

Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	28 September 2026
Company name:	Egypt Solid Waste Management Center of Excellence (ESWMCE)
Contact person and title/designation:	Prof. Sherien Elagroudy Professor of Environmental Engineering/ Director of ESWMCE
E-mail:	s.elagroudy@eng.asu.edu.eg
Phone number:	
Mobile number:	+20100-607-0032
Website:	https://eswmce.eng.asu.edu.eg/

SECTION 1: Entity launching the partner search

(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)

Sector	Environmental Engineering, Solid Waste Management, Circular Economy and Waste-to-Energy (university-based Center of Excellence: applied R&D, accredited testing laboratories, and engineering consultancy).
Entity mission or core functions	The first and only university-based house of expertise in Egypt dedicated exclusively to solid waste management. It integrates strategic engineering vision, applied R&D, and ISO 17025-accredited laboratory validation to deliver ready-to-implement turnkey solutions that generate a tangible return on investment. It is the accredited consulting partner and official technical arm of the Egyptian Waste Management Regulatory Authority (WMRA).
Date of establishment	2018
Ownership (if public and traded, add stock exchange and ticker symbol)	Public. The Center is part of the Faculty of Engineering, Ain Shams University, a state university. It is not publicly traded, so there is no stock exchange or ticker.
Total number of employees	30
Number of employees in R&D	7

Key products sold or services provided	• Engineering consulting and design: master planning, waste collection systems, sanitary landfills, transfer stations, sorting/recycling facilities (MBT/RDF), and safe landfill closure with landfill gas management. • Feasibility studies, EIA/EMP, and environmental auditing. • Carbon footprint, MRV systems, and carbon credit advisory. • Extended Producer Responsibility (EPR) frameworks and circular economy policy. • ISO 17025-accredited testing of solid, liquid, gaseous, and specialized matrices (RDF, hazardous waste, sludge, leachate, biogas, food contact materials). • Training, capacity building, and innovation programs.
Entity core technical competences	• Anaerobic digestion: 2-stage bench-scale and pilot-scale digesters, biogas yield assessment, co-digestion optimization. • Waste-to-Energy: RDF characterization and testing (bomb calorimetry, thermal lab). • Hydrothermal treatment of sludge and waste. • Advanced analytical capabilities: GC-MS, ICP-MS, BOD/COD/TKN. • Landfill gas modelling (IPCC FOD) and design of gas collection and treatment systems. • Waste characterization of all waste types and mass balance modelling. • Techno-economic and life-cycle assessment. • A multidisciplinary engineering team (civil, mechanical, electrical, architectural) and a LIMS-managed lab.
Key R&D programs and activities	• Biowaste-to-Hydrogen and biogas (with the University of Alberta, funded by ASRT, 2022–2025). • Process optimization for renewable energy via co-digestion of biomass and sewage sludge (with Arizona State University, USAID, 2022–2024). • Hydrothermal processes plus anaerobic digestion for sewage sludge (with the University of Trento, 2019–2021). • Anaerobic co-digestion of petroleum hydrocarbon waste (Masdar Institute / ADNOC, 2017–2018). • Organic waste management in Egypt and Jordan (with the University of Rostock and

	JUST, German Federal Ministry for the Environment). • German-MENA University Network for Waste Management and Circular Economy. • Sustainable packaging innovation (CircuPack hackathon).
Examples of accomplishments	1. Applied R&D and international research projects • Biowaste-to-Hydrogen (2022–2025, ASRT, with the University of Alberta): evaluated biowaste feedstocks for biogas and bio-hydrogen yield, and designed and operated lab- and pilot-scale anaerobic digestion setups. • Co-digestion of biomass and sewage sludge (2022–2024, USAID, with Arizona State University): established optimal mixing ratios, improved biogas production efficiency, and delivered a bio-economic feasibility assessment. • Hydrothermal treatment plus anaerobic digestion of sewage sludge (2019–2021, with the University of Trento, Italy): designed hydrothermal pre-treatment protocols to enhance sludge biodegradability and biogas output. • Anaerobic co-digestion of petroleum hydrocarbon waste and sludge (2017–2018, Masdar Institute / ADNOC): demonstrated biological treatability and determined toxicity thresholds and blending ratios. • Organic Waste: Jordan and Egypt (2023, German Federal Environment Ministry, with the University of Rostock and JUST): strategic recommendations for composting and anaerobic digestion. • German-MENA University Network for Waste Management and Circular Economy (2021–2022, PREVENT Waste Alliance): joint curricula with universities in Germany, Jordan, Morocco, and Algeria. 2. Waste treatment and recycling facilities (MBT / RDF / CDW) • Mostakbal City MSW sorting and treatment plant: lead consultant for feasibility, design, and supervision of a modular MBT plant producing compost and RDF, for a city of 11,000 acres and

