# Dr Rizwan Rasheed

## Personal

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Google Scholar: https://scholar.google.com/citations?hl=en&user=QZbvG3MAAAAJ

## Experience

Sustainable Development Study Centre at Government College University, Lahore, Pakistan
***Asst. Professor*** *(Environmental Science)*
SEPTEMBER 2017 – PRESENT

Department of Architecture and Built Environment at University of Nottingham, UK
***Postdoc Research Associate*** *(Sustainable Energy and Entrepreneurship)*
OCTOBER 2018 – OCTOBER 2019

Sustainable Development Study Centre at Government College University Lahore, Pakistan
***Lecturer*** *(Environmental Science)*
MAY 2016 - SEPTEMBER 2017

Sustainable Development Study Centre at Government College University Lahore, Pakistan
***Lecturer-****Contract/Visiting (Environmental Science) Contract-basis*
SEPTEMBER 2009 - MAY 2016

Department of Environmental Science at Kinnaird College for Women, Lahore, Pakistan
***Adjunct/Visiting Faculty*** *(Environmental Science)*
MAY 2013 – JANUARY 2016

Integrated Environmental Consultants, Lahore, Pakistan
***Senior Environment, Health, Safety & Climate Change Consultant***
JULY 2011 - MAY 2016

Creative Group of Companies, Lahore, Pakistan
***General Manager*** *Operations & Project Manager-QHSE*
JULY 2005 - MAY 2011

Creative Engineering Ltd. Lahore, Pakistan
***Manager Operations****, Quality and Environmental Management*
MARCH 2001 - JULY 2005

## Education

Department of Architecture and Built Environment at University of Nottingham, UK
***Postdoc Sustainable Energy and Entrepreneurship***
October 2018 – October 2019

Sustainable Development Study Centre (SDSC) at Government College University Lahore
***PhD Environmental Science***
2011 – 2017

Punjab University Law College at University of the Punjab Lahore, Pakistan
***Post Graduate Diploma in Environmental Laws***
2010 – 2011

Sustainable Development Study Centre (SDSC) at Government College University Lahore
***MPhil Environmental Science*** **(**CGPA: 3.34/4.00)
2007 – 2010

College of Earth and Environmental Sciences at University of the Punjab, Lahore, Pakistan
***MSc Environmental Science***
2002 – 2004 (CGPA 3.94/4.00; Passed with distinction; 2nd position in university)

Hajvery University Lahore, Pakistan
***MBA Management and Marketing*** **(**CGPA 3.16/4.00)
1997 – 1999

## Invited Positions

*Frontiers Media SA: Lausanne, VD, CH*
***Associate Editor –*** *Frontiers in Earth Science*
May 2024 – Present

*Elsevier Inc. Cell Press, New York, NY, US*
***Associate Editor -*** *Heliyon*
NOVEMBER 2022 – Present

*Frontiers Media SA: Lausanne, VD, CH*
***Associate Editor –*** *Frontiers in Energy Research*
APRIL 2022 – Present

## Honors and Awards

Punjab Higher Education Commission Foreign Post-Doc Fellowship (FY 2017-18) at the University of Nottingham, UK.

British Council – Charles Wallace Trust Visiting Research Fellowship (2014-15) at the University of Nottingham, UK

