The Sustainable Development Goals:

Al-Ayen Iraqi University's Evolving Strategy Towards 2027

A Comprehensive Approach to Sustainable Development (2023-2027)

ALAYEN IRAQI
UNIVERSITY
AUIQ

September 2024

AUIQ Message

At Al-Ayen Iraqi University, we are honored to present our comprehensive strategy for advancing the United Nations Sustainable Development Goals (SDGs) as part of our commitment to creating a sustainable, inclusive, and forward-looking institution. This report, "The Sustainable Development Goals: Al-Ayen Iraqi University's Evolving Strategy Towards 2027," outlines our ambitious plans to integrate sustainability into every aspect of our academic and operational practices.

Our university's mission is deeply aligned with the principles of the SDGs, as we believe that education, research, and community engagement are key drivers for positive change. We are dedicated to fostering an environment where students, faculty, and staff contribute to solutions that address pressing global challenges, from eradicating poverty to advancing innovation and responsible consumption.

Through collaborative partnerships, innovative initiatives, and a steadfast commitment to inclusivity and equality, Al-Ayen Iraqi University aims to lead by example in the pursuit of sustainable development. Together, we look forward to working towards a brighter, more sustainable future for our community, our country, and the world.

Thank you for joining us on this journey of transformation and impact.

DR. AHMED AL-AMMERY

Global University Rankings Committee Coordinator

An Evolving Strategy Towards Achieving the 17 SDGs by 2027

1. Introduction

Al-Ayen Iraqi University is dedicated to aligning its educational values, community initiatives, and institutional growth with the United Nations' SDGs. As a forward-thinking academic institution, we recognize the vital role universities play in driving positive change, fostering partnerships, and developing innovative solutions to address global challenges. Our strategic approach to sustainable development is a comprehensive, multi-faceted plan centered on actionable objectives and impactful initiatives. Our evolving strategy for 2023-2027 embraces each of the SDGs, understanding that progress in one area can reinforce success in others. For instance, our work in reducing poverty focuses on creating employment pathways and financial support for students, while our commitment to quality education emphasizes delivering inclusive learning through global partnerships and digital innovation. In addressing climate action, we promote climate resilience through educational programs and campus-wide sustainability efforts, which also align with our goal of fostering environmentally conscious urban development.

With initiatives like food assistance programs and scholarship opportunities, we are committed to enhancing not only campus life but also the welfare of individuals in surrounding communities. Our dedication to clean water and sanitation ensures access to safe water for students and faculty, while we collaborate with local authorities to improve public sanitation practices. Achieving these goals by 2027 requires forward-looking, adaptable strategies. We aim to transition to renewable energy sources while advancing research on sustainable technologies to support economic growth and innovation. Our campus environment fosters responsible consumption, environmental stewardship, and ethical governance, while partnerships remain a foundation of our strategy, promoting collaborative efforts with international universities, NGOs, and local organizations.

2. SDG Goals and Strategic Initiatives

SDG 1: No Poverty

Objective: Reduce poverty within the university community and the wider region.

Initiatives:

- Establish scholarships and financial aid for students in need.
- Provide financial literacy and vocational training for students and local residents.

- Partner with local organizations to create employment pathways for economically disadvantaged individuals.

SDG 2: Zero Hunger

Objective: Enhance food security and nutritional awareness on campus and in the community.

Initiatives:

- Implement on-campus food assistance programs for students facing financial hardship.
- Develop nutrition workshops and collaborate with local food producers to provide sustainable food options.
- Partner with regional agricultural initiatives to promote sustainable food systems.

SDG 3: Good Health and Well-being

Objective: Promote health and well-being for all students, staff, and community members.

Initiatives:

- Provide on-campus health screenings and mental health support services.
- Organize wellness programs focusing on physical, mental, and emotional health.
- Partner with local healthcare providers to improve community health education.

SDG 4: Quality Education

Objective: Deliver high-quality, inclusive education for all.

Initiatives:

- Innovate teaching methods and improve accessibility for all students.
- Expand digital learning tools and resources to reach underserved communities.
- Establish global partnerships to enhance educational quality and research capacity.

SDG 5: Gender Equality

Objective: Ensure equal opportunities and foster gender equality across campus.

Initiatives:

- Launch programs encouraging women's participation in STEM fields.
- Implement gender sensitivity training for staff and students.
- Promote women in leadership roles within the university.

SDG 6: Clean Water and Sanitation

Objective: Guarantee safe and affordable access to water, sanitation, and hygiene facilities.

Initiatives:

- Upgrade campus water infrastructure and promote water conservation practices.
- Offer educational programs on hygiene and sustainable water management.
- Collaborate with local authorities on community water access projects.

SDG 7: Affordable and Clean Energy

Objective: Transition to sustainable energy sources and reduce the campus's carbon footprint.

Initiatives:

- Invest in solar energy installations and energy-efficient systems on campus.
- Conduct energy audits and implement recommendations for sustainable energy use.
- Develop research and innovation projects focused on renewable energy solutions.

SDG 8: Decent Work and Economic Growth

Objective: Promote employment opportunities and foster economic growth.

Initiatives:

- Host career development workshops and internships for students.
- Create partnerships with local industries for workforce training programs.
- Support entrepreneurship through business incubators and innovation labs.

SDG 9: Industry, Innovation, and Infrastructure

Objective: Enhance infrastructure and foster innovation for sustainable development.

Initiatives:

- Establish technology research centers and incubators for startups.
- Invest in campus infrastructure to support sustainable and resilient practices.
- Encourage interdisciplinary research on sustainable industrialization and technology.

SDG 10: Reduced Inequalities

Objective: Reduce inequalities within the university and surrounding community.

Initiatives:

- Implement scholarship programs and support services for marginalized groups.
- Provide training on diversity and inclusiveness for staff and faculty.
- Advocate for equal access to educational and professional opportunities.

SDG 11: Sustainable Cities and Communities

Objective: Contribute to creating sustainable and resilient communities.

Initiatives:

- Engage in urban greening projects and eco-friendly campus designs.
- Promote sustainable transport initiatives, such as cycling and electric shuttles.
- Partner with local governments on community sustainability projects.

SDG 12: Responsible Consumption and Production

Objective: Encourage sustainable consumption practices within the university.

Initiatives:

- Reduce waste through recycling programs and campus-wide waste audits.
- Educate students and staff on responsible consumption and eco-friendly practices.

- Implement sustainable procurement policies for campus supplies.

SDG 13: Climate Action

Objective: Address climate change impacts through education and community engagement.

Initiatives:

- Conduct research and education programs focused on climate resilience.
- Organize climate awareness campaigns and tree-planting events.
- Collaborate with environmental organizations to support global climate initiatives.

SDG 14: Life Below Water

Objective: Support the conservation and sustainable use of marine resources.

Initiatives:

- Implement educational programs on marine conservation and pollution prevention.
- Conduct research on water resource management and aquatic biodiversity.
- Engage in community efforts to clean local rivers and waterways.

SDG 15: Life on Land

Objective: Promote the sustainable use and protection of terrestrial ecosystems.

Initiatives:

- Engage in tree-planting campaigns and habitat restoration projects.
- Conduct research on biodiversity conservation and sustainable land use.
- Partner with environmental organizations on community conservation projects.

SDG 16: Peace, Justice, and Strong Institutions

Objective: Build inclusive, just, and strong institutional practices.

Initiatives:

- Develop conflict resolution programs and advocacy for human rights.
- Collaborate with justice organizations to promote social responsibility education.
- Encourage academic freedom and uphold ethical standards across all operations.

SDG 17: Partnerships for the Goals

Objective: Strengthen global and local partnerships to support the SDGs.

Initiatives:

- Collaborate with international universities, NGOs, and governments on joint projects.
- Establish strategic partnerships to support research, resource sharing, and knowledge exchange.
- Foster student and staff involvement in SDG-related community outreach programs.

Al-Ayen Iraqi University – SDG 1 Progress Report (2023)

1. Introduction and Overview

Al-Ayen Iraqi University, a key educational institution in Iraq, actively supports SDG 1 through community initiatives, partnerships, and research aimed at economic and social empowerment. Its impactful programs, like the Ramadan Food Distribution, Eid Clothing Drive, and Household Appliances Distribution, directly support families in need. Collaborative events, such as the Shubad Women's Festival with Tima Organization, foster women's economic independence, while scholarships for low-income, non-Iraqi students enhance educational access. Community support is further reinforced through initiatives like the Orphan Recognition Event, Iftar Banquet, and the Shakir Al-Gharabi School Support Initiative, which eases financial burdens on families by providing resources and facility improvements. Additionally, four publications in 2023 address financial inclusion, sustainable agriculture, and economic growth, providing valuable insights for poverty reduction in Iraq. Al-Ayen's comprehensive approach demonstrates its strong commitment to SDG 1 and to creating a sustainable, inclusive community.

2. Detailed SDG 1 Contributions

Community Initiatives

- Ramadan Food Distribution, Eid Clothing Drive, and Household Appliances Distribution: These key programs address local economic hardships, directly supporting impoverished families by providing food, clothing, and household essentials.
  Link: https://alayen.edu.iq/news/details/1253
- Annual Shubad Women's Festival: In collaboration with Tima Organization, this festival promotes economic opportunities for women, aligning with SDG 1 by fostering financial independence and local entrepreneurship.
  Link: https://alayen.edu.iq/news/details/1167
- Scholarship Programs for Non-Iraqi Students: Scholarships offer students from low-income backgrounds access to quality education, helping them overcome financial barriers. Link: https://alayen.edu.iq/news/details/1168
- Orphan Recognition Event and Collective Iftar Banquet: These events foster a sense of community support and inclusivity, enhancing social well-being for orphans and vulnerable groups. Link: https://alayen.edu.iq/news/details/1069

- Shakir Al-Gharabi School Support Initiative: This includes providing stationery and classroom renovations, which lessen the financial strain on families, supporting SDG 1 by improving educational access for low-income students.
  Link: https://alayen.edu.iq/news/details/1843

Supporting Data and Metrics

Research Publications: Four research publications in 2023 directly align with SDG 1, covering topics from sustainable agriculture to economic growth and customer loyalty. These publications collectively underscore Al-Ayen Iraqi University's proactive role in advancing SDG 1 through research that addresses financial inclusion, sustainable agriculture, education, and economic resilience. Each study not only contributes to understanding poverty-related challenges but also provides actionable insights into creating more equitable, sustainable communities in Iraq.

| 4 publications match with Sustainable Development Goal 1 :						
Institutions		Al-Ayen Iraqi University				
Publication years		(2023)				
NO.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Mediating Role of Customer Trust in the Relationship between Service Quality and Customer Loyalty: Empirical Evidence from Iraqi Banking Customers	2023	29	2	10.46970/2023.29.2.12	SDG 1| SDG 10
2	Factors Affecting Sustainable Agriculture in Iraq: Evidence from Employment, CPI, Rents, and Policies	2023	25	2	-	SDG 1| SDG 2| SDG 8| SDG 12
3	Global Citizenship Education in Higher Institution - A Systematic Review of Literature	2023	2736	1	10.1063/5.0170923	SDG 1| SDG 2| SDG 4| SDG 6
4	Does Financial Development and Financial Inclusion Matter for Economic Growth? Evidence from Iraq	2023	46	131	10.32826/cude.v46i131.1110	SDG 1| SDG 8| SDG 10

3. Visual Elements

- The doughnut chart shown below illustrates Al-Ayen Iraqi University's contributions to SDG1 through targeted support initiatives for orphans and community events. The chart highlights three main efforts: recognizing 4 high-achieving orphans, supporting 26 orphans in the Nasiriyah orphanage, and organizing 30 iftar meals for students, faculty, and community members. Each segment reflects the university's commitment with percentages displayed on the ring to show the proportionate impact of each initiative.
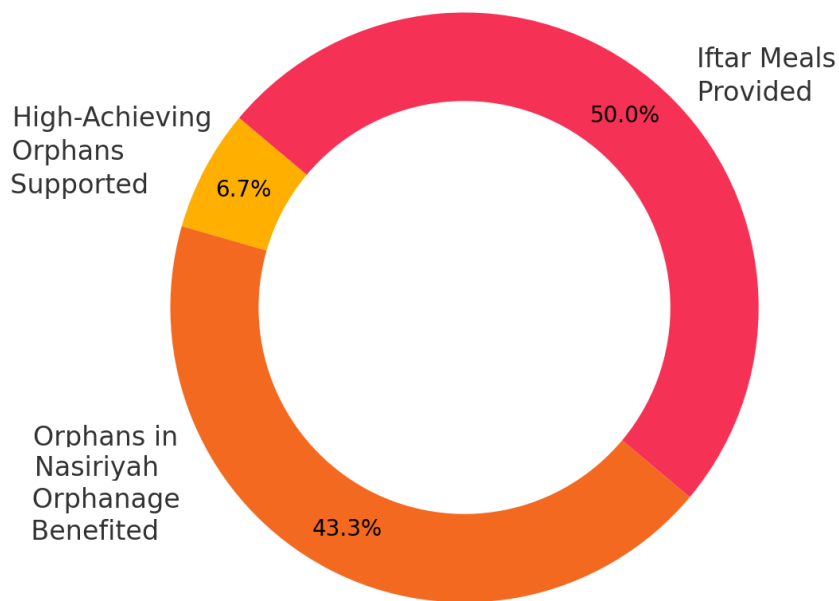
- Images and Infographics: Photographs from events such as the Shakir Al-Gharabi School support visit, the Shubad Women's Festival, and charity bazaars help highlight Al-Ayen's commitment to SDG 1.

Shakir Al-Gharabi School Support Initiative

Annual Shubad Women's Festival

Charity Bazaars

4. Supporting Documents and Links

For further details, please refer to:

- [Al-Ayen University SDG Contributions - University Website]
  (https://en.alayen.edu.iq/sdj/sub_details/85)
- Related publications and annual reports accessible via Scopus data base and relevant online platforms.

Al-Ayen Iraqi University – SDG 2 Progress Report (2023)

1. Introduction and Overview

Al-Ayen Iraqi University is dedicated to promoting sustainable development, aligning its goals with the United Nations SDGs. The university actively engages in initiatives to support SDG 2, focusing on sustainable agriculture, food security, and community outreach to reduce hunger and support vulnerable populations.

2. Detailed SDG 2 Contributions

Community Initiatives

- Charity Bazaar: The Department of Medical Laboratory Technology organized a charity bazaar, raising funds to provide food and financial aid to underprivileged families and orphans. This initiative promotes food security by directly supporting vulnerable community members. Link: https://alayen.edu.iq/news/details/1769
- Iftar Banquet: The university hosted an Iftar banquet for dormitory students, orphans, and faculty during Ramadan, fostering inclusion and social support. This annual event aligns with the principles of SDG 2 by providing food access and supporting community well-being. Link: https://alayen.edu.iq/news/details/1253
- Orphanage Visit: Faculty and students from the College of Engineering Technology visited an orphanage in Nasiriyah, providing meals and engaging activities, reinforcing the university's commitment to social responsibility and food security.
  Link: https://alayen.edu.iq/news/details/1276

Supporting Data and Metrics

Research Publications: In 2023, Al-Ayen University contributed significantly to SDG 2 with 19 publications, covering topics such as sustainable agriculture, water management, and food security. Highlights include studies on sustainable farming practices, the impact of climate change on agriculture, and water conservation methods essential for supporting agricultural sustainability.

19 publications match with Sustainable Development Goal 2 :						
Institutions	Al-Ayen University					
Publication years	(2023)					
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Integration of hydrogeological data, GIS and AHP techniques applied to delineate groundwater potential zones in sandstone, limestone and shales rocks of the Damoh district, (MP) central India	2023	228	-	10.1016/j.envr es.2023.11583 2	SDG 2| SDG 6| SDG 8| SDG 13| SDG 15
2	Intertwined impacts of urbanization and land cover change on urban climate and agriculture in Aurangabad city (MS), India using google earth engine platform	2023	422	-	10.1016/j.jclep ro.2023.13854 1	SDG 2| SDG 9| SDG 11| SDG 13| SDG 15
3	Bacillus subtilis ER-08, a multifunctional plant growth-promoting rhizobacterium, promotes the growth of fenugreek (Trigonella foenum-graecum L.) plants under salt and drought stress	2023	14	-	10.3389/fmicb. 2023.1208743	SDG 2| SDG 8| SDG 12
4	Millets: sustainable treasure house of bioactive components	2023	26	1	10.1080/10942 912.2023.2236 317	SDG 2| SDG 3
5	Megacities' environmental assessment for Iraq region using satellite image and geo-spatial tools	2023	30	11	10.1007/s1135 6-022-24153-8	SDG 2| SDG 11| SDG 13
6	Predicting agricultural drought using meteorological and ENSO parameters in different regions of Iran based on the LSTM model	2023	37	9	10.1007/s0047 7-023-02465-6	SDG 2| SDG 11
7	Design and Validation of a Variable-Rate Control Metering Mechanism and Smart Monitoring System for a High-Precision Sugarcane Transplanter	2023	13	12	10.3390/agricu lture13122218	SDG 2
8	The socioeconomic impact of severe droughts on agricultural lands over different provinces of Iran	2023	289	-	10.1016/j.agwa t.2023.108550	SDG 2| SDG 6
9	Sustainable Water Management for Small Farmers with Center-Pivot	2023	15	23	10.3390/su152 316390	SDG 2| SDG 6

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	Irrigation: A Hydraulic and Structural Design Perspective				
10	Hydrological evaluation of conservation bench terrace system in outer foothills of Himalayas using soft computing techniques	2023	132	-	10.1016/j.pce.2023.103495	SDG 2| SDG 15
11	Spatiotemporal analysis of groundwater resources sustainability in South Asia and China using GLDAS data sets	2023	82	24	10.1007/s12665-023-11282-7	SDG 2| SDG 6| SDG 13| SDG 15
12	Intelligent Wireless Sensor Networks for Healthcare: Bridging Biomedical Clothing to the IoT Future	2023	9	2	10.54216/JISIoT.090203	SDG 2| SDG 7
13	Assessment of Hydrological Response to Climatic Variables over the Hindu Kush Mountains, South Asia	2023	15	20	10.3390/w15203606	SDG 2| SDG 11| SDG 13
14	Leveraging microalgae utilization for anthropogenic CO2 emission abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)	2023	129	-	10.1016/j.pce.2022.103356	SDG 2| SDG 8| SDG 9| SDG 11| SDG 13| SDG 15
15	Identifying the role played by climate change in agricultural productivity: evidence from Iraq	2023	25	2	-	SDG 2| SDG 8| SDG 11| SDG 13
16	Factors Affecting Sustainable Agriculture in Iraq: Evidence from Employment, CPI, Rents, and Policies	2023	25	2	-	SDG 1| SDG 2| SDG 8| SDG 12
17	Global Citizenship Education in Higher Institution - A Systematic Review of Literature	2023	2736	1	10.1063/5.0170923	SDG 1| SDG 2| SDG 4| SDG 6
18	Research on Sustainable development of green energy and manufacturing in smart agriculture based on big data analysis	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420012	SDG 2| SDG 7| SDG 8| SDG 9| SDG 12

19	Sustainable Economic Growth in Iraq: Role of Industrialization, Deforestation, Trade, Employment, Technology, and Agriculture	2023	25	2	-	SDG 2| SDG 8| SDG 9| SDG 15

3. Visual Elements

- The doughnut chart shown below illustrates Al-Ayen Iraqi University's contributions to SDG 2 through targeted support initiatives for orphans and community events. By providing 26 orphans with necessary support and offering 30 Iftar meals during communal events, the university actively addresses hunger and promotes social equity. These initiatives reflect a commitment to ensuring that all community members, especially those in need, have access to nutritious food, thus reinforcing SDG 2's objectives of ending hunger and fostering sustainable community well-being.
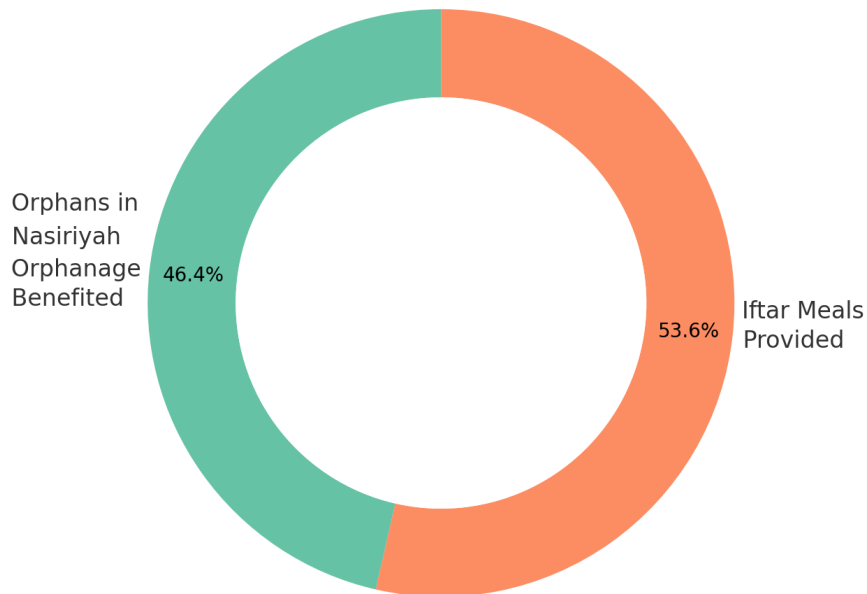
- Images and Infographics: including the orphanage visit, Iftar banquet, and charity bazaar, demonstrating Al-Ayen's engagement in promoting food security and supporting community members.

Orphanage visit

Iftar banquet

Charity Bazaars

4. Supporting Documents and Links

For further details, please refer to:

- [Al-Ayen University SDG Contributions - University Website]
  (https://en.alayen.edu.iq/sdj/sub_details/86)
- Related publications and annual reports accessible via Scopus data base and relevant online platforms.

Al-Ayen Iraqi University: SDG3 Progress Report – 2023

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) has shown a strong commitment to SDG 3 through extensive research, educational initiatives, and community outreach programs. As an institution aligned with sustainable development, AUIQ seeks to promote health knowledge, advance healthcare practices, and contribute to building healthier communities locally and globally.