	1.1 million people. • MBT facilities for Atrium SD (TMG): detailed design for 10th of Ramadan; EIA and environmental registers for Madinaty and Al Rehab. • CDW recycling facility, Nour City: EIA, EMP, and mass balance for 50–80 t/h, with about 45.5% material recovery. The Center also authored the feasibility study for the first construction waste recycling facility in Egypt (35–40 Mt/year of C&D waste). • 300 TPD municipal waste treatment feasibility, New Cairo: technology comparison of MBT versus RDF. • Recycling facilities supervision for WMRA: 2 facilities in Menya and Sohag (4 treatment lines), and 3 facilities in Dakahleya, Menoufia, and South Sinai. • Waste treatment facility in the New Administrative Capital (2021–2024): design review and construction supervision. 3. Landfills, closure, and landfill gas • Full detailed design of 26 sanitary landfills and 10 transfer stations for WMRA (2019–2020). • Elhossaynia Landfill (design and construction supervision), Ahanessia Transfer Station (Bani Sueif), and construction supervision of 2 transfer stations (Giza and Sharkeya). • Design review and supervision of ElWafaa and ElAmal Landfill, Nasr City. • Safe closure and landfill gas management, The Brooks (New Cairo, about 800,000 m²): IPCC FOD modelling to 2075, pump test validation, and detailed design of gas collection and treatment. • National guidelines for the closure of MSW dumpsites and landfills (GIZ), with a case study on the Al Toob El Ramly dumpsite. 4. Policy, climate, and circular economy • Extended Producer Responsibility (EPR) for packaging in Egypt (GIZ/WMRA): registry requirements, international case studies, and a national implementation roadmap.
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	• Methane MRV and carbon credits capacity building for SMEs (Global Methane Pledge). • Market research on FMCG waste and recycling opportunities (Geocycle, Lafarge). 5. Independent testing and specialized services • High-Speed Rail, Mariout Lake Bridge: ISO 17025-accredited environmental and chemical baseline for a 120-year design life (Ministry of Transport). • Solid waste management design for major developments in Egypt and Saudi Arabia, including NEOM (Magna), Quba Mosque expansion, and the Saudi Arabian Museum of Contemporary Art. 6. Capacity building and innovation • CircuPack Sustainable Packaging Hackathon (funded by the Netherlands Embassy). • Localization of EUWELLE training modules into a certified process for GIZ Egypt. • Preparing Egypt's first Professional Diploma in Solid Waste Management Engineering. 7. Recognition and accreditation • Official technical arm of WMRA and exclusive Egyptian National Member of ISWA; regional branch of IWWG. • First Place, National Initiative for Smart Green Projects (2023); Gold Award, Africa Grows Green Awards (2024). • 17 ISO certifications, and all laboratories accredited to ISO 17025.
Company strategic orientation	Turning waste into value by converting waste streams into energy, materials, and carbon assets, in line with the circular economy, Egypt Vision 2030, and Egypt's Waste Management Law No. 202 of 2020. The Center is expanding from consulting into technology co-development with industry through applied R&D and international partnerships. In the same direction, it is preparing Egypt's first professional diploma in solid waste management engineering.

SECTION 2: Spanish Company Profile

(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)

Profile of ideal technology partner	A Spanish company (SME or large) with an R&D/innovation department or strong technical capabilities in high-rate anaerobic digestion, biogas upgrading, or biogas-driven absorption chillers (Green Cooling).
Core technological competencies and expertise	• High-rate anaerobic digestion for high-moisture organic waste. • Biogas upgrading to biomethane or bio-hydrogen. • Trigenation and biogas-driven absorption chillers (Green Cooling). • Valorization of agricultural biomass and commercial organic waste.
Other essential qualifications (e.g.: ownership, track records etc.)	• A Spanish legal entity eligible for CDTI funding (International Technological Cooperation Projects, PCTI). • Financial capacity to co-finance its share of the project. • Track record in R&D&I projects. • Willingness to sign a Consortium Agreement covering IP. • Interest in the Egyptian and MENA markets. • Existing presence or interest in Egypt is a plus.
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	We are highly interested in partnering with companies such as Urbaser , FCC Enviro , or SITRA . We do not have direct R&D contacts for them and kindly request CDTI to facilitate the introduction. We are also open to any other suitable Spanish company with expertise in biogas and green cooling.
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	We are proposing a highly innovative, decentralized "Waste-to-Cooling" project (Eco-Market Living Lab). Our Egyptian consortium includes ESWMCE (Ain Shams University) and a leading Egyptian industrial partner. We are applying for the 11th ESIP call (STDF-CDTI) for a 24-month project (Stage 1 deadline: December 3, 2026). This project aims to bypass grid-tariff barriers in Egypt by utilizing high-purity commercial organic waste (e.g., from major wholesale markets like Obour Market) in anaerobic digesters to power absorption chillers (Green Cooling). This directly addresses the massive cold storage demands to prevent food

	loss, offering the Spanish partner a unique, highly scalable "Off-Grid" commercialization model in the MENA region.
Interested areas of collaboration	• High-rate anaerobic digestion of high-moisture commercial organic waste. • Biogas upgrading and biomethane production. • Decentralized bioenergy applications, specifically biogas-driven absorption chillers (Trigeneration / Green Cooling). • Biochar and high-quality compost optimization from digestate.
Specific R&D contribution you are seeking/offering	• Offering (ESWMCE & Industrial Partner): Access to high-purity commercial organic feedstock, mass and energy balance modeling, ISO 17025-accredited digestate and biogas analysis, techno-economic feasibility studies, and a "Living Lab" pilot environment at a major Egyptian wholesale market. • Seeking (Spanish Partner): Advanced, high-efficiency anaerobic digestion reactor technology tailored for high-moisture organics, and technical expertise in integrating biogas upgrading or biogas-driven absorption cooling systems.

Sherien Elagrouty

Signature

Name: Sherien Elagrouty

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