6.5.7 Promoting Conscious Water Usage

2023–2024

AASTMT promotes conscious water usage in the wider community through educational workshops, community engagement, and innovative projects. The university organizes programs to raise awareness of water conservation and sustainable practices, targeting students, professionals, and local farmers. Projects like RESILINK and Toumali focus on implementing water-efficient technologies in agriculture and avoiding marine litter, while initiatives such as the Tech-Innovation Challenge encourage the development of innovative solutions for water management using technology.

Campaigns and Training Programs in the Wider Community (2023-2024):

AASTMT Partners in Advancing Clean Water and Sanitation at Alexandria Conference

Governor Mohamed El-Sherif and Deputy Minister of Housing Dr. Sayed Ismail inaugurated the Conference on Sustainability of the National Water and Wastewater Industry in Alexandria, with the participation of the EU Delegation, the Holding Company for Drinking Water and Wastewater, Alexandria Sanitation Company, AASTMT, and private sector partners.

The conference highlighted Egypt's efforts to advance water management, wastewater treatment, desalination, sanitation services, and stormwater management in line with SDG 6 and Egypt Vision 2030. Key achievements presented included:

- Expanding desalination plants from 80,000 m^3/day in 2014 to 1.44 million m^3/day, with a long-term plan of 8.9 million m^3/day by 2050.
- Increasing wastewater treatment capacity from 8 million m^3/day to 18.8 million m^3/day using advanced secondary and tertiary treatment technologies.
- Promoting reuse of treated wastewater for irrigation, reducing water losses through smart meters, and enhancing community awareness.
- Investing in human capacity building and technical training to ensure sustainability of services.
- The event emphasized the importance of localizing water and sanitation technologies, enhancing pollution control, and encouraging private sector participation to achieve sustainable, resilient services for citizens.

AASTMT Partners in Advancing Clean Water and Sanitation at Alexandria Conference

Tech Innovation Challenge: Empowering Youth to Develop AI Solutions for Sustainable Development (2021- Present)

The Tech-Innovation Challenge is an annual initiative empowering student to design projects that address global challenges in line with the UN SDGs. Hosted by AASTMT and has been on for the third round as an initiative to promote conscious water usage among young generations through technology. It is an initiative where students from schools and universities develop Artificial Intelligence (AI) applications to address challenges across sectors such as health, agriculture, education, and traffic. This initiative aligns with the Sustainable Development Goals (SDGs) by encouraging young minds to innovate solutions that tackle real-world problems.

- **2022:** Students from schools and universities presented projects in renewable energy, health, agriculture, and environmental sustainability.
- **2023:** The challenge expanded, highlighting innovations in climate action, clean energy, sustainable agriculture, and education technologies.
- **2024:** Held at Smart Village with 90 teams and 380 students, focusing on solutions for health, agriculture, education, environment, and sustainability.

Tech Innovation Challenge

[Tech Innovation Challenge: Empowering Youth to Develop AI Solutions for Sustainable Development (2021-Present)](#) on AASTMT webpage

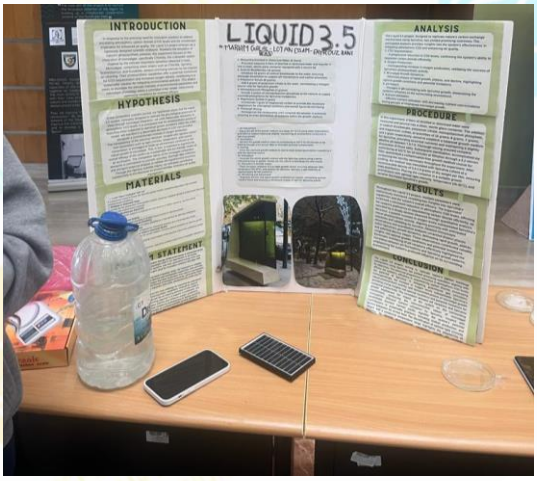
Update for "Towards a Green Sustainable Future" Initiative (2022-2024)

The "Toward a Green and Sustainable Future School Initiative" was launched by AASTMT, as an initiative, which began in September 2022, aiming to raise awareness about the Sustainable Development Goals (SDGs) among students and teachers in Alexandria. The initiative included three key phases:

1. **2022 Awareness Phase:** Educating students and teachers about the SDGs
2. **2023 Exchange Visits:** Mutual visits between the Academy and participating schools, both in-person and virtually.

3. **2024 Competition Phase:** Students developed and presented innovative projects, culminating in a competition.

On Wednesday, November 15, 2023, as part of the AAST's "Toward a Green and Sustainable Future School Initiative", the closure of the event took place in presence of environmental experts to promote sustainable water management, sanitation, and environmental education in schools. Keynote speaker emphasized the role of schools as living labs for water saving, rainwater harvesting, wastewater treatment, and safe reuse of effluents for irrigation—critical responses to Egypt's water scarcity and groundwater contamination challenges. A panel discussion highlighted integrating topics like drinking water safety, sewage treatment, constructed wetlands, water pollution, and risks from arsenic and fluoride in contaminated groundwater into school curricula. Emphasis was placed on hygiene, sanitary facilities, and protecting water resources from point and non-point source pollution. The day ended with a school visit showcasing student projects on activated sludge systems, solar disinfection, greywater recycling, and sustainable irrigation—demonstrating practical solutions for water productivity, ecosystem restoration, and resilient water supply.



