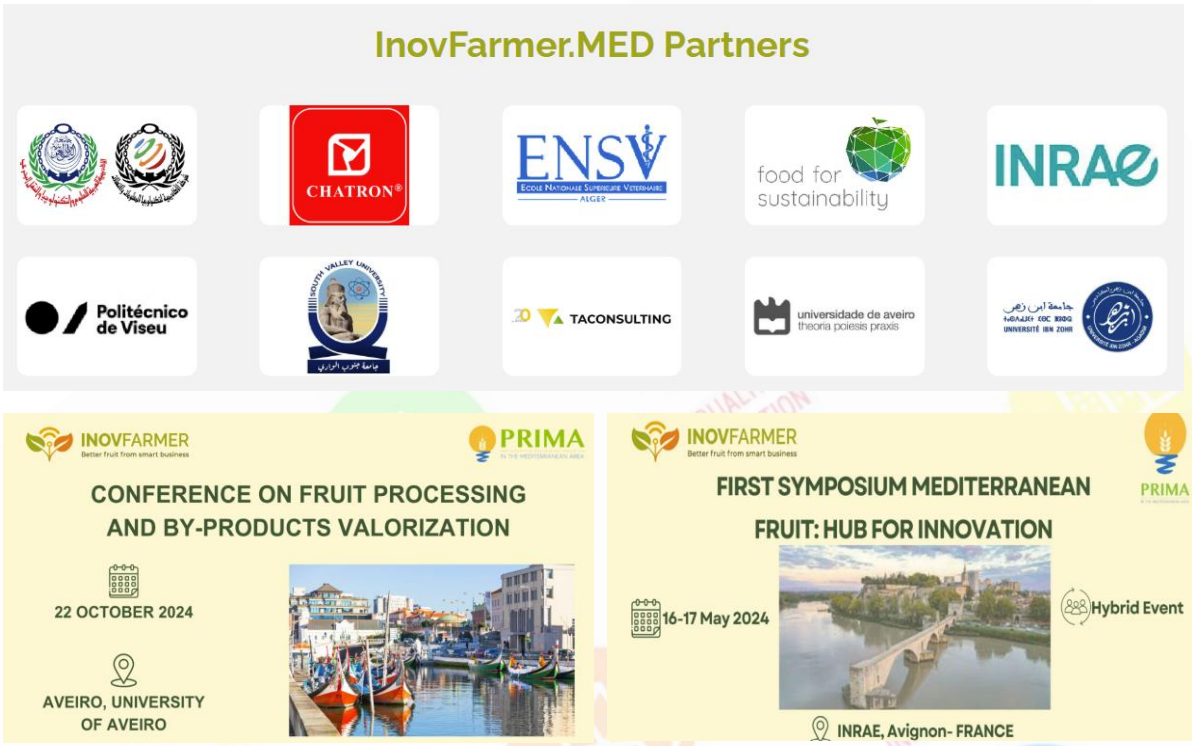


AASTMT Promotes Water Resilience and Sustainable Infrastructure on Arab Day for Disaster Risk Reduction on AASTMT webpage

AASTMT Promotes Water Resilience and Sustainable Infrastructure on Arab Day for Disaster Risk Reduction on AASTMT webpage

Promoting Sustainable Water Use through Smart Agriculture: AASTMT's Role in the InovFarmer.MED Project

The InovFarmer.MED project, co-funded by the PRIMA Programme, aims to enhance the sustainability of Mediterranean agri-food value chains through digital innovation and eco-friendly practices. Within this framework, the Arab Academy for Science, Technology and Maritime Transport (AASTMT) plays a key role in developing smart farming tools and training programs that promote efficient water use and sustainable resource management among small-scale farmers. By integrating IoT-based monitoring and data-driven irrigation systems, AASTMT supports the reduction of water waste and pollution, contributing directly to SDG 6 (Clean Water and Sanitation) — particularly targets 6.3 (improving water quality) and 6.4 (increasing water-use efficiency).



InovFarmer.MED Project