## Trainings and Certifications

- CPD Training on Business Process Transformation, by Pakistan Engineering Council (2024)
- Editor Training on Editorial Manager, by Elsevier B.V. RELX Group (2042).
- Editorial Board Strategy Training, by Frontiers Media Ltd. UK (2024).
- Climate Change – Implications and Adaptation by AHK National Centre for Rural Development, Govt. of Pakistan, Islamabad, Pakistan (2023).
- Lean Six Sigma Training by M/S Sky Power Ltd. Pakistan (2023).
- Training on Process Improvement by M/S Sky Power Ltd. Pakistan (2023).
- Industrial Environment by M/S Sky Power Ltd. Pakistan (2023).
- Cost Reduction by Minimizing Manufacturing Waste through Productivity Enhancement by M/S Sky Power Ltd. Pakistan (2023).
- Associate Editor Training; 'Heliyon' from Elsevier B.V. RELX Group (2022).
- Associate Editor Training; 'Frontiers in Energy Research' from Frontiers Media SA: Lausanne, VD, CH (2022).
- Training certificate; 'Green Productivity for Sustainable Development' from Asian Productivity Organization (APO), Japan (2022).
- Visiting PhD Researcher; 'Sustainable Bioenergy and Entrepreneurship' from Department of Architecture and Built Environment, University of Nottingham, UK (2015).
- Fellowship; 'Sustainable Energy Technologies, Environment and Entrepreneurship' under Charles Wallace Trust Visiting Research Fellowship Programme from University of Nottingham, UK (2014).
- Certificate in Environmental Management Systems (ISO-14000) from University of the Punjab, Lahore, Pakistan (2002).
- Certificate in E-commerce and Web Development from University of the Punjab, Lahore, Pakistan (2001).
- Certificate in Information Technology Applications from COMSATS Institute of Information Technology (2000).
- Miscellaneous Certifications (Seminars/Conferences/Workshops)

## Brief Statement of Research Interest

Sustainable & Renewable Energy Technologies; Eco-Entrepreneurship; Circular Economy, Waste-to-Energy; Quality, Health-Safety and Environmental Management; Integrated Industrial Management Systems, Environment-Energy Audits, Industrial Sustainability-Ecology; Life Cycle Assessments and Life Cycle Costing.

## Service Activity (Administrative & Management Duties)

- HEC Approved PhD-MPhil Research Supervisor
- MS/MPhil Prog. Coordinator at SDSC, Government College University Lahore (GCUL)
- Teaching BS, MS/MPhil and PhD Students at SDSC, GCUL
- Supervising undergraduate and postgraduate (PhD & MPhil research work)
- Incharge Alternative Energy Lab, SDSC, GCUL
- Upgradation & Development of Sustainable-Alternative Energy Lab, GCUL
- Incharge Equipment Maintenance and Glassware, SDSC, GCUL
- Focal Person for SDSC-Webpage
- Member Industrial Linkages Committee, SDSC, GCUL
- Member Admissions Committee, SDSC, GCUL
- Focal Person Donations Committee for New Masjid GCUL

## **Supervision** (Research Work)

### *Postgraduate (PhD)*

1. Sustainability analysis of bioenergy production systems in Germany and Pakistan (2021-2024) ***Completed.***
2. Sustainability analysis and application of nano-biofertilizers for agricultural development in Pakistan (2022-2025)
3. Economic and environmental benefits of sustainable dairy management through biogas production for electricity generation and value-addition of digestate (2017-2022) ***Completed.***

### *Postgraduate (MS/MPhil)*

1. Analysis of material flows and occupational health & safety in sports bags industry (2023-2025)
2. Socioeconomic and market sustainability analysis of branded organic cosmetics in Pakistan (2023-2025)
3. Socio-economic assessment of net-metering for clean energy development in Lahore, Pakistan (2022-2024)
4. Sustainability analysis of cotton and hemp-banana blend in apparel industry 2022-2024)
5. Economic and environmental sustainability analysis of commercial scale biogas generation from poultry waste (2022-2023)
6. Materials flow and life cycle sustainability analysis of Steel re-rolling in Pakistan (2022-2023)
7. Economic and environmental sustainability analysis of energy and solid waste streams in denim manufacturing industry (2021-2022)
8. Appraisal of Solar, Biomass and Wind based energy sources of Punjab, Pakistan by Analytical Hierarchy Process (AHP) (2022-23).
9. Assessment of biofertilizer and biochar treatments on growth of Eggplant (Solanum Melongena) (2021-2022)
10. Sustainability assessment and management of water use by denim processing industry in Lahore (2021-2022)
11. Sustainability analysis of digested slurry generated by full scale bioenergy plant in Lahore, Pakistan (2020-2021)
12. Life cycle sustainability analysis of fiberglass composites (2020-2021)
4. Socio-economic and eco-sustainability analysis of smart electricity metering systems (2019-2020)
5. Life cycle and eco-efficiency assessment of contemporary power distribution transformers (2019-2020)
6. Multi-criteria assessment of policy drivers for REDD+ (2017-2019)
7. Environmental life cycle footprint analysis of Sahiwal Coal Power Plant (2017- 2019)
8. Design and analysis of various scrubbers for commercial scale biogas plant (2017-2018)
9. Comparative energy-waste management analysis and development of eco-auditing systems in schools of Lahore (2017-2018)
10. Monitoring of emanation, impact assessment, process treatment and cleaner production analysis in rice industries
11. Energy utilization monitoring and designing energy efficiency analytics for knitwear industry (2014-2016)
12. Design and development of waste management auditing system for Army Public College Sialkot Cantt (2013-