2. Detailed SDG Contributions

- Healthcare Initiatives and Outreach: AUIQ organized health awareness campaigns, such as breast cancer awareness and drug abuse prevention, directly engaging the community to promote preventive health. AUIQ also conducted training sessions on essential health skills, including first aid and pharmacovigilance, aligning with SDG 3 by enhancing public health and safety knowledge.

Initiative	Link
Breast Cancer Awareness Campaign: Educating on early detection and risk factors	https://alayen.edu.iq/news/details/1641
Drug Abuse Prevention Seminar: Focused on causes and dangers of drug addiction	https://alayen.edu.iq/news/details/1175
Pharmacovigilance Workshop: Promoting drug safety and adverse effect awareness	https://alayen.edu.iq/news/details/1223
Family Planning and Reproductive Health Standards Workshop: Education on health practices	https://alayen.edu.iq/public/ar/save_file/files/60293e8c46e07617cdb2a4d325d2d69e_.pdf
First Aid Workshop: Hands-on training in emergency care and life-saving techniques	https://alayen.edu.iq/news/details/1189
Specialized Dental Teaching Hospital: Offering dental services and student training	https://alayen.edu.iq/news/details/1556
Field Visit to Genetic Blood Disorders Center: Providing support to patients and community health services	https://alayen.edu.iq/news/details/1821
Environmental Pollution and Public Health Seminar: Addressing pollution prevention and health impacts	https://alayen.edu.iq/news/details/1227
Pediatric Eye Tumor Conference: Advancing knowledge in ocular oncology	https://alayen.edu.iq/news/details/1676
Drug Safety Awareness Week Campaign: Raising awareness on medication side effects	https://alayen.edu.iq/news/details/1686

3 GOOD HEALTH AND WELL-BEING

- Educational Programs and Capacity Building: Through collaborations with national and international health institutions, AUIQ provided practical training for students, including dental and optometry services, and hosted workshops on family planning, reproductive health, and mental health.

Initiative	Link
Family Planning and Reproductive Health Standards Workshop	https://alayen.edu.iq/public/ar/save_file/files/60293e8c46e07617cdb2a4d325d2d69e_.pdf
First Aid Workshop by College of Dentistry and Alpha Medical Team	https://alayen.edu.iq/news/details/1189
Training at the Specialized Dental Teaching Hospital for Dental Students	https://alayen.edu.iq/news/details/1556
Optometry Department Hosts Asad Baghdad School Students for Insightful Eye Health and Safety Workshop	https://alayen.edu.iq/news/details/1846
Eye Examination Campaign for Students by Optometry Department	https://alayen.edu.iq/news/details/1680
Training Program in Nasiriyah Teaching Hospital by College of Health and Medical Technologies	https://alayen.edu.iq/news/details/2739
Anesthesia Workshop and Poster Presentation by Anesthesia Technology Department	https://alayen.edu.iq/public/ar/save_file/files/70be2fd83b5c0d68992b168211b1a331_.pdf
Pharmacovigilance Workshop with Dhi Qar Health Directorate	https://alayen.edu.iq/news/details/1631
Introduction to Arduino and Medical Sensors Workshop by College of Engineering Technology	https://alayen.edu.iq/news/details/1322
Training in Modern Alternative Medicine Techniques with Malaysian OXIS Center	https://alayen.edu.iq/news/details/1509

- International Collaboration: AUIQ's partnerships with entities like the British Royal College of Physicians and Tehran University foster international academic exchanges, promoting cross-border knowledge transfer and advancing healthcare standards in Iraq.

Initiative	Link
Medical team from Tehran University of Medical Sciences collaboration for advanced surgical specialties.	https://alayen.edu.iq/news/details/1127
Participation in an online event hosted by the British Royal College of Physicians focusing on cardiovascular diseases.	https://alayen.edu.iq/news/details/1103

Supporting Data and Metrics:

- Publications and Research: 142 publications in 2023 directly support SDG 3.

142 publications match with Sustainable Development Goal 3 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Anticancer Drug-Loading Capacity of Green Synthesized Porous Magnetic Iron Nanocarrier and Cytotoxic Effects Against Human Cancer Cell Line	2023	34	1	10.1007/s10876-022-02235-4	SDG 3
2	An integrated GIS, MIF, and TOPSIS approach for appraising electric vehicle charging station suitability zones in Mumbai, India	2023	97	-	10.1016/j.scs.2023.104717	SDG 3| SDG 7| SDG 13
3	Integration of Geochemical Modeling, Multivariate Analysis, and Irrigation Indices for Assessing Groundwater Quality in the Al-Jawf Basin, Yemen	2023	15	8	10.3390/w15081496	SDG 3| SDG 6| SDG 8
4	Transition metal-based nanoparticles as potential antimicrobial agents: recent advancements, mechanistic, challenges, and future prospects	2023	18	1	10.1186/s11671-023-03861-1	SDG 3
5	The role of miR-128 in cancer development, prevention, drug resistance, and immunotherapy	2023	12	-	10.3389/fonc.2022.1067974	SDG 3
6	Tumor-associated Macrophages (TAMs) in Cancer Resistance; Modulation by Natural Products	2023	23	12	10.2174/1568026623666230201145909	SDG 3
7	The effects of Chlorella vulgaris on cardiovascular risk factors: A comprehensive review on putative molecular mechanisms	2023	162	-	10.1016/j.biopha.2023.114624	SDG 3
8	Recent advances in cold atmospheric plasma (CAP) for breast cancer therapy	2023	47	2	10.1002/cbin.11939	SDG 3| SDG 9
9	Advances in preparation, biomedical, and pharmaceutical applications of	2023	251	-	10.1016/j.ijbiomac.2023.126390	SDG 3

	chitosan-based gold, silver, and magnetic nanoparticles: A review				
10	Smartphone-assisted microfluidic sensor as an intelligent device for on-site determination of food contaminants: Developments and applications	2023	190	-	10.1016/j.microc.2023.108692	SDG 3
11	Curcumin in the treatment of liver cancer: From mechanisms of action to nanoformulations	2023	37	4	10.1002/ptr.7757	SDG 3
12	The functions and molecular mechanisms of Tribbles homolog 3 (TRIB3) implicated in the pathophysiology of cancer	2023	114	-	10.1016/j.intimp.2022.109581	SDG 3
13	Machine learning-based country-level annual air pollutants exploration using Sentinel-5P and Google Earth Engine	2023	13	1	10.1038/s41598-023-34774-9	SDG 3| SDG 13
14	Overview of Yersinia pestis Metallophores: Yersiniabactin and Yersinopine	2023	12	4	10.3390/biology12040598	SDG 3
15	Oxidative stress affects the beginning of the growth of cancer cells through a variety of routes	2023	249	-	10.1016/j.prp.2023.154664	SDG 3
16	Secure blockchain assisted Internet of Medical Things architecture for data fusion enabled cancer workflow	2023	24	-	10.1016/j.iot.2023.100928	SDG 3
17	Effect of Polycyclic Aromatic Hydrocarbons (PAHs) on Respiratory Diseases and the Risk Factors Related to Cancer	2023	43	9	10.1080/10406638.2022.2149569	SDG 3| SDG 6| SDG 9
18	Machine learning algorithms for high-resolution prediction of spatiotemporal distribution of air pollution from meteorological and soil parameters	2023	175	-	10.1016/j.envint.2023.107931	SDG 3
19	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/27197050/157168	SDG 3| SDG 7| SDG 8| SDG 9|

					SDG 12 SDG 13
20	The pathological role of C-X-C chemokine receptor type 4 (CXCR4) in colorectal cancer (CRC) progression; special focus on molecular mechanisms and possible therapeutics	2023	248	-	10.1016/j.prp.2023. 154616	SDG 3
21	CDKN2B-AS1 as a novel therapeutic target in cancer: Mechanism and clinical perspective	2023	213	-	10.1016/j.bcp.2023. 115627	SDG 3
22	Millets: sustainable treasure house of bioactive components	2023	26	1	10.1080/10942912. 2023.2236317	SDG 2| SDG 3
23	Multi-step ahead hourly forecasting of air quality indices in Australia: Application of an optimal time-varying decomposition-based ensemble deep learning algorithm	2023	14	6	10.1016/j.apr.2023. 101752	SDG 3| SDG 11
24	The Radioprotective Potentials of Silymarin/Silibinin Against Radio-therapy-Induced Toxicities: A Systematic Review of Clinical and Experimental Studies	2023	30	33	10.2174/092986733 0666221124155339	SDG 3
25	The cross-talk between LncRNAs and JAK-STAT signaling pathway in cancer	2023	248	-	10.1016/j.prp.2023. 154657	SDG 3
26	Functionalized SWCNTs@Ag-TiO2nanocomposites induce ROS-mediated apoptosis and autophagy in liver cancer cells	2023	12	1	10.1515/ntrev-2023-0127	SDG 3
27	The role of miRNA-128 in the development and progression of gastrointestinal and urogenital cancer	2023	18	38	10.2217/fon-2022-0574	SDG 3
28	An in vitro investigation of the apoptosis-inducing activity of corosolic acid in breast cancer cells	2023	26	4	10.22038/IJBMS.2 023.67783.14834	SDG 3
29	Shining the light on mesenchymal stem cell-derived exosomes in breast cancer	2023	14	1	10.1186/s13287-023-03245-3	SDG 3

30	Current progress toward synthetic routes and medicinal significance of quinoline	2023	32	12	10.1007/s00044-023-03121-y	SDG 3| SDG 9
31	LncRNA-miRNA interaction is involved in colorectal cancer pathogenesis by modulating diverse signaling pathways	2023	251	-	10.1016/j.prp.2023.154898	SDG 3
32	Recent applications of microfluidic immunosensors	2023	190	-	10.1016/j.microc.2023.108733	SDG 3
33	Spectroscopic, anti-bacterial, anti-cancer and molecular docking of Pd(II) and Pt(II) complexes with (E)-4-((dimethylamino)methyl)-2-((4,5-dimethylthiazol-2-yl)diazenyl)phenol ligand	2023	27	3	10.1016/j.jscs.2023.101619	SDG 3
34	A Systematic Review and Meta-Analysis on Death Anxiety During COVID-19 Pandemic	2023	-	-	10.1177/00302228221144791	SDG 3
35	Functional role of circRNAs in osteogenesis: A review	2023	121	-	10.1016/j.intimp.2023.110455	SDG 3
36	Double-edged sword role of miRNA-633 and miRNA-181 in human cancers	2023	248	-	10.1016/j.prp.2023.154701	SDG 3
37	Polymorphic renal transporters and cisplatin's toxicity in urinary bladder cancer patients: current perspectives and future directions	2023	40	2	10.1007/s12032-022-01928-0	SDG 3
38	LncRNA PVT1: as a therapeutic target for breast cancer	2023	248	-	10.1016/j.prp.2023.154675	SDG 3
39	Insight into the environmental fate, hazard, detection, and sustainable degradation technologies of chlorpyrifos—an organophosphorus pesticide	2023	30	50	10.1007/s11356-023-30049-y	SDG 3
40	Multi-class deep learning architecture for classifying lung diseases from chest X-Ray and CT images	2023	13	1	10.1038/s41598-023-46147-3	SDG 3
41	A comprehensive review on Ellagic acid in breast cancer treatment: From	2023	11	12	10.1002/fsn3.3699	SDG 3

	cellular effects to molecular mechanisms of action				
42	Recent advances in assembly strategies of new advanced materials-based analytical methods for the detection of cardiac biomarkers as a diagnosis tool	2023	191	-	10.1016/j.microc.2023.108827	SDG 3
43	Exosomes derived from adipose stem cells in combination with hyaluronic acid promote diabetic wound healing	2023	85	-	10.1016/j.tice.2023.102252	SDG 3
44	Investigation of Early-Stage Breast Cancer Detection using Quantum Neural Network	2023	19	3	10.3991/ijoe.v19i03.37573	SDG 3
45	A classification model of breast masses in DCE-MRI using kinetic curves features with quantum-Raina's polynomial based fusion	2023	84	-	10.1016/j.bspc.2023.105002	SDG 3
46	Circ_0067934 as a novel therapeutic target in cancer: From mechanistic to clinical perspectives	2023	245	-	10.1016/j.prp.2023.154469	SDG 3
47	miR-495–3p as a promising tumor suppressor in human cancers	2023	248	-	10.1016/j.prp.2023.154610	SDG 3
48	Drinking Water Resources Suitability Assessment Based on Pollution Index of Groundwater Using Improved Explainable Artificial Intelligence	2023	15	21	10.3390/su15211565 5	SDG 3| SDG 6| SDG 14 SDG 15
49	Deeper insight into ferroptosis: association with Alzheimer's, Parkinson's disease, and brain tumors and their possible treatment by nanomaterials induced ferroptosis	2023	28	1	10.1080/13510002.2023.2269331	SDG 3
50	Unraveling the impact of 27-hydroxycholesterol in autoimmune diseases: Exploring promising therapeutic approaches	2023	248	-	10.1016/j.prp.2023.154737	SDG 3
51	A comprehensive insight into the role of small nucleolar RNAs (snoRNAs) and SNHGs in human cancers	2023	249	-	10.1016/j.prp.2023.154679	SDG 3
52	Recent advances of amino acid-based biosensors for the efficient food and	2023	189	-	10.1016/j.microc.2023.108552	SDG 3| SDG 6

	water contamination detection in food samples and environmental resources: A technical and analytical overview towards advanced nanomaterials and biological receptor				
53	Seasonal correlation of meteorological parameters and PM2.5 with the COVID-19 confirmed cases and deaths in Baghdad, Iraq	2023	94	-	10.1016/j.ijdrr.2023.103799	SDG 3
54	The association of in-utero exposure to polycyclic aromatic hydrocarbons and umbilical liver enzymes	2023	889	-	10.1016/j.scitotenv.2023.164220	SDG 3
55	Recent Progress in Screening of Mycotoxins in Foods and Other Commodities Using MXenes-Based Nanomaterials	2023	-	-	10.1080/10408347.2023.2222412	SDG 3
56	Overview of the role and action mechanism of microRNA-128 in viral infections	2023	176	-	10.1016/j.micpath.2023.106020	SDG 3
57	Methanol extract of Iraqi Kurdistan Region Daphne mucronata as a potent source of antioxidant, antimicrobial, and anticancer agents for the synthesis of novel and bioactive polyvinylpyrrolidone nanofibers	2023	11	-	10.3389/fchem.2023.1287870	SDG 3
58	Hydrogel assistant synthesis of new Ti-MOF cross-linked oxidized pectin and chitosan with anti-breast cancer properties	2023	10	-	10.3389/fmats.2023.1264529	SDG 3
59	A Systematic Review of the Chemo/Radioprotective Effects of Melatonin against Ototoxic Adverse Effects Induced by Chemotherapy and Radiotherapy	2023	29	15	10.2174/138161282 96666230503145707	SDG 3
60	Common variants in toll-like receptor family genes and risk of gastric cancer: a systematic review and meta-analysis	2023	14	-	10.3389/fgene.2023.1280051	SDG 3
61	Dose-dependent cytotoxicity against lung cancer cells via green	2023	23	1	10.1515/epoly-2023-0113	SDG 3

	synthesized ZnFe2O4/cellulose nanocomposites				
62	Developing an efficient VGG19-based model and transfer learning for detecting acute lymphoblastic leukemia (ALL)	2023	-	-	10.1109/HORA583 78.2023.10156679	SDG 3
63	GC-MS, alpha-amylase, and alpha-glucosidase inhibition and molecular docking analysis of selected phytoconstituents of small wild date palm fruit (Phoenix pusilla)	2023	11	9	10.1002/fsn3.3489	SDG 3
64	Functions, mechanisms, and clinical applications of lncRNA LINC00857 in cancer pathogenesis	2023	36	5	10.1007/s13577-023-00936-0	SDG 3
65	Hepatocellular carcinoma (HCC) immunotherapy by anti-PD-1 monoclonal antibodies: A rapidly evolving strategy	2023	247	-	10.1016/j.prp.2023. 154473	SDG 3
66	Evaluation of Histopathological and Hematological Effects of Neonicotinoid (Acetamiprid 20% SP) on Grass Carp (Ctenopharyngodon idella)	2023	2023	-	10.1155/2023/9951 536	SDG 3
67	Significance of Literacy in Minimizing Infant Mortality and Maternal Anemia in India: A State-Wise Analysis	2023	726	-	10.1007/978-981-99-3716-5_73	SDG 3
68	Combined oncolytic virotherapy gold nanoparticles as synergistic immunotherapy agent in breast cancer control	2023	13	1	10.1038/s41598-023-42299-4	SDG 3
69	NLRP3 inflammasome pathway in atherosclerosis: Focusing on the therapeutic potential of non-coding RNAs	2023	246	-	10.1016/j.prp.2023. 154490	SDG 3
70	Perceptions and Knowledge of Public Towards Emerging Human Monkeypox in Yemen: A Cross-Sectional Study	2023	16	-	10.2147/JMDH.S44 2296	SDG 3

71	On mechanical behavior and optimization of elliptical-rectangular absorbers made by ABS and PLA in both experimental and numerical methods	2023	45	7	10.1007/s40430-023-04199-6	SDG 3
72	Aptamer-Magnetic Nanoparticle Complexes for Powerful Biosensing: A Comprehensive Review	2023	-	-	10.1080/10408347.2023.2298328	SDG 3
73	Value of Conventional MRI, DCE-MRI, and DWI-MRI in the Discrimination of Metastatic from Non-Metastatic Lymph Nodes in Rectal Cancer: A Systematic Review and Meta-Analysis Study	2023	24	2	10.31557/APJCP.2023.24.2.401	SDG 3
74	Involving stemness factors to improve CAR T-cell-based cancer immunotherapy	2023	40	11	10.1007/s12032-023-02191-7	SDG 3
75	The cardioprotective effects of cerium oxide nanoparticles against the poisoning generated by aluminum phosphide pesticide: Controlling oxidative stress and mitochondrial damage	2023	197	-	10.1016/j.pestbp.2023.105701	SDG 3
76	Nanocomposite of reduced nanographene oxide with β-lactoglobulin protein (rNGO/β-Lg) as a carrier of the anticancer drug oxaliplatin (Eloxatin)	2023	136	-	10.1016/j.diamond.2023.110015	SDG 3
77	Emerging Insights into the Use of Advanced Nanomaterials for the Electrochemiluminescence Biosensor of Pesticide Residues in Plant-Derived Foodstuff	2023	-	-	10.1080/10408347.2023.2258971	SDG 3| SDG 6
78	Dietary caffeine intake is associated with favorable metabolic profile among apparently healthy overweight and obese individuals	2023	23	1	10.1186/s12902-023-01477-1	SDG 3
79	Exploratory Review of Deep Learning Techniques for ECG Signals Analysis	2023	-	-	10.1109/InC457730.2023.10262980	SDG 3

80	A thorough and current study of miR-214-related targets in cancer	2023	249	-	10.1016/j.prp.2023.154770	SDG 3
81	Advances in nanomaterials-based chemiluminescence (bio)sensor for specific and sensitive determination of pathogenic bacteria	2023	191	-	10.1016/j.microc.2023.108860	SDG 3
82	The Effectiveness of Mindfulness-based Cognitive Therapy on the Vitality and Psychological Well-being of Prostate Cancer Patients	2023	10	4	10.22122/ijbmc.v10i4.576	SDG 3
83	Experimental and theoretical investigations of Erbium complex: DNA/BSA interaction, anticancer and antibacterial studies	2023	11	-	10.3389/fchem.2023.1266520	SDG 3
84	Arduino-Based Real-Time Obstacle Detection in Vehicles Using Proximity Sensors	2023	-	-	10.1109/ICAICCIT60255.2023.10465720	SDG 3| SDG 11
85	The potential role of interleukins and interferons in ovarian cancer	2023	171	-	10.1016/j.cyto.2023.156379	SDG 3
86	The mechanisms, functions and clinical applications of miR-542–3p in human cancers	2023	248	-	10.1016/j.prp.2023.154724	SDG 3
87	Using data mining techniques deep analysis and theoretical investigation of COVID-19 pandemic	2023	27	-	10.1016/j.measen.2023.100747	SDG 3
88	Dishevelled: An emerging therapeutic oncogene in human cancers	2023	250	-	10.1016/j.prp.2023.154793	SDG 3
89	Breast cancer vaccines; A comprehensive and updated review	2023	249	-	10.1016/j.prp.2023.154735	SDG 3
90	Targeting autophagy with tamoxifen in breast cancer: From molecular mechanisms to targeted therapy	2023	37	6	10.1111/fcp.12936	SDG 3
91	Functions of LncRNAs, exosomes derived MSCs and immune regulatory molecules in preeclampsia disease	2023	250	-	10.1016/j.prp.2023.154795	SDG 3
92	THE ROLE OF LYMPH NODE METASTASIS IN EARLY GASTRITIS INDIVIDUALS FOLLOWING NONCURATIVE ENDOSCOPIC RESECTION: A	2023	35	4	10.55519/JAMC-04-12050	SDG 3

