

Sohar University Commitment and Contribution to Environmental Sustainability

Sohar University is committed to be a Green University and contribute to environmental sustainability. As per Sohar University strategic and operation plans, Environment is identified as one of the four main University research themes where the University has committed to work hard towards Greener University and contribute to Oman efforts and commitment to achieve 0% carbon emission by 2050. The University has also linked its all strategic plan and objectives to the United Nation Sustainable Development Goals. To summarise the main actions and efforts in the areas of environmental sustainability and circular economy the following provides lists of the main initiatives in research, consultancy, projects, and other activities that Sohar University has delivered or still in the process of their delivery (on-going projects). These provides evidence that Sohar University is committed to work in collaboration with the authorities, industrial sector, and academia towards the realizing of Green University-Green City (Univer-City).

1. The delivery of several paid-for applied research and consultancy projects (in the area of sustainable energy and circular economy) to the Oman industrial private sector. Table 1 provides a list of the main of these.

Table 1 Consultancy projects in the area of sustainable energy and circular economy delivered to Oman Industrial Sector

	Title	Client
1	Advisory Services for Solar Power Project with Majis Industrial Services at Sohar Industrial Port.	Majis Industrial Services
2	Towards Sohar Green Port - Tree Planting in Port of Sohar Free Zone Area.	Port of Sohar
3	Industrial Waste – End of Life Tires - Data Inventory.	Be'ah Co.
4	Possible usage for residual process stream from Sohar Aluminium that contains approximately 40% of Al ₂ O ₃	Sohar Aluminium
5	Pretreatment Process for Oily Waste Water from Yellow Tankers.	Majis Industrial Services
6	Utilizing Local Waste Material in The Production of Concrete/Asphalt	PDO
7	Food Waste Awareness Study. (On going)	Be'ah Co.
8	Waste Electrical and Electronic Equipment (WEEE) Quantification and Characterization. (On going)	Be'ah Co.
9	Utilization of sulfur by-product in diverse civil applications (Just started)	PDO

2. The University has also delivered many applied research projects (related to energy and circular economy) to the Oman authorities based on governmental grants. Table 2 provides a list on the main of these.

Table 2 Applied research projects in the area of sustainable energy and circular economy funded by the Oman authorities (Mainly MOHERI)

	Title
1	Harnessing Clean and Green Energy Via Integrated Treatment of Industrial and Domestic Wastewater.
2	Feasibility of Solar Energy (Photovoltaic) Systems in Oman.
3	Smart system for industrial air pollution, monitoring, prediction and management framework.
4	Experimental investigations on hybrid renewable energy based Green house for sustainable food production.
5	A hybrid Artificial Neural Networks models for analyzing the impact of weather conditions and air pollutant deposition on solar energy system efficiency in Oman.
6	The utilization of wadi sediments as a potential source for the core of rock-fill dam.
7	A Conceptual Framework for Urban Flood Management System.
8	Smart Aquaponic System for Sustainable Urban Farming Based on IoT.
9	IoT Based Garbage Bin for Smart City.
10	Experimental studies on petroleum refinery waste water treatment using a novel marine-algae.
11	Treatment of Oil Produced water from Oil wells using innovative agro residue-based technology.
12	Manufacture of Biodegradable plastics from low value waste in Oman.
13	Improvement of Photovoltaic panel Performance in Oman by Using Automatic Dual-Axis Sun Tracker.
14	Experimental Investigations to Explore the Local Cementitious Materials for Advanced Construction Industry.
15	Design and assessment of a grid-connected building integrated photovoltaic system in Oman.
16	Production of novel biomass mediated nanocomposite and application for remediation of petroleum industry wastewater.
17	Sustainable treatment of Oil produced water from Oman oil fields using solar energy-based electro coagulation.
18	Sustainable reuse of dredged sediments as a construction material in Sultanate of Oman.
19	Synthesis of biogas from domestic organic waste.
20	Treatment of organic and inorganic pollutants in municipal wastewater by date seed derived granular activated carbons.
21	Fuzzy Logic and Deep learning approach to analyze and predict pollutants emission levels and examine its risk at industrial zones.
22	Sustainable technology for integrated production of food in a renewable energy-based demonstrator growing system using novel Oman agro-residue based growth media and smart irrigation system.
23	Towards a High Performance and Sustainable Healthcare Management System: Policy Driven Approach to Achieve Oman's Health Vision-2050.
24	Assessment of the Medical Solid Wastes Management process in Governorate Hospitals in Sultanate of Oman.
25	Sustainable eco-friendly treatment technology for Oil produced water using Omani clay based nano-composite.
26	Car Cabin Air Monitoring System for Improved Safety Using Oxygen Sensor and AI Technologies.
27	Smart Traffic Lights based on IoT and AI for Smart City in Oman.

28	Innovative Techniques for Performance Enhancement of Photovoltaic Cells using Phase Change Materials and Heat Pipes.
29	Automating egg incubators with the internet of things for smart cities.
30	Design of A Grid-Connected Hybrid Renewable Energy System with Active and Reactive Power Management. (On-going)
31	Development of a Novel Hybrid Nanofluid-Microfins based Cooling Technique for Solar Photovoltaic-Thermal Systems in Oman. (On-going)
32	Performance Optimization of Wind Turbine Prototype for Oman Climatic Conditions using Fixed Blade Pre-Wind Accelerator. (On-going).

3. The University has also delivered applied projects in the area of circular economy funded by international bodies. The main of these are listed in Table 3.

Table 3 Applied research projects funded by international bodies

	Title
1	Development of Grow Domes for food security. (Funded by UK-government).
2	Restoration and inheritance of living heritage under a vulnerable social environment in a port town in Southern Oman. (Funded by University of Tokyo)

4. Launching a joint initiative in collaboration with the Environmental Authority in Oman (North Al-Batenah region on "Towards Sohar University without Plastics, where the aim is to minimize usage of plastics inside the University campus and maximise the recycling of any used plastics.
5. Collaboration with Taghleef Industries Co. to establish a mechanism for best segregation and collection of plastic waste for recycling and establish a plastic recycling plant in Sohar.
6. Sohar University has also set its five-year plan to extend its initiatives towards becoming Greener University as part of. The directions will focus on:
- Reducing the University campus carbon foot print by 2% annually.
 - Boosting the transformation into digitalization and reducing paper usage with a mechanism to collect used papers for recycling purposes.
 - Enhancing the awareness on the need for Green environment among our students and the local community.
 - Renewable energy usage in the campus.
 - Proper waste segregation to maximise recycling.
7. To enable the University progress in achieving its strategic and operational plans, the University has started to collaborate with the UNESCO on Green University-Green City (Green Univer-City) initiative, where the UNESCO is expected to provide their expertise to support Sohar University achieve its targets.