2015)

13. A Green Management and Assessment System for the College Campus; A Case Study of Kinnaird College for Women, Lahore (2013-2015)
14. Monitoring of Pollution load of Pharmaceutical Industry and Cleaner Production of Medical Compounds (2012-2013)
15. Designing of Electrical Energy Efficiency and Conservation Program in Wet Processing of Local Textile Sector in Pakistan (2011-2012)

***Undergraduate (BS)***

1. Environmental and economic sustainability analysis of electric auto-rickshaws in Pakistan (2020-2024)
2. Socioeconomic sustainability of electric bike usage by university students (2020-2024)
3. Assessment of organic and phosphate fertilizers on growth of Zea mays under field conditions (2020-2024)
4. *Economic and Environmental Analysis of Organic and Phosphate Fertilizers* (2020-2024)
5. Cost-effective design and development of air-pollution mitigation system for steel re-rolling mills (2022-2023)
6. Techno-economic sustainability of various fuel sources for steel furnaces in Pakistan (2022-2023)
7. End-of-life environmental life cycle sustainability of Lithium-ion batteries in Pakistan (2022-2023)
8. Analysis of water footprints in steel re-rolling industry (2022-2023)
9. Socio-economic assessment of Net-metering for clean energy development in Pakistan (2021-22)
10. Techno-economic analysis of a modern upflow anerobic sludge blanket (UASB) for commercial scale energy generation in Pakistan (2021-22)
11. Sustainability analysis of cigarette industry in Pakistan (2021-22)
12. Analysis of economic and environmental sustainability of energy generation by Thar Coal (2020-21)
13. Socio-economic assessment of biofertilizer processed through anaerobic digestion (2020-21)
14. Polymers recycling in Pakistan and its economic impacts (2019-2020)
15. Life cycle assessment of power distribution concrete poles (2017-2018)
16. Recovery and recycling of valuable metals from e-waste in Lahore (2017-2018)
17. Development of energy and waste auditing system for metal fabrication industry (2017-2018)
18. Energy efficiency auditing of polyester textile industry (2013-2017).
19. Development of CDM project for industrial bioenergy plant in Pakistan (2013-2017).
20. Design and implementing an integrated environmental health and safety (EHS) management system for energy meters manufacturing industry (2011-2012).
21. End of life environmental impacts of refurbished computer monitors imported in Lahore, Pakistan (2010-2011)

## Research Publications

1. Sustainability Analysis of Commercial-Scale Biogas Plants in Pakistan vs. Germany: A Novel Analytic Hierarchy Process—SMARTER Approach. Sustainability, 2025, 17 (5), 2168
2. Assessment of sleep quality, fatigue and its association with occupational injuries among shift workers in an electronic industrial environment. International Journal of Occupational Safety and Ergonomics, 2025, *31*(1), 69-76. https://doi.org/10.1080/10803548.2024.2404326
3. Grey Forecasting for technoeconomic sustainability of fiberglass composite waste recycling in developing countries. *Heliyon, 2024,* 1 (03:e41655)
4. Evaluating future strategies for sustainable growth of fiberglass composites industry in developing countries: A novel hybrid SWOT-Fuzzy extended PIPRECIA approach. *Heliyon, 2024: e32137*
5. Eco-sustainability analysis of precast-concrete utility poles manufacturing–A case study from Pakistan. *Heliyon, 2023, 9(14):e14976.* DOI: *10.1016/j.heliyon.2023.e14976*
6. Efficient treatment of tannery wastewater through aeration, coagulation, and algal pond. *Water Environment Research, 2023,* 95 (12).
7. Anaerobic Biodegradability and Biomethanation Potential of Fruit-Vegetable Wastes at Sindh, Pakistan. *Pakistan Journal of Analytical & Environmental Chemistry, 2023, 4(2).*
8. REDD+ framework and forest sustainability in Pakistan versus other South Asian countries: a multi-criteria-based analysis. *Environment, Development and Sustainability, 2023,* DOI: *https://doi.org/10.1007/s10668-023-02971-1*