Towards a Green Sustainable Futire Finals Competition

Towards a Green Sustainable Futire Finals Competition on AASTMT webpage

UPDATES RESILINK Increasing Resilience of Smallholders with Multi-Platforms Linking Localized Resource Sharing (2021-2026)

The RESILINK Project is a PRIMA Section II funded project, that enhances smallholder resilience by strengthening local agri-food value chains and reducing dependence on distant resources. Through IoT, AI, and decision-support systems, it enables real-time resource management and adaptive supply chains. A digital resource platform will connect farmers to nearby suppliers and services using mobile and open-source tools, ensuring accessibility and sustainability. Using a Living-Lab approach, RESILINK will pilot and refine its technologies to boost adoption, while ensuring interoperability with other agri-food platforms. The project promotes efficient water use, sustainable agriculture, and digital innovation, supporting SDG 6 (Clean Water and Sanitation) and SDG 12 (Responsible Consumption and Production).

- **2022:** Project launched under PRIMA to promote sustainable water management and resilient agri-food systems. Built partnerships to enhance efficient resource use and local water governance.
- **2023:** Developed prototype digital tools for real-time water monitoring and resource sharing. Promoted water-smart agriculture using IoT and AI technologies.
- **2024:** Released RESILINK mobile app and digital platform for sustainable irrigation and waste-water reuse. Began Living-Lab pilots to improve water efficiency and climate resilience among smallholders. Many training sessions took place for farmers and stakeholders.

Resilink

[RESILINK project]

Update Prevention of Tourism Marine Litter "Toumali" Project (2021-2025)

The Toumali Project, supported by UNIDO and the Government of Germany, focuses on implementing sustainable waste management practices within the tourism sector to protect marine ecosystems. By addressing the pollution caused by improper waste disposal, the project aligns with SDG 6, particularly in improving water quality and reducing contamination of water bodies.

TouMaLi Project Milestones (2021–2024)

- **2021:** Project launched with preliminary site visits in Tunisia, Egypt, and Morocco. First beach-monitoring campaign conducted in Tunisia.
- **2022:** Steering Committee meetings held (May & Nov) to define cooperation and review progress. Baseline data collection and continued beach monitoring in all pilot areas.
- **2023:** Pilot operations launched in selected coastal zones, including Hammam Sousse. Development of legal and institutional frameworks for sustainable waste management in the tourism sector.
- **2024:** Training programs implemented for local actors in marine litter management and beach monitoring. Expansion of waste-reduction solutions in tourism hot spots, reinforcing SDG 6 and SDG 14.

Toumali Project

[TouMaLi Project Milestones (2021–2024)]
[TouMaLi Project Milestones (2021–2024)] *on AASTMT webpage*

AAST Supports Startups in the Domain of Clean Water, Sanitation and Sustainable Agriculture

AASTMT spin-offs are innovative companies established through the university's Entrepreneurship Center to transform research outcomes and student projects into real-world solutions. These spin-offs reflect AASTMT's strong commitment to fostering innovation, entrepreneurship, and sustainable development by linking academic research with market needs. Through its incubators and startup programs, the Academy supports emerging entrepreneurs in developing products and services across various fields — from renewable energy and water management to marine technologies and smart agriculture — contributing to Egypt's knowledge economy and advancing several UN Sustainable Development Goals, particularly SDG 9 and SDG 6.

AASTMT spin-offs 2023-2024	
EZR3LY	sustainable agricultural system based on aeroponic technology, where we manufacture Aeroponic towers and establish farms that rely on them, thereby changing the mindset of agricultural investment.
Biomass	Converts organic waste into biogas and organic fertilizer, reducing waste pollution that could contaminate water resources.
SH-N Formulation	Produces bio-pesticides from natural materials, preventing soil and water contamination caused by chemical pesticides.

	Utilizes solar energy in agriculture, reducing water and energy consumption through clean energy applications like irrigation and ventilation systems.
Aqua Valley	Focuses on recycling and reusing fish farm water after biological filtration to remove ammonia, using it for irrigation of crops.
ReNile Technology Solutions for Growers	Provides IoT-based smart farming systems for water, air, and soil quality monitoring.
LAZARUS	Lazarus develops solutions to combat high soil and water salinity. Their project uses a blend of 42 bacterial strains to enhance plant resilience and growth, helping them survive in saline conditions.

AAST Supports Startups in the Domain of Clean Water, Sanitation and Sustainable Agriculture on AASTMT webpage

AASTMT Promotes Conscious Water Management through PRIMA Info Day 2024

In support of SDG 6 – Clean Water and Sanitation, the Arab Academy for Science, Technology and Maritime Transport (AASTMT) organized the PRIMA Annual Work Plan 2024 Info Day on February 14, 2024, to encourage research and innovation in sustainable water management.

The event, led by Dr. Mohamed Wageh and Dr. Omar Elammary, highlighted the role of science and technology in advancing efficient water use, resource conservation, and ecosystem protection. Supported by the European Union's PRIMA Programme, the initiative fosters collaboration among academia, industry, and policymakers to promote integrated and responsible water management in Egypt and the Mediterranean region.

AASTMT Promotes Conscious Water Management through PRIMA Info Day 2024 on AASTMT webpage