	SYSTEMATIC REVIEW AND META-ANALYSIS				
93	The effect of spiritual intelligence on organisational happiness and the quality of nursing care for patients with COVID-19 virus in Russia	2023	14	4	10.1504/IJWOE.2023.136598	SDG 3
94	Evaluation of Water Quality in the South of Lebanon: Case Study	2023	234	7	10.1007/s11270-023-06453-y	SDG 3| SDG 6| SDG 7
95	A Review of the Effects of Omega-3 and Omega-6 on Alcoholic and Non-Alcoholic Fatty Liver	2023	10	4	-	SDG 3
96	Induction of apoptosis and autophagy via regulation of AKT and JNK mitogen-activated protein kinase pathways in breast cancer cell lines exposed to gold nanoparticles loaded with TNF-α and combined with doxorubicin	2023	12	1	10.1515/ntrev-2023-0148	SDG 3
97	VAV3 in human cancers: Mechanism and clinical implication	2023	248	-	10.1016/j.prp.2023.154681	SDG 3
98	Potential Anti-Cancer Properties of Frankincese (Boswellia Sarca) Chewing Gum and its Role in Reduction of Tobacco Smoking Genotoxicity	2023	16	1	10.13005/bpj/2602	SDG 3
99	A comprehension of signaling pathways and drug resistance; an insight into the correlation between microRNAs and cancer	2023	251	-	10.1016/j.prp.2023.154848	SDG 3
100	Machine Learning Based Logistic Decision Support System for Intelligent Vehicles and Transportation Systems	2023	9	2	10.54216/JISIoT.090208	SDG 3| SDG 11
101	Molecular pathways in the development of HPV-induced oropharyngeal cancer	2023	21	1	10.1186/s12964-023-01365-0	SDG 3
102	A Comparison of Individual and Group Motivational Interviewing in	2023	10	4	10.22122/ijbmc.v10i4.609	SDG 3

	the Improvement of Medication Adherence in Prostate Cancer				
103	Synthesis of Green Zno/Fe3O4 Nanocomposite by Microplasma Jet and Anti-Bacterial Agent	2023	64	12	10.24996/ijs.2023.64.12.11	SDG 3
104	ETS transcription factor ELK3 in human cancers: An emerging therapeutic target	2023	248	-	10.1016/j.prp.2023.154728	SDG 3
105	Investigating energy absorption of thin-walled steel structures with combined mechanisms including inversion, folding and expansion	2023	237	10	10.1177/14644207231173053	SDG 3
106	Diagnosis of breast cancer based on hybrid features extraction in dynamic contrast enhanced magnetic resonance imaging	2023	35	31	10.1007/s00521-023-08909-y	SDG 3
107	Systemic Melatonin Supplementation as an Adjunct to Non-Surgical Periodontal Treatment in Obese Patients with Periodontitis	2023	5	-	10.54133/ajms.v5i1S.385	SDG 3
108	Immune State Assessment in People with Diabetes Mellitus	2023	55	3	10.24321/0019.5138.202344	SDG 3
109	Dietary polyphenol intake, body composition and components of metabolic syndrome in a sample overweight and obese adults: a cross-sectional study	2023	23	1	10.1186/s12902-023-01507-y	SDG 3
110	The Effect of Contraceptive Pills on the Physiological Parameters of Blood and Hormones on Women in Al-Qurna, Iraq	2023	14	4	10.25258/ijpqa.14.4.04	SDG 3
111	The Benefits of Manual Rotation in the Treatment of Occiput Posterior Position: A Case Study of Iraq	2023	8	3	10.30699/jogcr.8.3.248	SDG 3| SDG 8| SDG 16
112	ADVANCEMENTS IN NANOPARTICLE-BASED RNA THERAPEUTICS AND RNA DELIVERY SYSTEMS	2023	46	2	10.21608/BFSA.2023.327673	SDG 3

113	Investigation ways of causes needle sticks injuries, risk factors affecting on health and ways to preventive	2023	38	4	10.1515/reveh-2022-0069	SDG 3
114	Environmental and Financial Asset Optimization through Multi-Restoration Informed by AI Systems for Optimizing Ecosystem Functioning	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420118	SDG 3|SDG 8
115	PolRam: Proposed Prediction Framework Based on Pollen Outbreak & a Critical Review	2023	-	-	10.1109/SMART59791.2023.10428361	SDG 3
116	Analyzing the physical activity and exercise management for obesity and weight loss based on fuzzy logic	2023	-	-	10.1109/ICERCS57948.2023.10434158	SDG 3
117	ADVANCES AND DEVELOPMENTS IN DRUG REPURPOSING; STATE OF ART	2023	46	2	10.21608/BFSA.2023.327668	SDG 3
118	Identifying Factors Affecting Purchase Decision of Consumer With Reference to Offline Retail Consumers Due to Covid-19	2023	2736	1	10.1063/5.0170791	SDG 3
119	Plaka tanıma sistemleri ve hibrit bir sistem önerisi	2023	-	-	10.1109/HORA58378.2023.10156751	SDG 3|SDG 11
120	The rationale behind serum markers for preterm labor prediction	2023	2591	-	10.1063/5.0121796	SDG 3
121	Enhanced Hemorrhage Detection Based on Deep Reinforcement Hemorrhage Candidate Filtering (DR-HCF) for Diabetic Retinopathy Treatment	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420420	SDG 3
122	Psychological behavior Analysis in social media based on automated deep learning method	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420058	SDG 3
123	Application of Mobile Health in Mental Health Interventions	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420389	SDG 3
124	Novel and potential therapy options for a range of cancer diseases: Using Flavonoid	2023	-	-	10.1016/j.prp.2023.154997	SDG 3

125	The effect of bromhexine on mucosal immune response against avian coronavirus infectious bronchitis vaccine in chickens	2023	74	4	10.12681/jhvms.25477	SDG 3
126	Soluble receptor for advanced glycation end products (sRAGE) is associated with obesity rates: a systematic review and meta-analysis of cross-sectional study	2023	23	1	10.1186/s12902-023-01520-1	SDG 3
127	The Impact of Demographic and Delivery Factors on Low-and Normal-Weight Infants	2023	8	6	10.30699/jogcr.8.6.600	SDG 3
128	Hazard indices and cancer risks estimations due to inhalation of lead in air of some Baghdad cities	2023	2591	-	10.1063/5.0121880	SDG 3
129	Identification of Toxoplasmosis in Women by Serology in the Baghdad Province, Iraq	2023	55	2	10.24321/0019.5138.202327	SDG 3
130	Evaluation of Anxiety of Medical Personnel during the Coronavirus Outbreak in Tasikmalaya, Indonesia	2023	10	1	10.22122/ijbmc.v10i1.392	SDG 3
131	Evaluation of the efficiency of Pyocyanin purified from pseudomonas aeruginosa as anticancer agent toward human breast cancer cell line CAL-51	2023	17	10	-	SDG 3
132	Fostering Air Pollution using Cloud Computing and IoT-based Methods	2023	-	-	10.1109/ICERCS57948.2023.10434129	SDG 3| SDG 9| SDG 11
133	Impact of Melatonin as a Premedication Agent in Caesarean Section on Blood Loss and Postoperative Pain Level	2023	2023	-	10.1155/2023/8102111	SDG 3
134	The Effects of Acceptance and Commitment Therapy on Anxiety and Depression in Patients with Asthma	2023	10	4	10.22122/ijbmc.v10i4.584	SDG 3
135	Therapeutic Potential of Green Tea Extract in Counteracting Gold Nanoparticle Damage on Ovarian Tissues of Adult Sprague Dawley Rats	2023	13	2	10.22052/JNS.2023.02.022	SDG 3

136	The microRNAs (miRs) overexpressing mesenchymal stem cells (MSCs) therapy in neurological disorders; hope or hype	2023	39	6	10.1002/btpr.3383	SDG 3
137	THE ROLE OF OXIDATIVE STRESS IN PATIENTS WITH CHRONIC KIDNEY DISEASE	2023	76	5	10.36740/WLek202305110	SDG 3
138	The different MRI features of hepatocellular adenoma and hepatocellular carcinoma	2023	15	6	10.4103/jpbs.jpbs_230_23	SDG 3
139	Impact of miR-23b and miR-331 Gene Expressions on HCV-Related Hepatocellular Carcinoma in Egyptian Patients	2023	28	2	10.21614/sgo-v.28-a.567	SDG 3
140	Inflammatory diseases: Function of LncRNAs in their emergence and the role of mesenchymal stem cell secretome in their treatment	2023	249	-	10.1016/j.prp.2023.154758	SDG 3
141	Evaluating the Effect of Acceptance and Commitment Therapy on Anxiety and Quality of Life in Stomach Cancer Patients	2023	10	4	10.22122/ijbmc.v10i4.579	SDG 3
142	HEPARIN-INDUCED THROMBOCYTOPENIA (HIT) SYNDROME AMONG HEMODIALYSIS PATIENTS AND DISEASE MANAGEMENT STRATEGY	2023	344	11	-	SDG 3

- Community Engagement: Multiple community-based health initiatives, including drug abuse awareness and breast cancer campaigns.

Initiative	Link
Awareness seminar on drug abuse by the College of Dentistry, emphasizing prevention and family role	https://alayen.edu.iq/news/details/1175
Breast Cancer Awareness Seminar by the College of Health and Medical Technologies	https://alayen.edu.iq/news/details/1641

| Awareness campaign to combat drug abuse, emphasizing dangers and community education	https://alayen.edu.iq/news/details/1349
Seminar on drug awareness and values by Continuing Education, in collaboration with Anti-Narcotics	https://alayen.edu.iq/news/details/1638

- Student Involvement: AUIQ engaged students in health campaigns, practical workshops, and hospital-based training programs, enabling hands-on experience in real-world healthcare settings.

Initiative	Link
Field visit to Nasiriyah Teaching Hospital for student training	https://alayen.edu.iq/news/details/2739
Optometry Department eye health awareness and exams with Asad Baghdad School	https://alayen.edu.iq/news/details/1846
Drug Awareness and Treatment seminar by Continuing Education Center	https://alayen.edu.iq/news/details/1638
Anesthesia Technology Department's hands-on poster session for students	https://alayen.edu.iq/news/details/1256
Dental student training at the Specialized Dental Teaching Hospital	https://alayen.edu.iq/news/details/1125
College of Pharmacy's workshop on pharmacovigilance in collaboration with Dhi Qar Health Directorate	https://alayen.edu.iq/news/details/1631

3. Visual Elements

- Charts and Graphs: aligning with SDG 3, the doughnut chart shown below illustrates student participation in healthcare projects at AUIQ in 2023, with each segment showing the proportion of involvement across key initiatives. The Breast Cancer Awareness Campaign saw the highest participation (33%), followed by Drug Safety Awareness Week (27%), where students promoted medication safety. Dental Health Visits accounted for 22% of involvement, focusing on educating young students on oral hygiene. Additional projects included the Anesthesia Technology Department's poster presentations (16%) and student-led eye examinations (19%) in local schools, while the First Scientific Festival on Disease Physiology engaged 14% of students in disease awareness efforts.

Student Eye Examinations 14.6%
Anesthesia Tech. Poster Presentation 12.5%
Dental Health Visits 16.7%
Breast Cancer Awareness Campaign 25.0%
First Scientific Festival on Disease Physiology 10.4%
Drug Safety Awareness Week 20.8%
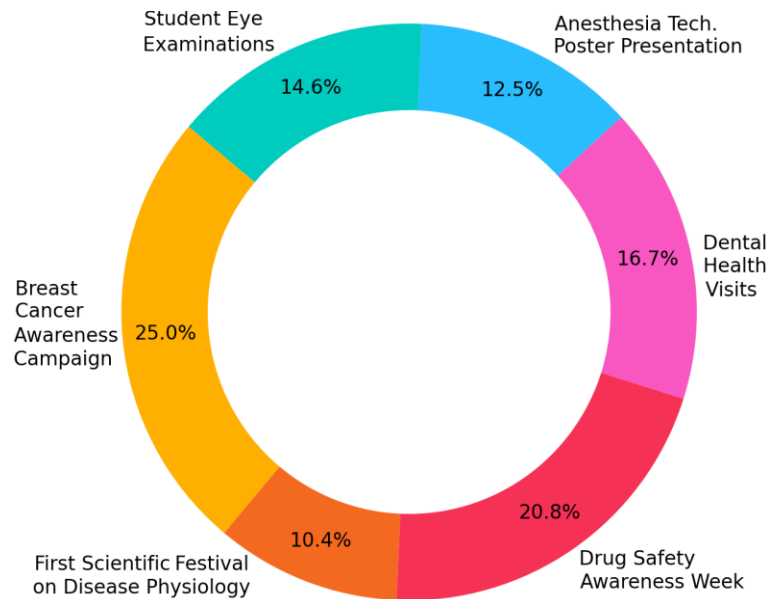
- Images of Conferences: aligning with SDG 3, AUIQ hosted the First Scientific Conference on Nursing and Health Professions for Cardiovascular Diseases, advancing cardiovascular care research, and the International Conference on Pediatric Eye Tumors in partnership with Dhi Qar University, focusing on pediatric ocular oncology.

First Scientific Conference on Nursing and Health Professions for Cardiovascular Diseases

International Conference on Pediatric Eye Tumors

- Images of Events and Sessions: aligning with SDG 3, AUIQ actively promotes health awareness and practical training through targeted initiatives. For instant, Breast Cancer Awareness Campaign, Drug Abuse Awareness, First Aid Workshop. Medical students benefited from the Summer Training Program in Clinical Skills, with lectures from

international experts enhancing their practical knowledge. Additionally, Optometry students conducted vision checks in schools, promoting eye health.

Breast Cancer Awareness Campaign

Drug Abuse Awareness Seminar

First Aid Workshop

تستضيف بروفيسور من جامعة نوتردام الاسترالية ضمن برنامج التدريب الصيفي
A/Professor Imad Mahmoud
Advance laparoscopic & Robotic Gynaecological surgeon. Special interest in Urogynaecology & Endometriosis surgery.
Summer Training Program in Clinical Skills

Optometry students conducting vision checks

4. Supporting Documents and Links

For further details, please refer to:

- [Al-Ayen University SDG Contributions - University Website] (https://en.alayen.edu.iq/sdj/sub_details/87)
- Related publications and annual reports accessible via Scopus data base and relevant online platforms.

SDG 4 Progress Report for Al-Ayen Iraqi University (2023)

1. Introduction and Overview:

Al-Ayen Iraqi University, located in An Nasiriyah, Dhi Qar, Iraq, demonstrates a firm commitment to sustainable development and the United Nations' SDGs. The university actively aligns its educational activities, community engagement, and international collaborations with the SDGs, especially SDG 4, emphasizing accessibility, quality, and innovation in educational practices.

2. Detailed SDG Contributions:

Research Initiatives and Publications:

In 2023, Al-Ayen University contributed 8 publications directly aligned with SDG 4, covering topics like educational technology, AI-assisted teaching methods, and innovative assessment models in education.

8 publications match with Sustainable Development Goal 4:						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Development of high-resolution gridded data for water availability identification through GRACE data downscaling: Development of machine learning models	2023	291	-	10.1016/j.atmos res.2023.10681 5	SDG 4| SDG 6| SDG 15
2	A Cognitive Diagnostic Assessment Study of the Reading Comprehension Section of the Preliminary English Test (PET)	2023	13	-	10.22034/IJLT. 2022.362849.11 95	SDG 4
3	Deep Learning-Assisted Physical Education and Resource Allocation Management in Higher Education	2023	-	-	10.1109/AICER A/ICIS59538.2 023.10420229	SDG 4
4	Modern Art Teaching and Evaluation Model using Blockchain Technologies	2023	-	-	10.1109/ICERC S57948.2023.10 434101	SDG 4

5	Global Citizenship Education in Higher Institution - A Systematic Review of Literature	2023	2736	1	10.1063/5.0170923	SDG 1| SDG 2| SDG 4| SDG 6
6	Computer Network-Assisted Technology-Based English Teaching Method with Artificial Intelligence	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420105	SDG 4
7	The correction system of student actions in the physical education classroom based on improved machine learning	2023	-	-	10.1109/ICERCS57948.2023.10434099	SDG 4
8	The Relationship between Emotional Intelligence and Academic Achievement among the Students of Trisakti University, Indonesia	2023	10	1	10.22122/ijbmc.v10i1.390	SDG 4

Key Educational Events and Workshops:

- Al-Ayen University's Continuing Education Center enhances educational quality through workshops on lab standards, sustainable development, time management, and occupational safety. These initiatives equip students and staff with essential skills, promote well-being, and ensure high standards in educational practices, fostering a safe, sustainable, and effective learning environment aligned with global goals.

Initiative	Link
Workshop on Occupational Safety, Health, and Environmental Preservation	https://alayen.edu.iq/news/details/1084
Quality Standards for Educational Laboratories	https://alayen.edu.iq/news/details/1197
Workshop on Time Management and Work Stress	https://alayen.edu.iq/news/details/1802
Sustainable Development Workshop in Collaboration with the Department of Pharmaceutical Chemistry	https://alayen.edu.iq/news/details/1174
Workshop on Filling Performance Evaluation Forms	https://alayen.edu.iq/news/details/1803
Training Course on Laboratory Quality Standards for College of Medicine Laboratory Officials	https://alayen.edu.iq/news/details/1555

Community and Student Engagement Initiatives:

- Al-Ayen Iraqi University actively engages students in diverse initiatives that align with SDG 4. Al-Ayen has been active in promoting extracurricular learning opportunities. For instance, the university's Student Activities Department was recognized for its robust program, which encompasses arts, sports, and cultural events to support a well-rounded educational experience.

Initiative	Link
Awareness campaign on breast cancer promoting health education	https://alayen.edu.iq/news/details/1641
First Scientific Festival on Disease Physiology by College of Pharmacy	https://alayen.edu.iq/news/details/1074
Climate Change Photography Competition recognition	https://alayen.edu.iq/news/details/1080
Introductory workshop on Occupational Safety, Health, and Environmental Preservation	https://alayen.edu.iq/news/details/1084
Discussion on academic collaboration with Academics Syndicate	https://alayen.edu.iq/news/details/1091
Recognition for Sustainable Development Unit Officer for SDG efforts	https://alayen.edu.iq/news/details/1093
Participation in British Royal College webinar on cardiovascular diseases in cancer patients	https://alayen.edu.iq/news/details/1103
Al-Ayen Academic Researcher Award ceremony for research excellence	https://alayen.edu.iq/news/details/1105
Presentations in Functional Anatomy attended by University President	https://alayen.edu.iq/news/details/1109
Evaluation by ministerial committee on university compliance standards	https://alayen.edu.iq/news/details/1111
Outdoor excursion organized by Scouting team to ancient city of Ur	https://alayen.edu.iq/news/details/1115
Inauguration of Ur International Blitz Chess Championship	https://alayen.edu.iq/news/details/1121
Dental Entrepreneurship Activities	https://alayen.edu.iq/news/details/1718
Annual Book Fair	https://alayen.edu.iq/news/details/1726

- Empowering future generations, Al-Ayen University hosts interactive workshops, school visits, and scholarships, fostering educational opportunities and community support through partnerships with local schools, in alignment with SDG 4.

Initiative	Link
Visit by College of Dentistry students to Al-Sadiqa Primary School as part of the Scientific Family group	https://alayen.edu.iq/news/details/1252
AI Workshop for Students from Al-Tadamun Orphan School hosted by College of Engineering	https://alayen.edu.iq/news/details/1677
Full Scholarship Awarded to Saif Al-Din Saad in the College of Pharmacy	https://alayen.edu.iq/news/details/1493
Support for 600+ Students at Shakir Al-Gharabi School by College of Engineering	https://alayen.edu.iq/news/details/1843
Visit by Asad Baghdad School Students to the Optometry Department	https://alayen.edu.iq/news/details/1846
Visit by 30 Female Students from Martyr Mustafa Jamal Vocational High School to College of Engineering Technology	https://alayen.edu.iq/news/details/1218

Collaborations and Partnerships:

- Al-Ayen University's recent partnerships reflect its commitment to academic excellence, community engagement, and global collaboration. The university's initiatives include agreements with local and international institutions, such as the Academics Syndicate in Dhi Qar, Sohar University in Oman, and Warith Al-Anbiya University, focusing on enhancing research, quality assurance, and knowledge-sharing. Meetings with bodies like the High Commission for Human Rights emphasize Al-Ayen's dedication to social responsibility and human rights education. Additionally, engagements with institutions like the American University of Baghdad open global opportunities, preparing students for programs like Fulbright. These collaborations advance Al-Ayen's educational standards and strategic growth.

Initiative	Link
Academic collaboration meeting with the Academics Syndicate in Dhi Qar	https://alayen.edu.iq/news/details/1091
Collaboration discussion with Warith Al-Anbiya University for academic and research projects	https://alayen.edu.iq/news/details/1185
Meeting with an international academic assessment team for collaboration strategies	https://alayen.edu.iq/news/details/1183
Twinning agreement with the University of Baghdad's College of Physical Education and Sports Sciences	https://alayen.edu.iq/news/details/1222

Educational visit to the American University of Baghdad to discuss Fulbright Scholarship opportunities	https://alayen.edu.iq/news/details/1250
Meeting with the High Commission for Human Rights in Dhi Qar for collaborative educational discussions	https://alayen.edu.iq/news/details/1269
Twinning agreement between College of Medicine at Al-Ayen University and Thi Qar University	https://alayen.edu.iq/news/details/1296
Al-Ayen University Leads Iraq's First Mock Exam for British Fellowship in Internal Medicine, Elevating Medical Training Standards in Collaboration with Dhi Qar and Somer Universities	https://alayen.edu.iq/news/details/1745
Scientific cooperation with Shatra University, marking a commitment to strengthening academic and research collaboration in Dhi Qar	https://alayen.edu.iq/news/details/1867
Academic cooperation agreement with Northern Technical University	https://alayen.edu.iq/news/details/1485
Academic collaboration with Al-Nahrain University on new engineering departments and curriculum exchange	https://alayen.edu.iq/news/details/1527
Collaborative efforts between Al-Ayen University and Dhi Qar University's College of Medicine	https://alayen.edu.iq/news/details/1651

- Al-Ayen Iraqi University has established key international partnerships to elevate educational standards and foster research collaboration. These include a partnership with Universiti Teknologi Petronas (UTP) in Malaysia, promoting academic exchange and scientific research. The university also collaborates with Universiti Putra Malaysia (UPM) and UCSI University, expanding opportunities for innovation and education. Additionally, Al-Ayen signed a Memorandum of Understanding with Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) to further enhance academic engagement. Partnerships with five prominent Iranian universities, including Khwarizmi and Shahid Beheshti, and collaboration with the Malaysian OXIS Center aim to bring advanced research, innovation, and academic resources to Iraq's educational landscape.

| Initiative	Link
Partnership with Universiti Teknologi Petronas (UTP), Malaysia	https://alayen.edu.iq/news/details/1517
Academic Cooperation with Universiti Putra Malaysia (UPM) to Advance Innovation and Education	https://alayen.edu.iq/news/details/1531
Memorandum of Understanding (MoU) with UCSI University, Malaysia	https://alayen.edu.iq/news/details/1389
Visit by Sohar University, Oman, and Quality Assurance A Memorandum of Understanding MoU preparation	https://alayen.edu.iq/news/details/1171

Five memorandums of understanding with renowned Iranian universities, including Khwarizmi, Shahid Beheshti, Sharif University of Technology, Urmia, and Ferdowsi University.	https://alayen.edu.iq/news/details/1563
Collaboration with the Malaysian OXIS Center, aiming to enhance Iraq's academic landscape.	https://alayen.edu.iq/news/details/1509
An MoU with Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA)	https://alayen.edu.iq/news/details/1535

3. Visual Elements:

- Charts and Graphs: The doughnut chart illustrates Al-Ayen Iraqi University's focus areas in SDG 4-related initiatives. Educational workshops form the largest segment, constituting 40% of activities, followed by student involvement in SDG programs at 30%. Climate support activities contribute 20%, while school awareness initiatives account for 10%. This distribution reflects the university's commitment to quality education through diverse engagements, prioritizing direct learning events and fostering environmental and community awareness among students and local schools.
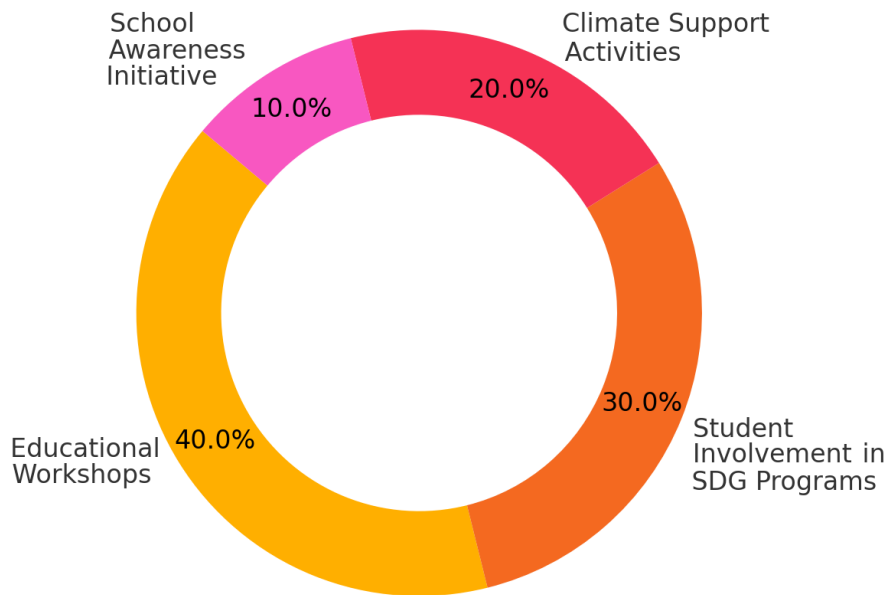
- Images and Infographics: AUIQ offers diverse workshops, from performance evaluation and AI for sustainability to Fulbright scholarship guidance. Programs like the developmental course for scouting officials, university regulations workshop, and dental entrepreneurship activities

support leadership, academic integrity, and innovation, emphasizing the university's commitment to holistic, sustainable education and global engagement.

Performance Evaluation Form Workshop

Developmental Course for Scouting Activity Officials

Artificial Intelligence for Sustainable Development Workshop

Fulbright Scholarship: Application Process, Key Requirements, and Life in the USA

University Regulations and Their Role in Strengthening the Academic Journey

Dental Entrepreneurship Activities
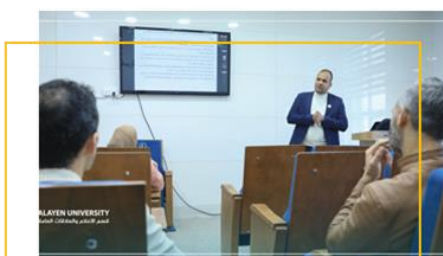
Occupational Safety, Health, and Environmental Preservation Unit

educational visit to the Dhi Qar Combined Cycle Power Plant

4. Supporting Documents and Links:

For further details, please refer to:

- [Al-Ayen University SDG Contributions - University Website] (https://en.alayen.edu.iq/sdj/sub_details/88)
- Related publications and annual reports accessible via Scopus data base and relevant online platforms.

SDG 5 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University is committed to sustainable development, particularly through the United Nations' SDGs. The university integrates these goals into its mission, with special emphasis on SDG 5 (Gender Equality) among other priorities. Al-Ayen Iraqi University has initiated various programs and activities to promote gender equality, focusing on increasing the representation and participation of women across academia and university governance.

2. Detailed SDG Contributions

Initiatives and Activities

The university has several initiatives aimed at empowering women and promoting gender equality. Some key efforts include the Women's Empowerment Unit, which collaborates on workshops and seminars to foster gender equality, and numerous activities that encourage female academic achievements.

Initiative	Link
Women's Empowerment Unit workshops and seminars: Artificial Intelligence for Sustainable Development: A Guide to Education and Practical Applications	https://alayen.edu.iq/news/details/1246
AUIQ supporting women in STEM fields	https://alayen.edu.iq/news/details/1218
Gender-focused research publications and faculty projects	https://alayen.edu.iq/news/details/1501
Recognition of Student Ayat Ahmed's Academic and Creative Achievements in Literature	https://alayen.edu.iq/news/details/1200
Al-Ayen University hosted the first day of the Second Annual Shubad Women's Festival	https://alayen.edu.iq/news/details/1167
Al-Ayen University's Student Activities Department participated in the Iraqi Universities Table Tennis Championship for students, faculty, and staff	https://alayen.edu.iq/news/details/1685

5 GENDER EQUALITY

3. Visual Elements

- Charts and Graphs: doughnut chart below illustrates female participation at Al-Ayen Iraqi University across university programs, leadership roles, and SDG-related projects, highlighting a balanced commitment to gender equality. Representing university programs (50%), leadership roles (25%), and SDG-focused projects (25%), it underscores the university's focus on fostering equitable involvement for women in academics, governance, and sustainability initiatives, aligned with SDG 5 goals for inclusive and empowering opportunities for female students and faculty.
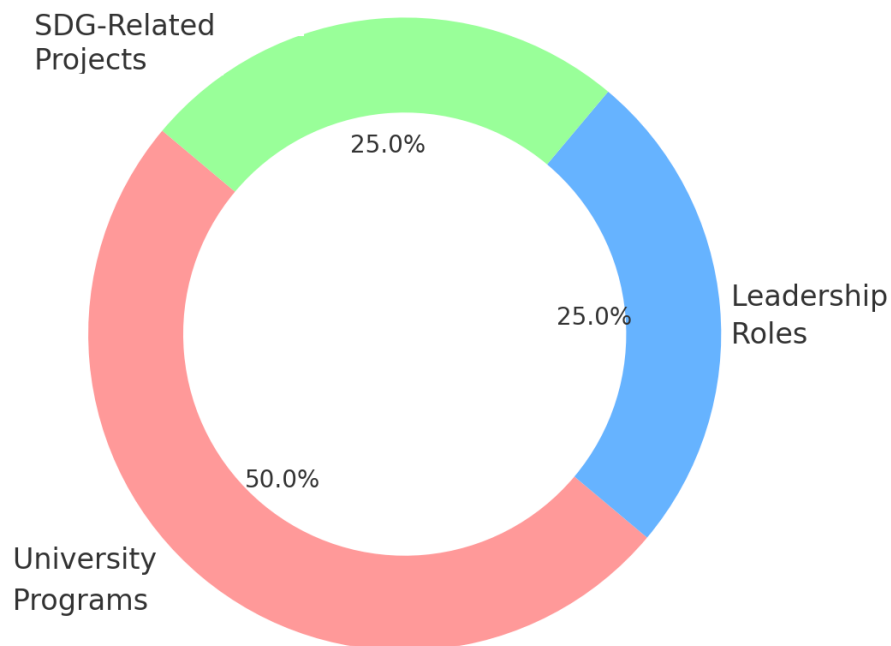
- Images and Infographics: AUIQ embody SDG 5 by empowering women in education, STEM, sports, and cultural spheres, promoting gender equality, and creating inclusive spaces for women's growth and recognition.

Al-Ayen University hosted the first day of the Second Annual Shubad Women's Festival

AUIQ's Student Activities Department participated in the Iraqi Universities Table Tennis Championship for students, faculty, and staff

Recognition of Student Ayat Ahmed's Academic and Creative Achievements in Literature

AUIQ supporting women in STEM fields

4. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 5.

Link: https://en.alayen.edu.iq/sdj/sub_details/89

SDG 6 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) has made significant research contributions aligned with SDG 6. These contributions focus on various aspects of water management, environmental sustainability, and innovative solutions to ensure availability and sustainable management of water resources. This report provides an overview of the key research areas, highlighting how AUIQ's publications contribute to achieving the global targets set under SDG 6.

Overview of Research Contributions for SDG 6

- Robust drought forecasting using machine learning models: Researchers have developed advanced machine learning techniques to predict drought conditions, ensuring better water resource planning and management in regions prone to water scarcity. This aligns with SDG 6 by improving water usage efficiency and disaster preparedness.

- Groundwater potential mapping in drought-prone regions: Studies have been conducted to identify potential groundwater sources using geospatial analysis and machine learning, particularly in regions suffering from water shortages. This supports sustainable groundwater use, which is crucial for clean water access.

- Forecasting of meteorological drought: By using ensemble and machine learning models, AUIQ researchers have enhanced the ability to forecast drought conditions based on climate parameters. This aids in water conservation and proactive management, ensuring availability even during dry spells.

- Water quality analysis and groundwater contamination studies: Research has focused on identifying sources of water pollution, particularly nitrates and other contaminants, and assessing health risks. These efforts aim to develop methods for monitoring and improving water quality, ensuring safe water supplies.

- Desalination processes and water purification techniques: Innovative approaches, including the use of membrane technologies and hybrid systems, have been explored to improve desalination efficiency. This contributes to providing clean water in regions with limited freshwater resources.

- Use of nanoparticles for wastewater treatment: The application of nanomaterials for removing pollutants from wastewater has been a key research area. This aligns with SDG 6 by addressing pollution control and ensuring that treated wastewater can be safely reused or discharged.

- Adsorption techniques for pollutant removal from water: Researchers have investigated various natural and synthetic adsorbents to effectively remove dyes, heavy metals, and other pollutants from water bodies. These technologies contribute to cleaner water and healthier ecosystems.

- Artificial Intelligence in water resource management: The integration of AI and machine learning has been explored for optimizing water distribution systems, predicting water demand, and managing irrigation more efficiently. These solutions ensure sustainable water usage and minimize wastage.
- Climate change impacts on water resources: Studies on the effects of climate change on water availability, including changes in rainfall patterns and evaporation rates, provide insights for adapting water management strategies. This is essential for maintaining sustainable water supplies under changing climate conditions.
- Development of eco-friendly adsorbents for dye removal: Sustainable materials, such as biochar and chitosan-based composites, have been developed to remove harmful dyes from industrial wastewater. These innovations contribute to reducing water pollution and enhancing water quality.

The total number of publications by Al-Ayen Iraqi University related to SDG 6 in the period of 2023 is 60 research articles. These publications cover a wide range of research topics, from advanced water purification techniques to sustainable agricultural practices and water resource management. The breadth and depth of these studies underscore the university's dedication to addressing critical water-related challenges, contributing not only to academic knowledge but also to practical solutions that can be implemented at regional and global levels. The significant volume of research output reflects AUIQ's active role in fostering innovation and collaboration, aimed at ensuring access to clean water and sustainable management of water resources, in alignment with the targets set under SDG 6.

60 publications match with Sustainable Development Goal 6 :						
Institutions	Al-Ayen University					
Publication years	(2023)					
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	A facile construction of NiV2O6/CeO2 nano-heterojunction for photo-operated process in water remediation reaction, antibacterial studies, and detection of D-Amino acid in peroxidase system	2023	40	-	10.1016/j.surfin.2023.102970	SDG 6
2	Integration of hydrogeological data, GIS and AHP techniques applied to delineate groundwater potential	2023	228	-	10.1016/j.envres.2023.115832	SDG 2| SDG 6| SDG 8|

					SDG 13| SDG 15
	zones in sandstone, limestone and shales rocks of the Damoh district, (MP) central India				
3	Exploring the potential of metal and metal oxide nanomaterials for sustainable water and wastewater treatment: A review of their antimicrobial properties	2023	335	-	10.1016/j.chemosphere.2023.139103	SDG 6
4	Degradation of amoxicillin under a UV or visible light photocatalytic treatment process using Fe2O3/bentonite/TiO2: Performance, kinetic, degradation pathway, energy consumption, and toxicology studies	2023	272	-	10.1016/j.ijleo.2022.170230	SDG 6
5	A decision framework for potential dam site selection using GIS, MIF and TOPSIS in Ulhas river basin, India	2023	423	-	10.1016/j.jclepro.2023.138890	SDG 6| SDG 13
6	Integration of Geochemical Modeling, Multivariate Analysis, and Irrigation Indices for Assessing Groundwater Quality in the Al-Jawf Basin, Yemen	2023	15	8	10.3390/w15081496	SDG 3| SDG 6| SDG 8
7	A novel membrane-integrated sustainable technology for downstream recovery of molybdenum from industrial wastewater	2023	196	-	10.1016/j.resconrec.2023.107035	SDG 6| SDG 9
8	Simulation of the Potential Impacts of Projected Climate and Land Use Change on Runoff under CMIP6 Scenarios	2023	15	19	10.3390/w15193421	SDG 6| SDG 13| SDG 15
9	Magnetic nanostructured adsorbents for water treatment: Structure-property relationships, chemistry of interactions, and lab-to-industry integration	2023	468	-	10.1016/j.cej.2023.143474	SDG 6| SDG 9
10	Applying Multivariate Analysis and Machine Learning Approaches to	2023	15	19	10.3390/w15193495	SDG 6

	Evaluating Groundwater Quality on the Kairouan Plain, Tunisia				
11	Levofloxacin Adsorption onto MWCNTs/CoFe2O4 Nanocomposites: Mechanism, and Modeling Using Non-Linear Kinetics and Isotherm Equations	2023	9	1	10.3390/magnetoche mistry9010009	SDG 6
12	Physicochemical fabrication of chitosan and algae with crosslinking glyoxal for cationic dye removal: Insight into optimization, kinetics, isotherms, and adsorption mechanism	2023	253	-	10.1016/j.ijbiomac.2 023.127112	SDG 6
13	Microbial synthesis of titanium dioxide nanoparticles and their importance in wastewater treatment and antimicrobial activities: a review	2023	14	-	10.3389/fmicb.2023. 1270245	SDG 6
14	Daily Scale River Flow Forecasting Using Hybrid Gradient Boosting Model with Genetic Algorithm Optimization	2023	37	9	10.1007/s11269-023-03522-z	SDG 6
15	Effect of Polycyclic Aromatic Hydrocarbons (PAHs) on Respiratory Diseases and the Risk Factors Related to Cancer	2023	43	9	10.1080/10406638.2 022.2149569	SDG 3| SDG 6| SDG 9
16	Simultaneous photocatalytic removal of organic dye and heavy metal from textile wastewater over N-doped TiO2 on reduced graphene oxide	2023	332	-	10.1016/j.chemosph ere.2023.138882	SDG 6
17	Photocatalytic degradation of naphthol blue from Batik waste water using functionalized TiO2-based composites	2023	337	-	10.1016/j.chemosph ere.2023.139224	SDG 6
18	Physicochemical Parameters of Water and Its Implications on Avifauna and Habitat Quality	2023	15	12	10.3390/su1512949 4	SDG 6| SDG 11| SDG 15

19	Polyol Synthesis of Ag-Doped Copper Oxide Nanoparticles as a Methylene Blue-Degrading Agent	2023	13	7	10.3390/catal13071143	SDG 6
20	Unlocking the hidden potential: groundwater zone mapping using AHP, remote sensing and GIS techniques	2023	14	1	10.1080/19475705.2023.2264458	SDG 6| SDG 15
21	Application of a novel composite of Fe3O4@SiO2/PAEDTC surrounded by MIL-101(Fe) for photocatalytic degradation of penicillin G under visible light	2023	30	44	10.1007/s11356-023-29283-1	SDG 6
22	Designing a decomposition-based multi-phase pre-processing strategy coupled with EDBi-LSTM deep learning approach for sediment load forecasting	2023	153	-	10.1016/j.ecolind.2023.110478	SDG 6| SDG 11
23	Development of high-resolution gridded data for water availability identification through GRACE data downscaling: Development of machine learning models	2023	291	-	10.1016/j.atmosres.2023.106815	SDG 4| SDG 6| SDG 15
24	The socioeconomic impact of severe droughts on agricultural lands over different provinces of Iran	2023	289	-	10.1016/j.agwat.2023.108550	SDG 2| SDG 6
25	Fabrication of glutaraldehyde crosslinked chitosan/algae biomaterial via hydrothermal process: Statistical optimization and adsorption mechanism for MV 2B dye removal	2023	-	-	10.1007/s13399-023-05143-3	SDG 6
26	Development of an enhanced bidirectional recurrent neural network combined with time-varying filter-based empirical mode decomposition to forecast weekly reference evapotranspiration	2023	290	-	10.1016/j.agwat.2023.108604	SDG 6
27	Drinking Water Resources Suitability Assessment Based on Pollution Index of Groundwater	2023	15	21	10.3390/su152115655	SDG 3| SDG 6|

	Using Improved Explainable Artificial Intelligence					SDG 14| SDG 15
28	Recent advances of amino acid-based biosensors for the efficient food and water contamination detection in food samples and environmental resources: A technical and analytical overview towards advanced nanomaterials and biological receptor	2023	189	-	10.1016/j.microc.2023.108552	SDG 3| SDG 6
29	Hydrological response of tropical rivers basins to climate change using the GR2M model: the case of the Casamance and Kayanga-Géva rivers basins	2023	35	1	10.1186/s12302-023-00822-4	SDG 6| SDG 13
30	Defluoridation of potable water employed by natural polysaccharide isolated from Tamarindus indica L	2023	335	-	10.1016/j.chemosphere.2023.138931	SDG 6
31	CRISPR/Cas-based nanobiosensors: A reinforced approach for specific and sensitive recognition of mycotoxins	2023	56	-	10.1016/j.fbio.2023.103110	SDG 6
32	Sustainable Water Management for Small Farmers with Center-Pivot Irrigation: A Hydraulic and Structural Design Perspective	2023	15	23	10.3390/su152316390	SDG 2| SDG 6
33	Response of varied rice genotypes on cell membrane stability, defense system, physio-morphological traits and yield under transplanting and aerobic cultivation	2023	13	1	10.1038/s41598-023-32191-6	SDG 6
34	Neodymium-Doped Zinc Oxide Nanoparticles Catalytic Cathode for Enhanced Efficiency of Microbial Desalination Cells	2023	13	8	10.3390/catal13081164	SDG 6
35	Impact of climate change adaptation strategies on groundwater resources: a case study of Sari-Neka coastal aquifer, Northern Iran	2023	82	23	10.1007/s12665-023-11205-6	SDG 6| SDG 13

36	Spatiotemporal analysis of groundwater resources sustainability in South Asia and China using GLDAS data sets	2023	82	24	10.1007/s12665-023-11282-7	SDG 2| SDG 6| SDG 13| SDG 15
37	Urban Wastewater Treatment for High Yielding in Agriculture Through Smart Irrigation System	2023	726	-	10.1007/978-981-99-3716-5_52	SDG 6| SDG 11
38	Assessment of rainwater harvesting potential for urban area under climate and land use changes using geo-informatics technology	2023	52	-	10.1016/j.uclim.2023.101721	SDG 6| SDG 11
39	Emerging Insights into the Use of Advanced Nanomaterials for the Electrochemiluminescence Biosensor of Pesticide Residues in Plant-Derived Foodstuff	2023	-	-	10.1080/10408347.2023.2258971	SDG 3| SDG 6
40	Hydrogeology and Hydrogeochemistry of Saline Groundwater Seepage Zones in Wadi Bani Malik Basin, Jeddah, Saudi Arabia: Impacts on Soil and Water Resources	2023	15	19	10.3390/w15193464	SDG 6
41	Oil-polluted groundwater in central and west Iraq as indicator of potential new hydrocarbon plays	2023	-	-	10.1080/10916466.2023.2209122	SDG 6
42	Intelligent system for Distributed Quality Monitoring of Sewage Management based on Wastewater Treatment Procedure and Data Mining	2023	9	2	10.54216/JISIoT.090215	SDG 6
43	Water quality parameters assessment of ras el-Ain natural ponds, tyr, lebanon	2023	23	6	10.2166/ws.2023.140	SDG 6| SDG 7| SDG 11| SDG 12
44	Industrial Internet of Water Things architecture for data standarization based on blockchain and digital twin technology	2023	-	-	10.1016/j.jare.2023.10.005	SDG 6| SDG 9| SDG 11

No	Title	Year			DOI	SDG
45	Identification of the Contamination Sources by PCBs Using Multivariate Analyses: The Case Study of the Annaba Bay (Algeria) Basin	2023	28	19	10.3390/molecules28196841	SDG 6| SDG 11| SDG 14
46	Removal of Cd(II) Ions from Aqueous Solutions using adsorption By Bentonite Clay and Study the Adsorption Thermodynamics	2023	9	3	10.22059/poll.2023.353137.1741	SDG 6
47	Evaluation of Water Quality in the South of Lebanon: Case Study	2023	234	7	10.1007/s11270-023-06453-y	SDG 3| SDG 6| SDG 7
48	Microwave assisted ZnCl2 conversion of noodle waste into activated carbon/ZnO composite: A circular approach to food waste utilization for crystal violet dye removal	2023	-	-	10.1007/s13399-023-04857-8	SDG 6| SDG 12
49	Adsorption of methylene blue dye onto bentonite clay: Characterization, adsorption isotherms, and thermodynamics study by using UV-Vis technique	2023	6	3	10.24200/amecj.v6.i03.243	SDG 6
50	Exploration of Zinc Oxide Nanoparticles for Efficient Photocatalytic Removal of Methylene Blue Dye: Synthesis, Characterization and Optimization	2023	59	1	10.3390/engproc2023059120	SDG 6| SDG 9| SDG 12
51	Study of the kinetic, equilibrium, and thermodynamic aspects of the removal and recovery of divalent lead heavy metal ions from industrial wastewaters contaminated by vesavin-enriched XAD-11600 amberlite resin	2023	9	12	10.1016/j.heliyon.2023.e22761	SDG 6
52	Human-Computer Interaction Assisted Economic Growth and Financial Status of Urban Cities using Artificial Intelligence	2023	-	-	10.1109/ICERCS57948.2023.10434153	SDG 6| SDG 8| SDG 9| SDG 11| SDG 12

53	A Framework for Strategic Planning Adaptation in Smart Cities through Recurrent Neural Networks	2023	9	2	10.54216/JISIoT.09 0205	SDG 6| SDG 9| SDG 11
54	Investigating the Nitrate Absorption Capacities of Sargassum Polycystum Biomass	2023	13	4	10.22034/jchr.2023. 1992707.1788	SDG 6
55	Prediction of Climatic and Water Quality in Urban Cooum River of Chennai Using Machine Learning Approaches	2023	726	-	10.1007/978-981-99-3716-5_53	SDG 6| SDG 11| SDG 14
56	Engineering Low-Cost Banana Peel Derived Biochar for the Highly Adsorption Capacity of Metformin Hydrochloride Drug from Aqueous Solution on Chemical Activation	2023	14	3	10.25258/ijpqa.14.3. 14	SDG 6
57	Global Citizenship Education in Higher Institution - A Systematic Review of Literature	2023	2736	1	10.1063/5.0170923	SDG 1| SDG 2| SDG 4| SDG 6
58	Characterization and Removal Efficiency Analysis of MWCNT/Clay Nanocomposites for MB Dye Adsorption	2023	59	1	10.3390/engproc202 3059220	SDG 6
59	Removal of Brilliant-Green Dye Using Carbon-Loaded Zinc Oxide Nanoparticles: A Comparative Isotherm Study †	2023	59	1	10.3390/engproc202 3059152	SDG 6
60	A thermochemical treatment of food waste: Preparing activated carbon for optimized removal of methyl violet dye via the Box-Behnken design method	2023	-	-	10.1007/s13399-023-04791-9	SDG 6

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University's College of Petroleum Engineering recently held a workshop titled "Fundamentals of International Well Control Forum (IWCF)," focusing on essential techniques and equipment to prevent uncontrolled leaks, or "blowouts," of oil, gas, water, and other substances during drilling. By equipping students and faculty with professional well-control practices, this workshop indirectly supports SDG 6 (Clean Water and Sanitation) by reducing the risk of environmental contamination, including water pollution, resulting from such leaks. This training aligns with the university's commitment to promoting safe, sustainable practices within the oil and gas industry to protect water resources and the environment. Link: https://alayen.edu.iq/news/details/1068

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 6. Link: https://en.alayen.edu.iq/sdj/sub_details/90

SDG 7 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ), located in An Nasiriyah, Dhi Qar, Iraq, has demonstrated a strong commitment to contributing to SDG 7. This report outlines the university's research publications in 2023, which align with SDG 7, highlighting the topics, subject areas, and relevance to global energy sustainability.

Overview of Research Contributions for SDG 7

- Review on biofuel production: Researchers explored sustainable development scenarios for biofuel production, addressing environmental and climate change perspectives. This work highlights renewable energy alternatives and the potential for clean energy solutions.
- Efficient cooling strategy for electric vehicle batteries: A comprehensive review on advances in cooling strategies for electric vehicle batteries, addressing current challenges and future perspectives. It contributes to the development of more energy-efficient and sustainable electric transportation.
- Green Certificate-Driven Photovoltaic Promotion: This study focuses on promoting photovoltaic systems integrated with hydrogen fueling stations, supporting sustainable transportation and risk-adjusted dominance analysis to optimize energy use.
- Environmental risk assessment of natural water sources: Researchers evaluated the environmental risks associated with natural water sources, supporting the safe and sustainable use of water in energy production and other applications.
- IoT-based Green Transportation Technique: The development of intelligent IoT-based systems for enhancing green transportation, contributing to sustainable growth in the transportation industry by optimizing energy consumption.
- Hybrid energy system design for low-carbon solutions: The study introduces a conceptual design for a hybrid energy system based on waste heat recovery, promoting low-carbon cogeneration systems and improving energy efficiency.
- Environmental impacts of solar photovoltaic systems: An analysis of how solar photovoltaic systems impact the environment within the context of globalization, promoting clean energy technology and mitigating climate effects.

The total number of research publications from Al-Ayen Iraqi University that align with SDG 7 has exceeded 70 in 2023, showcasing a substantial body of work focused on promoting clean energy technologies and sustainable practices. This includes studies on renewable energy systems,

innovative approaches to energy management, and the development of green technologies that are crucial for reducing dependency on non-renewable resources.

No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
74 publications match with Sustainable Development Goal 7 :						
Institutions	Al-Ayen University					
Publication years	(2023)					
1	Machine learning approach to map the thermal conductivity of over 2,000 neoteric solvents for green energy storage applications	2023	59	-	10.1016/j.ensm.2023.102795	SDG 7| SDG 9| SDG 13
2	An integrated GIS, MIF, and TOPSIS approach for appraising electric vehicle charging station suitability zones in Mumbai, India	2023	97	-	10.1016/j.scs.2023.104717	SDG 3| SDG 7| SDG 13
3	Advanced biofuel production, policy and technological implementation of nano-additives for sustainable environmental management – A critical review	2023	387	-	10.1016/j.biortech.2023.129660	SDG 7| SDG 9| SDG 13
4	A novel Pt-free counter electrode based on MoSe2 for cost effective dye-sensitized solar cells (DSSCs): Effect of Ni doping	2023	182	-	10.1016/j.jpcs.2023.111597	SDG 7
5	Prediction of hydropower generation via machine learning algorithms at three Gorges Dam, China	2023	14	4	10.1016/j.asej.2022.101919	SDG 7
6	ZnO@ZnCo2O4 core-shell: A novel high electrocatalytic nanostructure to replace platinum as the counter electrode in dye-sensitized solar cells	2023	165	-	10.1016/j.mssp.2023.107709	SDG 7
7	A Hybrid Marine Predator Algorithm for Thermal-aware Routing Scheme in Wireless Body Area Networks	2023	20	1	10.1007/s42235-022-00263-4	SDG 7
8	Deep clustering of Lagrangian trajectory for multi-task learning to energy saving in intelligent buildings using cooperative multi-agent	2023	351	-	10.1016/j.apenergy.2023.121843	SDG 7

9	Various methods for the synthesis of NiTiO3 and ZnTiO3 nanomaterials and their optical, sensor and photocatalyst potentials: A review	2023	158	-	10.1016/j.inoche.2023.111493	SDG 7
10	Multiobjective optimization of a hybrid electricity generation system based on waste energy of internal combustion engine and solar system for sustainable environment	2023	336	-	10.1016/j.chemosphere.2023.139269	SDG 7
11	Influence of water based binary composite nanofluids on thermal performance of solar thermal technologies: sustainability assessments	2023	17	1	10.1080/19942060.2022.2159881	SDG 7| SDG 12
12	Novel ZnCo2O4/WO3 nanocomposite as the counter electrode for dye-sensitized solar cells (DSSCs): study of electrocatalytic activity and charge transfer properties	2023	143	-	10.1016/j.optmat.2023.114248	SDG 7
13	Multiwalled carbon nanotubes-titanium dioxide nanocomposite for flat plate solar collectors applications	2023	229	-	10.1016/j.applthermaleng.2023.120545	SDG 7
14	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/27197050/157168	SDG 3| SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
15	Modeling and Optimizing the Charge of Electric Vehicles with Genetic Algorithm in the Presence of Renewable Energy Sources	2023	11	1	10.22098/JOAPE.2023.9970.1707	SDG 7
16	Theoretical modeling study on preparation of nanosized drugs using supercritical-based processing: Determination of solubility of Chlorothiazide in supercritical carbon dioxide	2023	370	-	10.1016/j.molliq.2022.120984	SDG 7| SDG 9
17	Multivariate data decomposition based deep learning approach to forecast one-	2023	185	-	10.1016/j.rser.2023.113645	SDG 7

	day ahead significant wave height for ocean energy generation				
18	Application of Biogenic TiO2 Nanoparticles as ORR Catalysts on Cathode for Enhanced Performance of Microbial Fuel Cell	2023	13	6	10.3390/catal13060937	SDG 7
19	Investigation and Evaluation of the Hybrid System of Energy Storage for Renewable Energies	2023	16	5	10.3390/en16052337	SDG 7
20	Design a promising non-precious electro-catalyst for oxygen reduction reaction in fuel cells	2023	48	16	10.1016/j.ijhydene.2022.04.241	SDG 7
21	Effect of Clay Brick Waste Powder on the Fresh and Hardened Properties of Self-Compacting Concrete: State-of-the-Art and Life Cycle Assessment	2023	16	12	10.3390/en16124587	SDG 7| SDG 9| SDG 12| SDG 13
22	The performance of streamline simulation technique to mimic the waterflooding management process in oil reservoirs	2023	348	-	10.1016/j.fuel.2023.128556	SDG 7
23	Integration of Electric Vehicles, Renewable Energy Sources, and IoT for Sustainable Transportation and Energy Management: A Comprehensive Review and Future Prospects	2023	-	-	10.1109/ICRERA59003.2023.10269421	SDG 7| SDG 9| SDG 11| SDG 12| SDG 13
24	A Review On Demand Side Management System And Its Computer Control Methods	2023	-	-	10.1109/ICRERA59003.2023.10269347	SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
25	Life cycle thermodynamic analysis for photovoltaic modules: A comparative study	2023	13	12	10.1063/5.0179190	SDG 7
26	Factors impacting the performance of polymer-based EOR in oil reservoirs	2023	77	9	10.1007/s11696-023-02824-1	SDG 7

27	Data Science Applications in Renewable Energy: Leveraging Big Data for Sustainable Solutions	2023	-	-	10.1109/ICRERA59003.2023.10269385	SDG 7| SDG 9| SDG 13
28	A New Approach to Predicting Vertical Permeability for Carbonate Rocks in the Southern Mesopotamian Basin	2023	13	12	10.3390/min13121519	SDG 7
29	An Empirical Estimation of Clean Energy and Financial Development as Determinants of Sustainable Development in Iraq	2023	46	131	10.32826/cude.v46i131.1113	SDG 7| SDG 8| SDG 12| SDG 13
30	Intelligent Wireless Sensor Networks for Healthcare: Bridging Biomedical Clothing to the IoT Future	2023	9	2	10.54216/JISIoT.090203	SDG 2| SDG 7
31	Battery Charging Monitoring System Using PZEM 004t Sensor and DC Voltage Sensor	2023	13	2	10.20508/ijrer.v13i2.14152.g8736	SDG 7
32	Water quality parameters assessment of ras el-Ain natural ponds, tyr, lebanon	2023	23	6	10.2166/ws.2023.140	SDG 6| SDG 7| SDG 11| SDG 12
33	A novel semi-analytical model for pore volume compressibility in oil-bearing sandstone formations	2023	170	-	10.1016/j.ijrmms.2023.105430	SDG 7
34	Pump Insole with Mini AC Generator for Emergency Energy	2023	51	17	10.1080/15325008.2023.2246479	SDG 7
35	Use of biogenic silver nanoparticles on the cathode to improve bioelectricity production in microbial fuel cells	2023	11	-	10.3389/fchem.2023.1273161	SDG 7
36	Evaluation of Water Quality in the South of Lebanon: Case Study	2023	234	7	10.1007/s11270-023-06453-y	SDG 3| SDG 6| SDG 7
37	Green Certificate-Driven Photovoltaic Promotion in Distribution Networks Hosting Hydrogen Fueling Stations for Future Sustainable Transportation: A Risk-Adjusted Dominance Analysis	2023	99	-	10.1016/j.scs.2023.104911	SDG 7| SDG 8| SDG 13

38	An Analysis of the Design of a Low Rotational Speed Permanent Magnet Generator That Uses Radial Flux	2023	51	18	10.1080/153250 08.2023.221577 2	SDG 7
39	The Effects of Corrosion Problems on the Performance of Oil Wells Operated with Electrical Submersible Pumps: Lessons Learned	2023	9	3	10.1007/s40735 -023-00777-2	SDG 7
40	Machine Learning-Aided Optimization Approach for Sustainable Energy Systems	2023	-	-	10.1109/ICERC S57948.2023.10 434118	SDG 7
41	Thermodynamic Analysis and Optimization of the Micro-CCHP System with a Biomass Heat Source	2023	15	5	10.3390/su1505 4273	SDG 7
42	Investigation and statistical analysis of electrical energy production from the wind farm	2023	13	6	10.1063/5.0137 760	SDG 7
43	Optimization a Hybrid Wind and Solar System in Off-Grid and Grid-Connect to Supply Load	2023	11	-	10.22098/JOAP E.2023.13833.2 067	SDG 7
44	OPTIMIZING SOLAR WATER HEATER PERFORMANCE THROUGH A NUMERICAL STUDY OF ZIG-ZAG SHAPED TUBES	2023	27	4	10.2298/TSCI2 304143K	SDG 7
45	Design of a Small-Scale Domestic Microgrid	2023	51	18	10.1080/153250 08.2023.224648 6	SDG 7
46	Recent Advances in the Applications of Nanotechnology and Nanomaterials in the Petroleum Industry: A Descriptive Review	2023	40	8	10.1002/ppsc.2 02300029	SDG 7| SDG 12| SDG 14
47	Integrating AI-based Smart-Driven Marketing to Promote Sustainable and Green Systems	2023	-	-	10.1109/ICERC S57948.2023.10 434138	SDG 7| SDG 9
48	CFD SIMULATION AND OPTIMIZATION OF HEAT TRANSFER ENHANCEMENT IN HEV STATIC MIXERS WITH ROTATED ANGLES FOR TURBULENT FLOWS	2023	27	4	10.2298/TSCI2 304123K	SDG 7| SDG 9

49	Energy Consumption and Environmental Degradation in Iraq: The Role of Renewables, Electricity, Fossil Fuels, and Natural Resources	2023	25	2	-	SDG 7
50	Enhancing Smart Grid Systems: A Novel Mathematical Approach for Optimized Fault Recovery and Improved Energy Efficiency	2023	11	-	10.22098/JOAPE.2024.14265.2097	SDG 7
51	CFD STUDY OF A DUAL-PASSAGE SOLAR COLLECTOR WITH LONGITUDINAL AND TRANSVERSE BAFFLES FOR ENHANCED THERMAL PERFORMANCE	2023	27	4	10.2298/TSCI2304133A	SDG 7
52	Effect of core heterogeneity on core-flooding experiments: A simulation study	2023	2591	-	10.1063/5.0119286	SDG 7
53	The Optimal Parking Lot for Electrical Vehicle: An Assessment Based on Artificial Immune System Algorithm	2023	11	-	10.22098/joape.2024.13834.2068	SDG 7
54	Boost DC-DC Converter Design for Improved Performance and Stability of Fuel Cell Using Model Predictive Control and Firefly Optimization Algorithm	2023	11	-	10.22098/JOAPE.2023.13823.2065	SDG 7
55	Quantum Dotes Organic Perovskite of CH3NH3PbBr as Solar Cells Application	2023	2845	1	10.1063/5.0157044	SDG 7
56	Civil engineering structure monitoring based on Integrated sensor fusion device with an optimized mathematical model	2023	-	-	10.1109/ICERCS57948.2023.10434244	SDG 7
57	Solar Micro-Cogeneration using Small Energy Scales and High-Efficiency	2023	13	4	10.20508/ijrer.v13i4.14581.g8834	SDG 7
58	Research on Sustainable development of green energy and manufacturing in smart agriculture based on big data analysis	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420012	SDG 2| SDG 7| SDG 8| SDG 9| SDG 12

59	A Sliding Mode Controller for Prediction of the Maximum Power Point Tracking of Hybrid Renewable Sources	2023	17	3	10.30486/mjee.2023.1994822.1237	SDG 7
60	Construction of Improved Device-to-Device Communication in 5G Networks based on Deep Learning Techniques	2023	13	1	10.54216/FPA.130116	SDG 7
61	Design of hybrid photovoltaic wind energy systems for residential and commercial applications for environmentally sustainable production	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420278	SDG 7| SDG 9| SDG 12
62	Rational Design of Advanced Metal Organic Framework-Based Nanostructured Catalysts toward Electrocatalytic CO2 Conversion: A Mini Review	2023	11	10	10.1002/ente.202300461	SDG 7| SDG 9| SDG 13
63	ENHANCING THERMAL COMFORT IN BUILDINGS Innovations in Sustainable Cooling and Heating Systems Utilizing Geothermal Energy	2023	27	4	10.2298/TSCI2304477K	SDG 7| SDG 8
64	Bio-Inspired Automated Underwater Robot Based On Fish Swimming Mechanism And Navigational Command Guiding System	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420097	SDG 7
65	Governance, Financial Development, and Green Growth in Iraq: An Empirical Study	2023	46	131	10.32826/cude.v46i131.1112	SDG 7| SDG 8| SDG 11| SDG 13
66	Renewable Energy Resources Development Effect on Electricity Price: an Application of Machine Learning Model	2023	11	-	10.22098/JOAPE.2023.13710.2049	SDG 7
67	Optimization of a Hybrid Photovoltaic System with Gas Engine to Supply Electricity and Heat	2023	11	-	10.22098/JOAPE.2023.12321.1924	SDG 7| SDG 13

68	Optimal Orientation of Solar Collectors to Achieve the Maximum Solar Energy in Urban Area: Energy Efficiency Assessment Using Mathematical Model	2023	11	-	10.22098/JOAPE.2024.14264.2096	SDG 7
69	Optimizing the Energy Consumption of an Electric Motor System Incorporates Hybrid Electric Energy Generators Using a Genetic Algorithm	2023	11	-	10.22098/JOAPE.2023.13356.2020	SDG 7
70	Operation of The Hybrid Energy Resources with Storage System Participation	2023	15	4	10.30880/ijie.2023.15.04.025	SDG 7
71	Investigation of PVDF-based Micro Ocean Wave Power Generation Capability	2023	13	2	10.20508/ijrer.v13i2.14151.g8747	SDG 7
72	PV Power System Design of DC Microgrids using Supercapacitors and Batteries	2023	13	4	10.20508/ijrer.v13i4.14746.g8835	SDG 7
73	Hybrid Energy Systems Optimization Using Firefly Algorithm: Integration of Various Resources for Enhanced Stability and Flexibility	2023	11	-	10.22098/JOAPE.2024.14214.2090	SDG 7| SDG 13
74	Conceptual design and evaluation of a hybrid energy system based on a tri-level waste heat recovery: an approach to achieve a low-carbon cogeneration system	2023	18	-	10.1093/ijlct/ctad086	SDG 7| SDG 8| SDG 13

2. Detailed SDG Contributions

Initiatives and Activities

1. ***Al-Ayen Iraqi University has established five memorandums of understanding with renowned Iranian universities,*** including Khwarizmi, Shahid Beheshti, Sharif University of Technology, Urmia, and Ferdowsi University, three of which rank highly in the Shanghai, Times, and QS classifications. These agreements cover collaborative research on advanced topics like joint efforts in alternative energy, such as a mid-size wind turbine project, and oil sector challenges, including radon gas mitigation and polymer-based enhancements for oil

extraction in older fields. This initiative aligns with SDG 4, SDG 9, and SDG 7. Link: https://alayen.edu.iq/news/details/1563

2. *Al-Ayen Iraqi University's Continuing Education Center, in collaboration with the Tree Planting Unit, held a scientific workshop, titled "Climate Change and the Use of Technology in Supporting Clean Energy and Reducing Emissions."* Director of the Dhi Qar Environment Directorate, delivered a lecture highlighting technology's role in promoting clean energy and reducing emissions. This event aligns with SDG 7, SDG 13, and SDG 4 by raising environmental awareness, fostering sustainable practices, and facilitating knowledge exchange to address climate-related challenges. Link: https://alayen.edu.iq/news/details/1696

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 7.

Link: https://en.alayen.edu.iq/sdj/sub_details/91
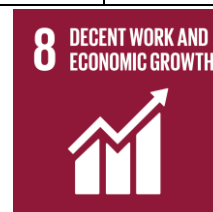
SDG 8 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

In 2023, Al-Ayen Iraqi University (AUIQ) has made significant strides in research and community initiatives aligned with SDGs, emphasizing contributions toward SDG 8. Through dedicated programs and collaborative efforts, AUIQ has worked to empower individuals, improve educational quality, and promote inclusive and sustainable economic opportunities. These contributions underscore AUIQ's commitment to creating an academic environment that fosters gender equity, professional development, and employment readiness.

Overview of Research Contributions for SDG 8

Publications and Research: 27 publications in 2023 directly support SDG 8.

27 publications match with Sustainable Development Goal 8 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Integration of hydrogeological data, GIS and AHP techniques applied to delineate groundwater potential zones in sandstone, limestone and shales rocks of the Damoh district, (MP) central India	2023	228	-	10.1016/j.envres.2023.115832	SDG 2| SDG 6| SDG 8| SDG 13| SDG 15
2	Integration of Geochemical Modeling, Multivariate Analysis, and Irrigation Indices for Assessing Groundwater Quality in the Al-Jawf Basin, Yemen	2023	15	8	10.3390/w15081496	SDG 3| SDG 6| SDG 8
3	Bacillus subtilis ER-08, a multifunctional plant growth-promoting rhizobacterium, promotes the growth of fenugreek (Trigonella foenum-graecum L.) plants under salt and drought stress	2023	14	-	10.3389/fmicb.2023.1208743	SDG 2| SDG 8| SDG 12
4	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/27197050/157168	SDG 3| SDG 7| SDG 8|

					SDG 9| SDG 12| SDG 13
5	Developing a Smart Economy Using Statistical Framework-Based Business Models in Smart Cities	2023	9	2	10.54216/JISIoT.09 0214	SDG 8| SDG 11| SDG 15
6	A Review On Demand Side Management System And Its Computer Control Methods	2023	-	-	10.1109/ICRERA59 003.2023.10269347	SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
7	An Empirical Estimation of Clean Energy and Financial Development as Determinants of Sustainable Development in Iraq	2023	46	131	10.32826/cude.v46i 131.1113	SDG 7| SDG 8| SDG 12| SDG 13
8	Revisiting the Role of Financial Development in Energy-Growth-Environment Nexus in Iraq	2023	46	131	10.32826/cude.v46i 131.1111	SDG 8| SDG 13
9	Green Certificate-Driven Photovoltaic Promotion in Distribution Networks Hosting Hydrogen Fueling Stations for Future Sustainable Transportation: A Risk-Adjusted Dominance Analysis	2023	99	-	10.1016/j.scs.2023.1 04911	SDG 7| SDG 8| SDG 13
10	Mapping Groundwater Prospective Zones Using Remote Sensing and Geographical Information System Techniques in Wadi Fatima, Western Saudi Arabia	2023	15	21	10.3390/su1521156 29	SDG 8
11	Is Financial Development Having an Impact on Economic Complexity? Empirical study of Iraq	2023	46	131	10.32826/cude.v46i 131.1114	SDG 8
12	IoT-based Green Transportation Technique for Sustainable Growth in Transportation Industry	2023	-	-	10.1109/ICERCS57 948.2023.10434039	SDG 8| SDG 9| SDG 11| SDG 13
13	Leveraging microalgae utilization for anthropogenic CO2 emission	2023	129	-	10.1016/j.pce.2022. 103356	SDG 2| SDG 8|

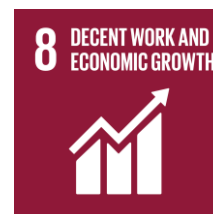|					
	abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)					SDG 9| SDG 11| SDG 13| SDG 15
14	Human-Computer Interaction Assisted Economic Growth and Financial Status of Urban Cities using Artificial Intelligence	2023	-	-	10.1109/ICERCS57 948.2023.10434153	SDG 6| SDG 8| SDG 9| SDG 11| SDG 12
15	The Benefits of Manual Rotation in the Treatment of Occiput Posterior Position: A Case Study of Iraq	2023	8	3	10.30699/jogcr.8.3.2 48	SDG 3| SDG 8| SDG 16
16	Implementing Business Intelligence Systems is Crucial for SMEs to make Efficient Decisions	2023	-	-	10.1109/AICERA/I CIS59538.2023.104 20120	SDG 8
17	Identifying the role played by climate change in agricultural productivity: evidence from Iraq	2023	25	2	-	SDG 2| SDG 8| SDG 11| SDG 13
18	Environmental and Financial Asset Optimization through Multi-Restoration Informed by AI Systems for Optimizing Ecosystem Functioning	2023	-	-	10.1109/AICERA/I CIS59538.2023.104 20118	SDG 3| SDG 8
19	Factors Affecting Sustainable Agriculture in Iraq: Evidence from Employment, CPI, Rents, and Policies	2023	25	2	-	SDG 1| SDG 2| SDG 8| SDG 12
20	A Framework Based on "One Belt, All Road" Strategy to Evaluate Regional Industry's Cluster Innovation Capacity	2023	13	1	10.54216/FPA.1301 14	SDG 8| SDG 9
21	Research on Sustainable development of green energy and manufacturing in smart agriculture based on big data analysis	2023	-	-	10.1109/AICERA/I CIS59538.2023.104 20012	SDG 2| SDG 7| SDG 8| SDG 9| SDG 12
22	Sustainable Economic Growth in Iraq: Role of Industrialization,	2023	25	2	-	SDG 2| SDG 8|

	Deforestation, Trade, Employment, Technology, and Agriculture					SDG 9| SDG 15
23	Does Financial Development and Financial Inclusion Matter for Economic Growth? Evidence from Iraq	2023	46	131	10.32826/cude.v46i 131.1110	SDG 1| SDG 8| SDG 10
24	ENHANCING THERMAL COMFORT IN BUILDINGS Innovations in Sustainable Cooling and Heating Systems Utilizing Geothermal Energy	2023	27	4	10.2298/TSCI23044 77K	SDG 7| SDG 8
25	Governance, Financial Development, and Green Growth in Iraq: An Empirical Study	2023	46	131	10.32826/cude.v46i 131.1112	SDG 7| SDG 8| SDG 11| SDG 13
26	Conceptual design and evaluation of a hybrid energy system based on a tri-level waste heat recovery: an approach to achieve a low-carbon cogeneration system	2023	18	-	10.1093/ijlct/ctad08 6	SDG 7| SDG 8| SDG 13
27	Blockchain-based Decentralized Finance: Revamping the Traditional Financial Ecosystem	2023	2736	1	10.1063/5.0171535	SDG 8
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2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University's Career and Employment Division and Continuing Education Center held workshops aimed at enhancing employability, career skills, and personal development. Topics included strategic planning, SWOT analysis, time management, and work-stress handling. Workshops such as "Performance Evaluation Form" promoted transparency and professional growth. These initiatives, aligning with SDG 8, empower students and staff, preparing them for income opportunities and fostering balanced, productive work environments.

Initiative	Link

The Career and Employment Division, in collaboration with the Continuing Education Center at Al-Ayen University, held a workshop presented by Engineer Laith Raji Al-Tuma. The session covered strategic planning and SWOT analysis for student projects, enhancing personal skills and understanding job market opportunities.	https://alayen.edu.iq/news/details/1328
The Continuing Education Center, in collaboration with the College of Dentistry at Al-Ayen University, held a workshop titled "Performance Evaluation Form," highlighting the importance of annual performance evaluation forms for professional growth and transparency.	https://alayen.edu.iq/news/details/1236
The Continuing Education Center at Al-Ayen University held a workshop on time management and handling work stress, covering effective time organization and strategies for managing work pressures, enhancing productivity and work-life balance.	https://alayen.edu.iq/news/details/1802

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 8.

Link: https://en.alayen.edu.iq/sdj/sub_details/92

SDG 9 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ), situated in An Nasiriyah, Dhi Qar, Iraq, is dedicated to sustainable development, aligning its academic and research initiatives with the United Nations SDGs, particularly SDG 9. Through its emphasis on education, scientific research, and collaboration, AUIQ actively contributes to advancements in innovation and infrastructure, fostering a culture of technological growth and sustainable industrial practices.

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University actively supports SDG 9 through initiatives like the Academic Researcher Award, which fosters innovation, and workshops on laboratory quality standards, enhancing research accuracy. AI workshops empower participants with sustainable tech skills, while international conferences on intelligent systems encourage knowledge sharing in advanced technologies. These efforts reflect the university's commitment to advancing industry, innovation, and infrastructure, contributing to sustainable development within Iraq's academic and industrial sectors.

Initiative	Link
Al-Ayen Academic Researcher Award Ceremony: This annual event, attended by academic leaders, encourages research excellence.	https://alayen.edu.iq/news/details/1105
Workshop on Laboratory Quality Standards: Organized with Al-Karkh University of Science, this workshop promoted laboratory quality standards, enhancing the accuracy, safety, and reliability of laboratory practices essential to sustainable development.	https://alayen.edu.iq/news/details/1197
Artificial Intelligence for Sustainable Development Workshop: This educational workshop, led by the Continuing Education Center, introduced AI applications to foster innovation.	https://alayen.edu.iq/news/details/1246
International Scientific Conference on Intelligent Systems: Focused on AI and information technology, this conference provided a platform for knowledge exchange in neural networks, deep learning, and smart city technologies.	https://alayen.edu.iq/news/details/1800

Ayen Iraqi University proudly represented Iraq at the 2023 Dental Materials Conference in San Diego, California, United States, with Dr. Ahmed Abdul from the College of Dentistry participating as the sole delegate from Iraq.	https://alayen.edu.iq/news/details/1591
The College of Petroleum Engineering at Al-Ayen University, in collaboration with the Thi Qar General Company for Gas Filling and Services, held a workshop on modern projects and encouraged the use of liquefied petroleum gas (LPG) as a sustainable energy source.	https://alayen.edu.iq/news/details/1176
Al-Ayen Iraqi University participated in the University Art Festival for male and female students at Al-Furat Al-Awsat Technical University in Najaf.	https://alayen.edu.iq/news/details/1782
The College of Petroleum Engineering at Al-Ayen University organized a scientific poster exhibition, featuring over 40 posters created by students across all academic years.	https://alayen.edu.iq/news/details/1354
The Continuing Education Center at Al-Ayen University organized a workshop to train faculty and administrators in using the Bologna Information System (BIS) for managing university and college operations.	https://alayen.edu.iq/news/details/1684
The College of Health and Medical Technologies, in collaboration with Al-Ayen University's Continuing Education Center, held a workshop, titled "How to Publish in High-Impact Journals."	https://alayen.edu.iq/news/details/1737
Engineering Technical College held a workshop titled "Reinforcement Learning and Its Application in 5G Networks".	https://alayen.edu.iq/news/details/1776

Supporting Data and Metrics:

- Publications and Research: 44 publications in 2023 directly support SDG 9.

44 publications match with Sustainable Development Goal 9 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Machine learning approach to map the thermal conductivity of over	2023	59	-	10.1016/j.ensm.2023.102795	SDG 7| SDG 9| SDG 13

	2,000 neoteric solvents for green energy storage applications				
2	Intertwined impacts of urbanization and land cover change on urban climate and agriculture in Aurangabad city (MS), India using google earth engine platform	2023	422	-	10.1016/j.jclepro.2023.138541	SDG 2| SDG 9| SDG 11| SDG 13| SDG 15
3	Advanced biofuel production, policy and technological implementation of nano-additives for sustainable environmental management – A critical review	2023	387	-	10.1016/j.biortech.2023.129660	SDG 7| SDG 9| SDG 13
4	A novel membrane-integrated sustainable technology for downstream recovery of molybdenum from industrial wastewater	2023	196	-	10.1016/j.resconrec.2023.107035	SDG 6| SDG 9
5	Magnetic nanostructured adsorbents for water treatment: Structure-property relationships, chemistry of interactions, and lab-to-industry integration	2023	468	-	10.1016/j.cej.2023.143474	SDG 6| SDG 9
6	Recent advances in cold atmospheric plasma (CAP) for breast cancer therapy	2023	47	2	10.1002/cbin.11939	SDG 3| SDG 9
7	Evaluation of the solidification process in a double-tube latent heat storage unit equipped with circular fins with optimum fin spacing	2023	11	7	10.1002/ese3.1473	SDG 9
8	Effect of Polycyclic Aromatic Hydrocarbons (PAHs) on Respiratory Diseases and the Risk Factors Related to Cancer	2023	43	9	10.1080/10406638.2022.2149569	SDG 3| SDG 6| SDG 9
9	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/27197050/157168	SDG 3| SDG 7| SDG 8| SDG 9| SDG 12| SDG 13

10	Theoretical modeling study on preparation of nanosized drugs using supercritical-based processing: Determination of solubility of Chlorothiazide in supercritical carbon dioxide	2023	370	-	10.1016/j.molliq.2022.120984	SDG 7| SDG 9
11	Multi-objectives reinforcement federated learning blockchain enabled Internet of things and Fog-Cloud infrastructure for transport data	2023	9	11	10.1016/j.heliyon.2023.e21639	SDG 9| SDG 11
12	Current progress toward synthetic routes and medicinal significance of quinoline	2023	32	12	10.1007/s00044-023-03121-y	SDG 3| SDG 9
13	Effect of Clay Brick Waste Powder on the Fresh and Hardened Properties of Self-Compacting Concrete: State-of-the-Art and Life Cycle Assessment	2023	16	12	10.3390/en16124587	SDG 7| SDG 9| SDG 12| SDG 13
14	Integration of Electric Vehicles, Renewable Energy Sources, and IoT for Sustainable Transportation and Energy Management: A Comprehensive Review and Future Prospects	2023	-	-	10.1109/ICRERA59003.2023.10269421	SDG 7| SDG 9| SDG 11| SDG 12| SDG 13
15	A Review On Demand Side Management System And Its Computer Control Methods	2023	-	-	10.1109/ICRERA59003.2023.10269347	SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
16	Data Science Applications in Renewable Energy: Leveraging Big Data for Sustainable Solutions	2023	-	-	10.1109/ICRERA59003.2023.10269385	SDG 7| SDG 9| SDG 13
17	Anomaly Detection in Complex Power Grid using Organic Combination of Various Deep Learning (OC-VDL)	2023	9	2	10.54216/JISIoT.090206	SDG 9
18	Industrial Internet of Water Things architecture for data standarization	2023	-	-	10.1016/j.jare.2023.10.005	SDG 6| SDG 9| SDG 11

	based on blockchain and digital twin technology				
19	Identification of sustainable urban settlement sites using interrelationship based multi-influencing factor technique and GIS	2023	38	1	10.1080/101060 49.2023.2272670	SDG 9
20	IoT-based Green Transportation Technique for Sustainable Growth in Transportation Industry	2023	-	-	10.1109/ICERC S57948.2023.10 434039	SDG 8| SDG 9| SDG 11| SDG 13
21	Leveraging microalgae utilization for anthropogenic CO2 emission abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)	2023	129	-	10.1016/j.pce.20 22.103356	SDG 2| SDG 8| SDG 9| SDG 11| SDG 13| SDG 15
22	Virtual Reality-based English Teaching and Translation with 5G Wireless Technology for Hyper-realistic Experiences	2023	-	-	10.1109/ICERC S57948.2023.10 433964	SDG 9
23	Integrating AI-based Smart-Driven Marketing to Promote Sustainable and Green Systems	2023	-	-	10.1109/ICERC S57948.2023.10 434138	SDG 7| SDG 9
24	Exploration of Zinc Oxide Nanoparticles for Efficient Photocatalytic Removal of Methylene Blue Dye: Synthesis, Characterization and Optimization	2023	59	1	10.3390/engproc 2023059120	SDG 6| SDG 9| SDG 12
25	CFD SIMULATION AND OPTIMIZATION OF HEAT TRANSFER ENHANCEMENT IN HEV STATIC MIXERS WITH ROTATED ANGLES FOR TURBULENT FLOWS	2023	27	4	10.2298/TSCI23 04123K	SDG 7| SDG 9
26	Analyzing Industry Information Management and limitations based on P2P computing	2023	-	-	10.1109/AICER A/ICIS59538.20 23.10420415	SDG 9
27	Human-Computer Interaction Assisted Economic Growth and	2023	-	-	10.1109/ICERC S57948.2023.10 434153	SDG 6| SDG 8| SDG 9|

					SDG 11| SDG 12
28	Studying the Factors that Affect the Synergy between Logistics' Benefits and the Environment's Outcomes	2023	-	-	10.1109/ICERCS57948.2023.10434139	SDG 9| SDG 13
29	A Framework for Strategic Planning Adaptation in Smart Cities through Recurrent Neural Networks	2023	9	2	10.54216/JISIoT.090205	SDG 6| SDG 9| SDG 11
30	A Framework Based on "One Belt, All Road" Strategy to Evaluate Regional Industry's Cluster Innovation Capacity	2023	13	1	10.54216/FPA.130114	SDG 8| SDG 9
31	Research on Sustainable development of green energy and manufacturing in smart agriculture based on big data analysis	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420012	SDG 2| SDG 7| SDG 8| SDG 9| SDG 12
32	Smart City Application based on Internet-of-Things and Artificial Intelligence for Energy Management Dynamic Memory Modelling	2023	-	-	10.1109/ICERCS57948.2023.10434196	SDG 9| SDG 11
33	Deposition of Multi-Ceramic Aluminium-Matrix Composite Coating by Direct Laser Deposition	2023	354	-	10.4028/p-B7oLNl	SDG 9
34	Transportation Regulation in Smart Cities: A Study in Cognition Sensor Network Development	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420127	SDG 9| SDG 11
35	Sustainable Economic Growth in Iraq: Role of Industrialization, Deforestation, Trade, Employment, Technology, and Agriculture	2023	25	2	-	SDG 2| SDG 8| SDG 9| SDG 15
36	SIMULATION OF NEWLY DESIGNED VORTEX GENERATORS FOR OPTIMIZING FLUID MIXING EFFICIENCY IN COMPACT STATIC MIXERS WITH SINGLE-EXIT CONFIGURATION	2023	27	4	10.2298/TSCI2304337K	SDG 9

37	Design of hybrid photovoltaic wind energy systems for residential and commercial applications for environmentally sustainable production	2023	-	-	10.1109/AICERA/ICIS59538.2023.10420278	SDG 7| SDG 9| SDG 12
38	Rational Design of Advanced Metal Organic Framework-Based Nanostructured Catalysts toward Electrocatalytic CO2 Conversion: A Mini Review	2023	11	10	10.1002/ente.202300461	SDG 7| SDG 9| SDG 13
39	Numerical and experimental evaluation of thermal enhancement using zinc nano-suspensions in a square flow passage	2023	148	2	10.1007/s10973-022-11734-5	SDG 9
40	Analyzing Usage of IoT in Different Areas in Supply Chain Management	2023	2736	1	10.1063/5.0170758	SDG 9
41	Fostering Air Pollution using Cloud Computing and IoT-based Methods	2023	-	-	10.1109/ICERCS57948.2023.10434129	SDG 3| SDG 9| SDG 11
42	Redundant Manipulator Motion with Automatic Control Algorithm for Industrial Robots	2023	-	-	10.1109/ICERCS57948.2023.10434230	SDG 9
43	The Effect of Green Supply Chain Management on the Business Performance of Manufacturing Companies in Iraq: The Moderating Role of Green Information Systems	2023	29	2	10.46970/2023.29.2.09	SDG 9| SDG 12
44	An Innovative Approach to Optimizing Factory Cutoff Grades: A Revision of Lane's Theory	2023	10	6	10.18280/mmep.100611	SDG 9

3. Visual Elements

- Al-Ayen University achieved third place among Iraq's 82 private universities and colleges in the May 2023 H-index rankings by the Ministry of Higher Education and Scientific Research, based on global Scopus and Clarivate metrics. Link: https://alayen.edu.iq/news/details/1341

- Al-Ayen University achieved its first appearance in the Spanish "Transparent" ranking, a derivative of Webometrics, which primarily relies on citations from Google Scholar. Link: https://alayen.edu.iq/news/details/1482

- Al-Ayen University has achieved a new milestone, ranking 48th in Iraq according to the global Webometrics ranking, the largest worldwide university evaluation system. Link: https://alayen.edu.iq/news/details/1497

جامعة العين تحرز المركز (48) في تصنيف WEBOMETRICS للجامعات العراقية

ranking	World Rank	University	Det.	Impact Rank*	Openness Rank*	Excellence Rank*
45	5067	Al Iraqia University		15107	4274	4509
46	5076	Dijlah University College		17155	4924	3974
47	5094	American University of Iraq Sulaimani		9322	6683	5065
48	5231	Al Ayen University		21665	4994	3296
49	5463	Al Mansour University College		17246	5701	4480
50	5483	Nawroz University		18497	6510	4067
51	5632	Al Maarif University College		23367	4998	3607

RANKING WEB OF UNIVERSITIES

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

4. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 9.

Link: https://en.alayen.edu.iq/sdj/sub_details/93

SDG 10 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University's 2023 research contributions and community initiatives align closely with SDG 10. Through various projects, the university strives to create a more inclusive and equitable environment for students and the community. The initiatives detailed in this report not only highlight the university's commitment to reducing social and economic inequalities but also showcase its dedication to fostering an inclusive, supportive academic culture. Al-Ayen's efforts focus on enhancing accessibility, cultural engagement, and educational equity, ultimately contributing to broader social change.

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University supports SDG 10 by fostering inclusivity and equal opportunities. Notable initiatives include a full scholarship for a student with quadriplegia, promoting accessibility in education, and a Student Encouragement Award recognizing diverse achievements. The university's participation in the University Art Festival emphasizes cultural inclusivity, while an AI workshop for orphaned students enhances technological access for underprivileged youth. These efforts reflect AUIQ's commitment to reducing inequalities.

Initiative	Link
Full Scholarship for Disabled Student: AUIQ granted a full scholarship to Saif Al-Din Saad, a student with quadriplegia, to support his pursuit of higher education, promoting accessibility and equal opportunities.	https://alayen.edu.iq/news/details/1493
Student Encouragement and Volunteer Award: AUIQ recognized student Yasser Faleh with an award for creativity and community engagement, encouraging diverse contributions and inclusivity.	https://alayen.edu.iq/news/details/1585
University Art Festival Participation: AUIQ showcased over a thousand student-created art pieces, fostering cultural inclusivity and diverse expression.	https://alayen.edu.iq/news/details/1782
Interactive AI Workshop for Orphan School Students: AUIQ's College of Engineering organized an AI workshop, enhancing educational opportunities and technological awareness for underprivileged students.	https://alayen.edu.iq/news/details/1677

Al-Ayen University's Student Activities Department participated in the Iraqi Universities Table Tennis Championship for students, faculty, and staff.	https://alayen.edu.iq/news/details/1685

Supporting Data and Metrics:

- Publications and Research: 3 publications in 2023 directly support SDG 10.

3 publications match with Sustainable Development Goal 10 :						
Institutions	Al-Ayen University					
Publication years	(2023)					
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Mediating Role of Customer Trust in the Relationship between Service Quality and Customer Loyalty: Empirical Evidence from Iraqi Banking Customers	2023	29	2	10.46970/2023.29.2.12	SDG 1| SDG 10
2	Does Financial Development and Financial Inclusion Matter for Economic Growth? Evidence from Iraq	2023	46	131	10.32826/cude.v46i131.1110	SDG 1| SDG 8| SDG 10
3	Combination of Different Mathematical Objectives to Model Public Safety and Emergency Responses	2023	-	-	10.1109/AICERA/ICIS59538.2023.10419934	SDG 10

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 10.

Link: https://en.alayen.edu.iq/sdj/sub_details/94

SDG 11 Progress Report: Al-Ayen Iraqi University

1. Introduction and Overview

This report provides an overview of Al-Ayen Iraqi University's Communities and research contributions in 2023, specifically aligned with SDG 11. The university has made significant strides in urban sustainability through various research projects and publications. The alignment with SDG 11 is evident in the following topics and subject areas, demonstrating AUIQ's commitment to promoting sustainable urban development and addressing critical challenges in urban environments.

Overview of Research Contributions for SDG 11

- Urban Climate Resilience: Research examining the impacts of climate change on urban environments, including heat stress management in tropical cities, to enhance urban resilience.
- Sustainable Energy Infrastructure: Studies on optimal site selection for solar photovoltaic power plants, aiming to promote clean energy integration in urban areas.
- Air Quality Improvement: Development of advanced predictive models for air quality forecasting, contributing to cleaner and healthier urban environments.
- Disaster Risk Management: Assessing environmental impacts of dam breaches using remote sensing technology to improve urban safety and disaster preparedness.
- Flood Risk Mitigation: Innovative data-driven approaches to enhance flood risk management, ensuring the safety and sustainability of urban communities.
- Smart Energy Optimization: Research on energy-efficient solutions for smart buildings, focusing on demand-side management to reduce energy consumption.
- Urban Heat Island Mitigation: High-resolution studies on the urban heat island effect, aimed at developing strategies to cool cities and improve livability.
- Efficient Water Resource Management: Advanced techniques for flood mapping and drought forecasting, supporting effective water resource management in urban areas.
- Soil Moisture and Drought Analysis: Spatiotemporal analysis of soil moisture to understand and mitigate drought impacts in urban and surrounding areas.
- Hydrological Forecasting: Application of soft computing techniques for improved forecasting of hydrological events, helping cities better manage water resources.

Al-Ayen Iraqi University has demonstrated its commitment to sustainable urban development through extensive research efforts. Over 2023, the university has produced 45 publications that align with SDG 11. These publications cover a broad range of topics, from climate change impacts on urban areas, renewable energy solutions for cities, to advanced techniques for flood risk

mitigation and air quality monitoring. This volume of work highlights the university's proactive approach in contributing to global efforts for building sustainable, resilient, and inclusive cities. The diversity and depth of the research outputs underscore AUIQ's role as a leading institution in promoting sustainable urban development practices.

45 publications match with Sustainable Development Goal 11 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Intertwined impacts of urbanization and land cover change on urban climate and agriculture in Aurangabad city (MS), India using google earth engine platform	2023	422	-	10.1016/j.jclepro.2023.138541	SDG 2| SDG 9| SDG 11| SDG 13| SDG 15
2	Automated waste-sorting and recycling classification using artificial neural network and features fusion: a digital-enabled circular economy vision for smart cities	2023	82	25	10.1007/s11042-021-11537-0	SDG 11| SDG 12
3	Evaluation of NASA POWER and ERA5-Land for estimating tropical precipitation and temperature extremes	2023	624	-	10.1016/j.jhydrol.2023.129940	SDG 11
4	Flood Subsidence Susceptibility Mapping using Elastic-net Classifier: New Approach	2023	37	13	10.1007/s11269-023-03591-0	SDG 11
5	Physicochemical Parameters of Water and Its Implications on Avifauna and Habitat Quality	2023	15	12	10.3390/su15129494	SDG 6| SDG 11| SDG 15
6	Multi-step ahead hourly forecasting of air quality indices in Australia: Application of an optimal time-varying decomposition-based ensemble deep learning algorithm	2023	14	6	10.1016/j.apr.2023.101752	SDG 3| SDG 11
7	Ranking Sub-Watersheds for Flood Hazard Mapping: A Multi-Criteria Decision-Making Approach	2023	15	11	10.3390/w15112128	SDG 11

8	Megacities' environmental assessment for Iraq region using satellite image and geo-spatial tools	2023	30	11	10.1007/s11356-022-24153-8	SDG 2| SDG 11| SDG 13
9	Multi-objectives reinforcement federated learning blockchain enabled Internet of things and Fog-Cloud infrastructure for transport data	2023	9	11	10.1016/j.heliyon.2023.e21639	SDG 9| SDG 11
10	Predicting agricultural drought using meteorological and ENSO parameters in different regions of Iran based on the LSTM model	2023	37	9	10.1007/s00477-023-02465-6	SDG 2| SDG 11
11	Large-Scale Flood Hazard Monitoring and Impact Assessment on Landscape: Representative Case Study in India	2023	15	14	10.3390/su151411413	SDG 11| SDG 13
12	Designing a decomposition-based multi-phase pre-processing strategy coupled with EDBi-LSTM deep learning approach for sediment load forecasting	2023	153	-	10.1016/j.ecolind.2023.110478	SDG 6| SDG 11
13	Developing a Smart Economy Using Statistical Framework-Based Business Models in Smart Cities	2023	9	2	10.54216/JISIoT.090214	SDG 8| SDG 11| SDG 15
14	A Lite-SVM Based Semantic Search Model for Bigdata Analytics in Smart Cities	2023	-	-	10.1109/WPMC59531.2023.10338978	SDG 11
15	Integration of Electric Vehicles, Renewable Energy Sources, and IoT for Sustainable Transportation and Energy Management: A Comprehensive Review and Future Prospects	2023	-	-	10.1109/ICRERA59003.2023.10269421	SDG 7| SDG 9| SDG 11| SDG 12| SDG 13
16	Evaluation of the impact of large-scale atmospheric indicators and meteorological variables on drought in different regions of Iran	2023	82	12	10.1007/s12665-023-11015-w	SDG 11
17	Using fuzzy and machine learning iterative optimized models to generate the flood susceptibility	2023	14	1	10.1080/19475705.2023.2281241	SDG 11

	maps: case study of Prahova River basin, Romania				
18	Urban Wastewater Treatment for High Yielding in Agriculture Through Smart Irrigation System	2023	726	-	10.1007/978-981-99-3716-5_52	SDG 6| SDG 11
19	Assessment of rainwater harvesting potential for urban area under climate and land use changes using geo-informatics technology	2023	52	-	10.1016/j.uclim.2023.101721	SDG 6| SDG 11
20	Arduino-Based Real-Time Obstacle Detection in Vehicles Using Proximity Sensors	2023	-	-	10.1109/ICAICCIT60255.2023.10465720	SDG 3| SDG 11
21	Water quality parameters assessment of ras el-Ain natural ponds, tyr, lebanon	2023	23	6	10.2166/ws.2023.140	SDG 6| SDG 7| SDG 11| SDG 12
22	Industrial Internet of Water Things architecture for data standarization based on blockchain and digital twin technology	2023	-	-	10.1016/j.jare.2023.10.005	SDG 6| SDG 9| SDG 11
23	Identification of the Contamination Sources by PCBs Using Multivariate Analyses: The Case Study of the Annaba Bay (Algeria) Basin	2023	28	19	10.3390/molecules28196841	SDG 6| SDG 11| SDG 14
24	Assessment of Hydrological Response to Climatic Variables over the Hindu Kush Mountains, South Asia	2023	15	20	10.3390/w15203606	SDG 2| SDG 11| SDG 13
25	IoT-based Green Transportation Technique for Sustainable Growth in Transportation Industry	2023	-	-	10.1109/ICERCS57948.2023.10434039	SDG 8| SDG 9| SDG 11| SDG 13
26	Leveraging microalgae utilization for anthropogenic CO2 emission abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)	2023	129	-	10.1016/j.pce.2022.103356	SDG 2| SDG 8| SDG 9| SDG 11| SDG 13| SDG 15
27	Machine Learning Based Logistic Decision Support System for	2023	9	2	10.54216/JISIoT.090208	SDG 3| SDG 11

	Intelligent Vehicles and Transportation Systems					
28	Application of Edge Computing-Based Information-Centric Networking in Smart Cities	2023	8	2	10.54216/JISIoT. 080208	SDG 11
29	Human-Computer Interaction Assisted Economic Growth and Financial Status of Urban Cities using Artificial Intelligence	2023	-	-	10.1109/ICERCS 57948.2023.1043 4153	SDG 6| SDG 8| SDG 9| SDG 11| SDG 12
30	Earthquake Prediction Using Machine Learning	2023	-	-	10.1109/ICAC3N 60023.2023.1054 1482	SDG 11
31	A Framework for Strategic Planning Adaptation in Smart Cities through Recurrent Neural Networks	2023	9	2	10.54216/JISIoT. 090205	SDG 6| SDG 9| SDG 11
32	Prediction of Climatic and Water Quality in Urban Cooum River of Chennai Using Machine Learning Approaches	2023	726	-	10.1007/978-981-99-3716-5_53	SDG 6| SDG 11| SDG 14
33	Identifying the role played by climate change in agricultural productivity: evidence from Iraq	2023	25	2	-	SDG 2| SDG 8| SDG 11| SDG 13
34	Plaka tanıma sistemleri ve hibrit bir sistem önerisi	2023	-	-	10.1109/HORA58 378.2023.1015675 1	SDG 3| SDG 11
35	Smart City Application based on Internet-of-Things and Artificial Intelligence for Energy Management Dynamic Memory Modelling	2023	-	-	10.1109/ICERCS 57948.2023.1043 4196	SDG 9| SDG 11
36	Transportation Regulation in Smart Cities: A Study in Cognition Sensor Network Development	2023	-	-	10.1109/AICERA /ICIS59538.2023. 10420127	SDG 9| SDG 11
37	Analysis of earth to air heat exchanger system for the heating applications with different channel shapes	2023	2591	-	10.1063/5.012233 7	SDG 11

38	Study on Host-based Security System Advancement in ICT-Enabled Smart Cities	2023	-	-	10.1109/ICERCS 57948.2023.1043 4031	SDG 11
39	Fostering Air Pollution using Cloud Computing and IoT-based Methods	2023	-	-	10.1109/ICERCS 57948.2023.1043 4129	SDG 3| SDG 9| SDG 11
40	Big Data Framework for the Development of Public Management Application Talents using Innovative Elements in Smart Cities	2023	-	-	10.1109/AICERA /ICIS59538.2023. 10419983	SDG 11
41	Governance, Financial Development, and Green Growth in Iraq: An Empirical Study	2023	46	131	10.32826/cude.v4 6i131.1112	SDG 7| SDG 8| SDG 11| SDG 13
42	Prevention and Management of Natural Disasters with Integrated Multidisciplinary Climatic Sensitivity and Big Data Model	2023	-	-	10.1109/ICERCS 57948.2023.1043 4041	SDG 11| SDG 13
43	NUMERICAL STUDY ON A NATURAL GAS-FUELED ENGINE UNDER LOW TEMPERATURE COMBUSTION MODE	2023	27	4	10.2298/TSCI230 4457K	SDG 11
44	The role of service-oriented human-computer interaction of Low-resource, high-efficiency public transit systems	2023	-	-	10.1109/AICERA /ICIS59538.2023. 10420081	SDG 11
45	Efficiency and Precision: Control Systems Empowered by Smart Image Processing	2023	-	-	10.1109/SMART GENCON60755. 2023.10442573	SDG 11

2. Detailed SDG Contributions

Initiatives and Activities

3. *Al-Ayen University's scouting team organized an outdoor trip for members of the Scouts and Guides team, along with faculty from the College of Physical Education and Sports*

Science to the ancient city of Ur. Such activities enrich students' personal development through adventure, practical outdoor skills, and an appreciation of cultural heritage. This initiative aligns with SDG 4 by enhancing experiential learning and SDG 11 by promoting cultural preservation. Link: https://alayen.edu.iq/news/details/1115

4. ***President of Al-Ayen University, Professor Shafiq Shakir Al-Mawla, honored the archaeologist Amer Abdul Razzaq for his significant efforts***, **particularly his lecture titled *Nasiriyah: The World Museum of Antiquities.*** This event took place during an evening celebrating the winners of AUIQ Award for Academic Scientific Research 2023, attended by university presidents and researchers from various Iraqi institutions. This recognition aligns with SDG 11 through the celebration of heritage and preservation efforts. Link: https://alayen.edu.iq/news/details/1119

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 11.

Link: https://en.alayen.edu.iq/sdj/sub_details/95

SDG 12 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

This report provides an overview of the research contributions from Al-Ayen Iraqi University (AUIQ) in 2023, specifically aligned with SDG 12. SDG 12 aims to ensure sustainable consumption and production patterns, promoting resource efficiency and reducing waste. The following sections outline key research topics and subject areas that align with this goal, along with the total number of related publications.

Overview of Research Contributions for SDG 12

- Delineating the climate change impacts on urban environment along with heat stress in the Indian tropical city: This research focuses on understanding urban heat stress, which is crucial for developing sustainable urban planning strategies that mitigate excessive energy consumption.
- Identifying the most effective climate parameters on crop yield in rain-fed agriculture and irrigated farming in Iran: The study identifies climate factors affecting crop yields, promoting efficient water and resource usage in agriculture, reducing waste, and enhancing sustainability.
- Spatiotemporal snowline status and climate variability impact assessment: a case study of Pindari River Basin, Kumaun Himalaya, India: Research into climate variability effects on snowlines aids in the sustainable management of water resources, essential for responsible consumption.
- Assessment of groundwater potential zone mapping for semi-arid environment areas using AHP and MIF techniques: This study aims to improve groundwater management, ensuring sustainable and responsible water consumption practices.
- Assessment of current and future trends in water resources in the Gambia River Basin in a context of climate change: By predicting water resource trends, this research helps in planning for sustainable water usage, minimizing wastage.
- GIS-based multi-influencing factor (MIF) application for optimal site selection of solar photovoltaic power plant in Nashik, India: Research promoting clean and sustainable energy solutions, integral to reducing reliance on non-renewable resources.
- Innovative biomass waste heat utilization for green hydrogen production: A comparative and optimization study of steam and organic Rankine cycles: This research explores the utilization of waste heat, promoting the circular economy and efficient resource use.
- Bioremediation techniques for soil organic pollution: Mechanisms, microorganisms, and technologies - A comprehensive review: Review of bioremediation methods supports sustainable land use by promoting effective pollution management strategies.

- Eco-friendly LEDs radiation-assisted photocatalytic mineralization of toxic azure B dye using Bi2MoZnO7 nanocomposite: Research on eco-friendly photocatalysis contributes to sustainable industrial practices by reducing environmental pollution.
- Benchmarking of circular economy behaviors for Iraqi energy companies based on engagement modes with green technology and ESG rating: This study focuses on promoting circular economy models in the energy sector, encouraging responsible production and consumption patterns.

The total number of publications from Al-Ayen Iraqi University related to SDG 12 in 2023 is 19. These publications reflect the university's dedication to addressing global challenges by promoting sustainable practices, innovative recycling methods, and efficient resource management. By focusing on a range of topics from sustainable agriculture and waste management to green supply chains and circular economy models, AUIQ researchers are contributing to the development of solutions that aim to reduce waste, conserve resources, and encourage sustainable production methods. This body of work demonstrates a proactive approach to fostering environmental sustainability and responsible consumption at both local and global levels.

19 publications match with Sustainable Development Goal 12:						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Automated waste-sorting and recycling classification using artificial neural network and features fusion: a digital-enabled circular economy vision for smart cities	2023	82	25	10.1007/s11042-021-11537-0	SDG 11| SDG 12
2	Bacillus subtilis ER-08, a multifunctional plant growth-promoting rhizobacterium, promotes the growth of fenugreek (Trigonella foenum-graecum L.) plants under salt and drought stress	2023	14	-	10.3389/fmicb.2023.1208743	SDG 2| SDG 8| SDG 12
3	Influence of water based binary composite nanofluids on thermal performance of solar thermal technologies: sustainability assessments	2023	17	1	10.1080/19942060.2022.2159881	SDG 7| SDG 12

4	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/271970 50/157168	SDG 3| SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
5	Effect of Clay Brick Waste Powder on the Fresh and Hardened Properties of Self-Compacting Concrete: State-of-the-Art and Life Cycle Assessment	2023	16	12	10.3390/en16124 587	SDG 7| SDG 9| SDG 12| SDG 13
6	Integration of Electric Vehicles, Renewable Energy Sources, and IoT for Sustainable Transportation and Energy Management: A Comprehensive Review and Future Prospects	2023	-	-	10.1109/ICRERA 59003.2023.1026 9421	SDG 7| SDG 9| SDG 11| SDG 12| SDG 13
7	A Review On Demand Side Management System And Its Computer Control Methods	2023	-	-	10.1109/ICRERA 59003.2023.1026 9347	SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
8	An Empirical Estimation of Clean Energy and Financial Development as Determinants of Sustainable Development in Iraq	2023	46	131	10.32826/cude.v4 6i131.1113	SDG 7| SDG 8| SDG 12| SDG 13
9	Water quality parameters assessment of ras el-Ain natural ponds, tyr, lebanon	2023	23	6	10.2166/ws.2023. 140	SDG 6| SDG 7| SDG 11| SDG 12
10	Removal of Formaldehyde from Aqueous Solution Using Low-cost and Reusable Adsorbents	2023	11	4	10.22036/PCR.20 22.354371.2157	SDG 12
11	Microwave assisted ZnCl2 conversion of noodle waste into activated carbon/ZnO composite: A circular approach to food waste utilization for crystal violet dye removal	2023	-	-	10.1007/s13399-023-04857-8	SDG 6| SDG 12
12	Recent Advances in the Applications of Nanotechnology and Nanomaterials	2023	40	8	10.1002/ppsc.202 300029	SDG 7| SDG 12| SDG 14

	in the Petroleum Industry: A Descriptive Review				
13	Exploration of Zinc Oxide Nanoparticles for Efficient Photocatalytic Removal of Methylene Blue Dye: Synthesis, Characterization and Optimization	2023	59	1	10.3390/engproc2023059120	SDG 6| SDG 9| SDG 12
14	Human-Computer Interaction Assisted Economic Growth and Financial Status of Urban Cities using Artificial Intelligence	2023	-	-	10.1109/ICERCS 57948.2023.1043 4153	SDG 6| SDG 8| SDG 9| SDG 11| SDG 12
15	Factors Affecting Sustainable Agriculture in Iraq: Evidence from Employment, CPI, Rents, and Policies	2023	25	2	-	SDG 1| SDG 2| SDG 8| SDG 12
16	Research on Sustainable development of green energy and manufacturing in smart agriculture based on big data analysis	2023	-	-	10.1109/AICERA /ICIS59538.2023. 10420012	SDG 2| SDG 7| SDG 8| SDG 9| SDG 12
17	Design of hybrid photovoltaic wind energy systems for residential and commercial applications for environmentally sustainable production	2023	-	-	10.1109/AICERA /ICIS59538.2023. 10420278	SDG 7| SDG 9| SDG 12
18	Smart Environment Network Design for Healthcare based on Artificial Intelligence	2023	-	-	10.1109/ICERCS 57948.2023.1043 4251	SDG 12
19	The Effect of Green Supply Chain Management on the Business Performance of Manufacturing Companies in Iraq: The Moderating Role of Green Information Systems	2023	29	2	10.46970/2023.29 .2.09	SDG 9| SDG 12

2. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 12.

Link: https://en.alayen.edu.iq/sdj/sub_details/96

SDG 13 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) is dedicated to sustainable development and aligns its activities with the United Nations SDGs, particularly SDG 13. Through research, environmental initiatives, and collaborations, AUIQ actively contributes to climate resilience and environmental responsibility.

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University supports SDG 13 through diverse climate-focused initiatives. Highlights include a student's award in a climate photography competition, promoting environmental awareness, and workshops on safety and green anesthesia, emphasizing eco-friendly practices. Additionally, seminars on pollution prevention and educational visits to power plants foster practical sustainability knowledge. These efforts showcase AUIQ's commitment to climate action by encouraging community engagement and responsible environmental practices.

Initiative	Link
Climate Change Photography Competition Winner: AUIQ Biomedical Engineering student Hamad Abdullah Shahir won in a climate photography contest organized by the Red Cross, highlighting environmental awareness and AUIQ's commitment to fostering climate-conscious students.	https://alayen.edu.iq/news/details/1080
Workshop on Occupational Safety and Environmental Preservation: This workshop emphasized safety, health, and environmental preservation, aligning with SDG 13 by promoting responsible environmental practices on campus and beyond.	https://alayen.edu.iq/news/details/1084
Seminar on Environmental Pollution and Health: Organized with the Dhi Qar Civil Defense Center, this seminar promoted community education on pollution prevention and resource conservation, supporting environmental sustainability.	https://alayen.edu.iq/news/details/1227
Educational Visit to Dhi Qar Power Plant: AUIQ students engaged in a tree-planting activity and learned about electricity generation, promoting environmental sustainability through experiential learning.	https://alayen.edu.iq/news/details/1267

Supporting Data and Metrics:

- Publications and Research: 39 publications in 2023 directly support SDG 13.

39 publications match with Sustainable Development Goal 13 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Integration of hydrogeological data, GIS and AHP techniques applied to delineate groundwater potential zones in sandstone, limestone and shales rocks of the Damoh district, (MP) central India	2023	228	-	10.1016/j.envres.2023.115832	SDG 2| SDG 6| SDG 8| SDG 13| SDG 15
2	Machine learning approach to map the thermal conductivity of over 2,000 neoteric solvents for green energy storage applications	2023	59	-	10.1016/j.ensm.2023.102795	SDG 7| SDG 9| SDG 13
3	Intertwined impacts of urbanization and land cover change on urban climate and agriculture in Aurangabad city (MS), India using google earth engine platform	2023	422	-	10.1016/j.jclepro.2023.138541	SDG 2| SDG 9| SDG 11| SDG 13| SDG 15
4	An integrated GIS, MIF, and TOPSIS approach for appraising electric vehicle charging station suitability zones in Mumbai, India	2023	97	-	10.1016/j.scs.2023.104717	SDG 3| SDG 7| SDG 13
5	A decision framework for potential dam site selection using GIS, MIF and TOPSIS in Ulhas river basin, India	2023	423	-	10.1016/j.jclepro.2023.138890	SDG 6| SDG 13
6	Advanced biofuel production, policy and technological implementation of nano-additives for sustainable environmental management – A critical review	2023	387	-	10.1016/j.biortech.2023.129660	SDG 7| SDG 9| SDG 13

7	Simulation of the Potential Impacts of Projected Climate and Land Use Change on Runoff under CMIP6 Scenarios	2023	15	19	10.3390/w15193421	SDG 6| SDG 13| SDG 15
8	Machine learning-based country-level annual air pollutants exploration using Sentinel-5P and Google Earth Engine	2023	13	1	10.1038/s41598-023-34774-9	SDG 3| SDG 13
9	Long-term trend analysis of extreme climate in Sarawak tropical peatland under the influence of climate change	2023	40	-	10.1016/j.wace.2023.100554	SDG 13
10	Environmental Impacts of the Solar Photovoltaic Systems in the Context of Globalization	2023	24	2	10.12912/27197050/157168	SDG 3| SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
11	Megacities' environmental assessment for Iraq region using satellite image and geo-spatial tools	2023	30	11	10.1007/s11356-022-24153-8	SDG 2| SDG 11| SDG 13
12	Large-Scale Flood Hazard Monitoring and Impact Assessment on Landscape: Representative Case Study in India	2023	15	14	10.3390/su151411413	SDG 11| SDG 13
13	Effect of Clay Brick Waste Powder on the Fresh and Hardened Properties of Self-Compacting Concrete: State-of-the-Art and Life Cycle Assessment	2023	16	12	10.3390/en16124587	SDG 7| SDG 9| SDG 12| SDG 13
14	A novel intelligent approach for predicting meteorological drought based on satellite-based precipitation product: Application of an EMD-DFA-DBN hybrid model	2023	211	-	10.1016/j.compag.2023.107946	SDG 13
15	Integration of Electric Vehicles, Renewable Energy Sources, and IoT for Sustainable Transportation and Energy Management: A Comprehensive Review and Future Prospects	2023	-	-	10.1109/ICRERA59003.2023.10269421	SDG 7| SDG 9| SDG 11| SDG 12| SDG 13
16	Hydrological response of tropical rivers basins to climate change using the GR2M model: the case of the	2023	35	1	10.1186/s12302-023-00822-4	SDG 6| SDG 13

13 CLIMATE ACTION

	Casamance and Kayanga-Géva rivers basins				
17	Scheduling of Multiple Energy Consumption in The Smart Buildings with Peak Demand Management	2023	15	4	10.30880/ijie.2023.15.04.027	SDG 13
18	A Review On Demand Side Management System And Its Computer Control Methods	2023	-	-	10.1109/ICRERA59003.2023.10269347	SDG 7| SDG 8| SDG 9| SDG 12| SDG 13
19	Data Science Applications in Renewable Energy: Leveraging Big Data for Sustainable Solutions	2023	-	-	10.1109/ICRERA59003.2023.10269385	SDG 7| SDG 9| SDG 13
20	Impact of climate change adaptation strategies on groundwater resources: a case study of Sari-Neka coastal aquifer, Northern Iran	2023	82	23	10.1007/s12665-023-11205-6	SDG 6| SDG 13
21	Spatiotemporal analysis of groundwater resources sustainability in South Asia and China using GLDAS data sets	2023	82	24	10.1007/s12665-023-11282-7	SDG 2| SDG 6| SDG 13| SDG 15
22	An Empirical Estimation of Clean Energy and Financial Development as Determinants of Sustainable Development in Iraq	2023	46	131	10.32826/cude.v46i131.1113	SDG 7| SDG 8| SDG 12| SDG 13
23	Revisiting the Role of Financial Development in Energy-Growth-Environment Nexus in Iraq	2023	46	131	10.32826/cude.v46i131.1111	SDG 8| SDG 13
24	Green Certificate-Driven Photovoltaic Promotion in Distribution Networks Hosting Hydrogen Fueling Stations for Future Sustainable Transportation: A Risk-Adjusted Dominance Analysis	2023	99	-	10.1016/j.scs.2023.104911	SDG 7| SDG 8| SDG 13
25	Assessment of Hydrological Response to Climatic Variables over the Hindu Kush Mountains, South Asia	2023	15	20	10.3390/w15203606	SDG 2| SDG 11| SDG 13
26	IoT-based Green Transportation Technique for Sustainable Growth in Transportation Industry	2023	-	-	10.1109/ICERCS57948.2023.10434039	SDG 8| SDG 9| SDG 11| SDG 13

27	Leveraging microalgae utilization for anthropogenic CO2 emission abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)	2023	129	-	10.1016/j.pce.2022.103356	SDG 2| SDG 8| SDG 9| SDG 11| SDG 13| SDG 15
28	Studying the Factors that Affect the Synergy between Logistics' Benefits and the Environment's Outcomes	2023	-	-	10.1109/ICERCS57948.2023.10434139	SDG 9| SDG 13
29	Identifying the role played by climate change in agricultural productivity: evidence from Iraq	2023	25	2	-	SDG 2| SDG 8| SDG 11| SDG 13
30	Presenting a Model for Locating and Allocating Multi-Period Hubs and Comparing It with a Multi-Objective Imperialist Competitive Algorithm	2023	48	3	10.2478/fcds-2023-0013	SDG 13
31	Prediction of geomechanical bearing capacity using autoregressive deep neural network in carbon capture and storage systems	2023	9	11	10.1016/j.heliyon.2023.e21913	SDG 13
32	Rational Design of Advanced Metal Organic Framework-Based Nanostructured Catalysts toward Electrocatalytic CO2 Conversion: A Mini Review	2023	11	10	10.1002/ente.202300461	SDG 7| SDG 9| SDG 13
33	CO2 reduction reaction on Sc-doped nanocages as catalysts	2023	29	12	10.1007/s00894-023-05776-1	SDG 13
34	Governance, Financial Development, and Green Growth in Iraq: An Empirical Study	2023	46	131	10.32826/cude.v46i131.1112	SDG 7| SDG 8| SDG 11| SDG 13
35	Optimization of a Hybrid Photovoltaic System with Gas Engine to Supply Electricity and Heat	2023	11	-	10.22098/JOAPE.2023.12321.1924	SDG 7| SDG 13
36	The Effect of the El Nino Southern Oscillation on Precipitation Extremes in the Hindu Kush Mountains Range	2023	15	24	10.3390/w15244311	SDG 13

37	Prevention and Management of Natural Disasters with Integrated Multidisciplinary Climatic Sensitivity and Big Data Model	2023	-	-	10.1109/ICERCS57948.2023.10434041	SDG 11| SDG 13
38	Hybrid Energy Systems Optimization Using Firefly Algorithm: Integration of Various Resources for Enhanced Stability and Flexibility	2023	11	-	10.22098/JOAPE.2024.14214.2090	SDG 7| SDG 13
39	Conceptual design and evaluation of a hybrid energy system based on a tri-level waste heat recovery: an approach to achieve a low-carbon cogeneration system	2023	18	-	10.1093/ijlct/ctad086	SDG 7| SDG 8| SDG 13

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 13.

Link: https://en.alayen.edu.iq/sdj/sub_details/97

SDG 14 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

This report highlights the research contributions of Al-Ayen Iraqi University (AUIQ) for the period 2023 that align with the United Nations SDG 14. This goal aims to conserve and sustainably use the oceans, seas, and marine resources. The research initiatives by AUIQ researchers address various challenges related to marine ecosystems, pollution, and sustainable water management.

Overview of Research Contributions for SDG 14

- Source identification and potential health risks from elevated groundwater nitrate contamination in Sundarbans coastal aquifers, India: This study addresses groundwater contamination, which is a crucial element in marine and coastal ecosystem health. Understanding contamination sources helps in mitigating risks to marine life.

- Assessment of petroleum contamination in soil, water, and atmosphere: a comprehensive review: Research on petroleum contamination is vital for addressing pollution in marine environments. This comprehensive review provides insights into pollution prevention and remediation.

- Deciphering morphology patterns of environmental microfibers: Insights into source apportionment: The study on microfibers contributes to understanding pollution sources in marine ecosystems, aiding in the reduction of microplastic contamination.

- Observed and future shifts in climate zone of Borneo based on CMIP6 models: Research predicting climate shifts helps in understanding impacts on marine biodiversity and conservation efforts.

- Predictive modelling of nitrogen dioxide using soft computing techniques in the Agra, Uttar Pradesh, India: Although primarily focused on air quality, the implications of nitrogen dioxide emissions also extend to marine health through water pollution pathways.

- Self-Sustaining Buoy System: Harnessing Water Wave Energy for Smart, Wireless Sensing and Data Transmission: The development of sustainable energy solutions using marine resources aligns with efforts to protect and sustainably use marine ecosystems.

- Heavy metals prediction in coastal marine sediments using hybridized machine learning models with metaheuristic optimization algorithm: This research focuses on predicting and managing heavy metal pollution, a critical concern for marine life preservation.

- Recent advances in using nanomaterials for portable biosensing platforms towards marine toxins application: Up-to-date technology and prospects: Innovations in biosensing technologies for detecting marine toxins contribute directly to protecting marine ecosystems and public health.

- Drinking Water Resources Suitability Assessment Based on Pollution Index of Groundwater Using Improved Explainable Artificial Intelligence: Understanding water quality is crucial for marine ecosystems, as polluted groundwater often flows into coastal and marine areas, affecting marine life.

During 2023, Al-Ayen Iraqi University contributed a total of 11 research publications that align with the goals of SDG 14, showcasing its commitment to sustainable development and marine ecosystem conservation.

24 publications match with Sustainable Development Goal 14:						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Microplastic and oil pollutant agglomerates synergistically intensify toxicity in the marine fish, Asian seabass, Lates calcalifer	2023	98	-	10.1016/j.etap.2022.104059	SDG 14
2	Drinking Water Resources Suitability Assessment Based on Pollution Index of Groundwater Using Improved Explainable Artificial Intelligence	2023	15	21	10.3390/su152115655	SDG 3| SDG 6| SDG 14| SDG 15
3	Influence of the antibiotic nitrofurazone on community dynamics of marine periphytic ciliates: Evidence from community-based bioassays	2023	904	-	10.1016/j.scitotenv.2023.166687	SDG 14
4	Parrotfish: An overview of ecology, nutrition, and reproduction behavior	2023	35	7	10.1016/j.jksus.2023.102778	SDG 14
5	Seasonal influence on physicochemical properties of the sediments from Bay of Bengal coast with statistical approach	2023	235	-	10.1016/j.envres.2023.116611	SDG 14
6	Identification of the Contamination Sources by PCBs Using Multivariate Analyses: The Case Study of the Annaba Bay (Algeria) Basin	2023	28	19	10.3390/molecules28196841	SDG 6| SDG 11| SDG 14

7	Recent advances in using nanomaterials for portable biosensing platforms towards marine toxins application: Up-to-date technology and future prospects	2023	195	-	10.1016/j.microc.2023.109500	SDG 14
8	Recent Advances in the Applications of Nanotechnology and Nanomaterials in the Petroleum Industry: A Descriptive Review	2023	40	8	10.1002/ppsc.202300029	SDG 7| SDG 12| SDG 14
9	Effects of dietary Lactobacillus helveticus ATC 15009 on growth performance, hematology parameters, innate immune responses, and the antioxidant status of rainbow trout (Oncorhynchus mykiss) under high rearing density	2023	23	3	10.2478/aoas-2023-0056	SDG 14
10	Prediction of Climatic and Water Quality in Urban Cooum River of Chennai Using Machine Learning Approaches	2023	726	-	10.1007/978-981-99-3716-5_53	SDG 6| SDG 11| SDG 14
11	Prediction of Major Wave Heights from Scatterometry measurement Data via Machine Learning Mode	2023	-	-	10.1109/ICERCS57948.2023.10433994	SDG 14

2. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 14.

Link: https://en.alayen.edu.iq/sdj/sub_details/99

SDG 15 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) has made significant strides in research aligned with SDG 15 during the years 2023. SDG 15 focuses on protecting, restoring, and promoting the sustainable use of terrestrial ecosystems, managing forests sustainably, combating desertification, and halting biodiversity loss. This report outlines key research contributions made by AUIQ that support these objectives, emphasizing their impact and relevance.

Overview of Research Contributions for SDG 15

- Forecasting of meteorological drought using ensemble and machine learning models: This research focuses on using predictive models to address drought conditions, which are crucial for effective water management and ecosystem conservation.
- Application of bagging and boosting ensemble machine learning techniques for groundwater potential mapping in a drought-prone agriculture region of eastern India: Contributions to the management of water resources by identifying groundwater potential, which is vital for maintaining healthy terrestrial ecosystems.
- A review on e-waste contamination, toxicity, and sustainable clean-up approaches for its management: Addresses the issue of soil contamination through sustainable clean-up technologies, thereby promoting healthier land ecosystems.
- Bioremediation techniques for soil organic pollution: Mechanisms, microorganisms, and technologies - A comprehensive review: Explores various methods for cleaning polluted soil, supporting sustainable agricultural practices and land restoration.
- Assessing the Catastrophic Environmental Impacts on Dam Breach Using Remote Sensing and Google Earth Engine: Examines the impacts of infrastructure failures on ecosystems, emphasizing the need for sustainable land and water management.
- Metagenomic profiling of rhizosphere microbiota: Unraveling the plant-soil dynamics: Research that enhances understanding of plant-soil interactions, critical for maintaining soil health and supporting biodiversity.
- Groundwater level prediction for excessive agricultural irrigation to achieve SDGs: Vulnerability assessment using field-based empirical method: Promotes sustainable water usage practices, which are vital for sustaining agriculture and preserving land ecosystems.

Al-Ayen Iraqi University (AUIQ) has published a total of 13 research articles during 2023 that align with SDG 15. These publications encompass a wide range of topics including drought prediction, groundwater management, soil contamination and remediation, sustainable agricultural

practices, land use changes, and biodiversity conservation. Each of these studies contributes to the university's commitment to advancing sustainable solutions for terrestrial ecosystems, promoting environmental stewardship, and supporting global efforts to combat deforestation, desertification, and biodiversity loss.

13 publications match with Sustainable Development Goal 15:						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Integration of hydrogeological data, GIS and AHP techniques applied to delineate groundwater potential zones in sandstone, limestone and shales rocks of the Damoh district, (MP) central India	2023	228	-	10.1016/j.envres.2023.115832	SDG 2| SDG 6| SDG 8| SDG 13| SDG 15
2	Intertwined impacts of urbanization and land cover change on urban climate and agriculture in Aurangabad city (MS), India using google earth engine platform	2023	422	-	10.1016/j.jclepro.2023.138541	SDG 2| SDG 9| SDG 11| SDG 13| SDG 15
3	Simulation of the Potential Impacts of Projected Climate and Land Use Change on Runoff under CMIP6 Scenarios	2023	15	19	10.3390/w15193421	SDG 6| SDG 13| SDG 15
4	Physicochemical Parameters of Water and Its Implications on Avifauna and Habitat Quality	2023	15	12	10.3390/su15129494	SDG 6| SDG 11| SDG 15
5	Unlocking the hidden potential: groundwater zone mapping using AHP, remote sensing and GIS techniques	2023	14	1	10.1080/19475705.2023.2264458	SDG 6| SDG 15
6	Development of high-resolution gridded data for water availability identification through GRACE data downscaling: Development of machine learning models	2023	291	-	10.1016/j.atmosres.2023.106815	SDG 4| SDG 6| SDG 15
7	Drinking Water Resources Suitability Assessment Based on	2023	15	21	10.3390/su152115655	SDG 3| SDG 6|

	Pollution Index of Groundwater Using Improved Explainable Artificial Intelligence					SDG 14| SDG 15
8	Developing a Smart Economy Using Statistical Framework-Based Business Models in Smart Cities	2023	9	2	10.54216/JISIoT.090214	SDG 8| SDG 11| SDG 15
9	Hydrological evaluation of conservation bench terrace system in outer foothills of Himalayas using soft computing techniques	2023	132	-	10.1016/j.pce.2023.103495	SDG 2| SDG 15
10	Spatiotemporal analysis of groundwater resources sustainability in South Asia and China using GLDAS data sets	2023	82	24	10.1007/s12665-023-11282-7	SDG 2| SDG 6| SDG 13| SDG 15
11	Leveraging microalgae utilization for anthropogenic CO2 emission abatement in Malaysian urban centre: Revisiting the sustainable development goal (SDG-13)	2023	129	-	10.1016/j.pce.2022.103356	SDG 2| SDG 8| SDG 9| SDG 11| SDG 13| SDG 15
12	Afforestation of the Biosphere Reserve of Iraq with Norway Spruce (Picea abies) and Austrian Pine (Pinus nigra) Seedlings: a Quantitative and Qualitative Study	2023	14	3	10.22034/jon.2023.1979594.1212	SDG 15
13	Sustainable Economic Growth in Iraq: Role of Industrialization, Deforestation, Trade, Employment, Technology, and Agriculture	2023	25	2	-	SDG 2| SDG 8| SDG 9| SDG 15
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2. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 15.

Link: https://en.alayen.edu.iq/sdj/sub_details/100

SDG 16 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) is dedicated to sustainable development and aligns its research and institutional activities with the United Nations SDGs, particularly SDG 16. AUIQ actively contributes to peaceful societies and accountable institutions through its research, promoting justice and equity within Iraq and beyond.

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen University supports SDG 16 through initiatives that enhance institutional transparency, accountability, and collaboration. Highlights include hosting a ministerial committee for compliance evaluation, training staff in quality assurance, and fostering human rights discussions with the Dhi Qar Commission. Participation in national forums and agreements with Iraqi universities strengthens academic networks. Additionally, the university's seminar on student discipline promotes a responsible campus environment, while involvement in a scouting course encourages leadership and social responsibility among youth.

Initiative	Link
Al-Ayen University welcomed a ministerial committee specializing in university compliance standards to evaluate its administrative, educational, legal, quality assurance, and laboratory operations	https://alayen.edu.iq/news/details/1111
Al-Ayen University's Quality Assurance and University Performance Department participated in a national training program for institutional accreditation assessors at Al-Ameed University in Karbala.	https://alayen.edu.iq/news/details/1152
Al-Ayen University's Scouting Activities Division participated in the Developmental Course for Scouting Activity Officials, held at Al-Mustaqbal University College in Babil.	https://alayen.edu.iq/news/details/1244
Assistant Professor Dr. Atheer Youssef Ouda, Vice President of Al-Ayen University, welcomed a delegation from the High Commission for Human Rights in Dhi Qar to discuss topics beneficial to the educational process.	https://alayen.edu.iq/news/details/1269
High-level delegation from Al-Ayen University, led by President Prof. Shafiq Al-Mawla, participated in the 5th	https://alayen.edu.iq/news/details/1284

Academic Forum organized by the Iraqi Academics Syndicate and the Kurdistan Academics Association, in Sulaymaniyah.	
Al-Ayen University's President, Dr. Shafiq Shakir Shafiq Al-Mawla, signed an academic cooperation agreement with several Iraqi public and private universities, including Sulaimaniyah University and Cihan University, during a forum hosted by the Iraqi Academics Syndicate and the Kurdistan Academic Society.	https://alayen.edu.iq/news/details/1287
The Continuing Education Unit at the College of Education held a seminar titled "Highlights on Student Discipline Regulations,"	https://alayen.edu.iq/news/details/1827

Supporting Data and Metrics:

- Publications and Research: 3 publications in 2023 directly support SDG 16.

3 publications match with Sustainable Development Goal 16 :						
Institutions		Al-Ayen University				
Publication years		(2023)				
No.	Title	Year	Volume	Issue	DOI	SDGs (2023)
1	Discrimination and Cyberbullying against Women in Iraq: Exploring Social Media and Perceived Norms	2023	17	2	10.5281/zenodo. 4766707	SDG 16
2	The Benefits of Manual Rotation in the Treatment of Occiput Posterior Position: A Case Study of Iraq	2023	8	3	10.30699/jogcr.8 .3.248	SDG 3| SDG 8| SDG 16
3	The Reasons for Informal Payments in Hospitals: A Qualitative Study in Iraq	2023	26	1	10.22034/26.1.1 26	SDG 16

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 16.

Link: https://en.alayen.edu.iq/sdj/sub_details/101

SDG 17 Progress Report: Al-Ayen Iraqi University (2023)

1. Introduction and Overview

Al-Ayen Iraqi University (AUIQ) remains committed to sustainable development and aligns its activities with the United Nations SDGs, particularly SDG 17. Through diverse collaborations with educational institutions, government agencies, and global organizations, AUIQ fosters academic excellence, research advancement, and impactful community engagement.

2. Detailed SDG Contributions

Initiatives and Activities

Al-Ayen Iraqi University supports SDG 17 through extensive partnerships. Collaborations include agreements with Sohar University and UPM University, fostering joint research, student exchanges, and regional growth. Partnerships with Iraqi institutions enhance curriculum alignment and academic exchanges, while international links with the British Royal Medical Colleges and University of Dundee promote advanced healthcare education. These alliances underscore AUIQ's commitment to academic excellence and global knowledge-sharing for sustainable development.

Initiative	Link
Meeting with Academics Syndicate in Dhi Qar: AUIQ's President met with syndicate representatives to establish joint seminars and discuss academic collaborations, reinforcing institutional cooperation.	https://alayen.edu.iq/news/details/1091
Memorandum with Sohar University, Oman: AUIQ and Sohar University agreed to expand educational and research opportunities through a Memorandum of Understanding (MoU), promoting regional academic growth.	https://alayen.edu.iq/news/details/1171
Iraqi University Partnerships: AUIQ has formed strategic partnerships with multiple Iraqi universities, such as Warith Al-Anbiya and Dhi Qar University, supporting joint research, curriculum alignment, and student exchange initiatives.	https://alayen.edu.iq/news/details/1185 https://alayen.edu.iq/news/details/1296
International Collaborations: AUIQ has engaged in academic partnerships with international universities, including Universiti Teknologi Petronas, UCSI University, Universiti Malaysia Pahang, and Utara University. These collaborations foster student mobility, joint research, and professional	https://alayen.edu.iq/news/details/1517 https://alayen.edu.iq/news/details/1388 https://alayen.edu.iq/news/details/1389 https://alayen.edu.iq/news/details/1535 https://alayen.edu.iq/news/details/1504

development programs that enhance AUIQ's global academic network.	
Agreement with University of Dundee: A partnership with the University of Dundee supports joint programs in medical education, enhancing curriculum quality and providing international learning opportunities for students.	https://alayen.edu.iq/news/details/1744
Academic Exchange with UPM University: Through collaboration with Universiti Putra Malaysia (UPM), AUIQ plans a SMART FARMS project and student exchange programs to bolster research and technical skill development.	https://alayen.edu.iq/news/details/1512
Collaboration with Northern Technical University: AUIQ and Northern Technical University in Iraq work together on joint research, academic events, and student and faculty exchanges, advancing educational standards regionally.	https://alayen.edu.iq/news/details/1485
Engagement with the British Royal Medical Colleges: AUIQ's College of Medicine serves as an examination center for British Fellowship exams, promoting international collaboration in healthcare education.	https://alayen.edu.iq/news/details/1744
Al-Ayen Iraqi University has established five memorandums of understanding with renowned Iranian universities, including Khwarizmi, Shahid Beheshti, Sharif University of Technology, Urmia, and Ferdowsi University, three of which rank highly in the Shanghai, Times, and QS classifications.	https://alayen.edu.iq/news/details/1563
Al-Ayen Iraqi University explored opportunities for scientific cooperation with Shatra University, marking a commitment to strengthening academic and research collaboration in Dhi Qar.	https://alayen.edu.iq/news/details/1867
Al-Ayen Iraqi University, in a continued effort to strengthen academic collaboration, signed a scientific and academic cooperation agreement with Al-Nahrain University	https://alayen.edu.iq/news/details/1527

Supporting Data and Metrics

- Research and Educational Partnerships: In 2023, AUIQ established over 25 partnerships with institutions locally and globally. This collaborative network enables joint research publications, student exchange programs, and professional development initiatives, reinforcing SDG 17's mission to strengthen global cooperation.

3. Supporting Documents and Links

References and links to relevant reports, publications, and university web pages that further elaborate on Al-Ayen's efforts and achievements related to SDG 17.

Link: https://en.alayen.edu.iq/sdj/sub_details/102