9. Techno-economic and environmental sustainability analysis of filament-winding versus pultrusion based glass-fiber composite technologies. *Environmental Science and Pollution Research,* 2022, 30(2):1-18, DOI: https://doi.org/10.1007/s11356-022-24817-5

10. Environmental life cycle analysis of a modern commercial-scale fibreglass composite-based biogas scrubbing system. *Renewable Energy, 2022,* 185:1261-1271.

11. Assessment of carbon sequestration potential of algae of a Ramsar site in Pakistan — Uchalli Wetland Complex. *Biomass Conversion and Biorefinery, 2022.* DOI: https://doi.org/10.1007/s13399-022-03497-8

12. Environmental sustainability and life cycle cost analysis of smart versus conventional energy meters in developing countries. *Sustainable Materials and Technologies,* 2022: e00464. DOI: https://doi.org/10.1016/j.susmat.2022.e00464

13. Appraisal and risk assessment of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and organochlorine pesticides (OCPs) in wastewater irrigated area. *Arabian Journal of Geosciences, 2022, 15(21),* DOI: https://doi.org/10.1007/s12517-022-10894-w

14. Removal of Cr (III) from wastewater by using raw and chemically modified sawdust and corn husk. *Water Practice & Technology* 17(1), 2022, DOI: https://doi.org/10.2166/wpt.2022.093

15. Assessing the impact of land use land cover change on regulatory ecosystem services of subtropical scrub forest, Soan Valley Pakistan. *Scientific Reports* 12.1 (2022): 1-12. DOI: https://doi.org/10.1038/s41598-022-14333-4

16. Remote sensing based innovative solution of river morphology for better flood management. *International Journal of Applied Earth Observation and Geoinformation*, 111, 102845, 2022, DOI: https://doi.org/10.1016/j.jag.2022.102845

17. Analysis of environmental sustainability of e-waste in developing countries—a case study from Pakistan. *Environmental Science and Pollution Research*, 2022, 1-19 DOI: https://doi.org/10.1007/s11356-022-18691-4

18. Decomposition analytics of carbon emissions by cement manufacturing – a way forward towards carbon neutrality in a developing country. *Environmental Science and Pollution Research,* 2022, 29(4) DOI: https://doi.org/10.1007/s11356-022-20797-8

19. Value addition and risk assessment of dairy digestate as biofertilizer on crop yield and soil fertility. *Arabian Journal of Geosciences,* 2022, 15(3) DOI: https://doi.org/10.1007/s12517-021-09354-8

20. Environmental life cycle analysis of a modern commercial-scale fiberglass composite-based biogas scrubbing system. *Renewable Energy, 2022, 186(1)* DOI: https://doi.org/10.1016/j.renene.2021.12.119

21. Life cycle assessment of a novel biomass-based aerogel material for building insulation. *Journal of Building Engineering*, 2021, *44*, 102988 DOI: https://doi.org/10.1016/j.jobe.2021.102988

22. Gasification of mixed waste at high temperature to enhance the syngas efficiency and reduce gaseous emissions and tar production. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 2021, 1-10. DOI: https://doi.org/10.1080/15567036.2021.1950237

23. Socio-economic and environmental impacts of COVID-19 pandemic in Pakistan—an integrated analysis - *Environmental Science and Pollution Research, 2021* DOI: https://doi.org/10.1007/s11356-020-12070-7

24. Techno-economic and environmental assessment of rice husk in comparison to coal and furnace oil as a boiler fuel *Biomass Conversion and Biorefinery, 2021,* DOI: https://doi.org/10.1007/s13399-020-01238-3

25. Life cycle assessment of a cleaner coal-power plant in a developing country- *Journal of Cleaner Production, 2020,* DOI: https://doi.org/10.1016/j.jclepro.2020.123869

26. Waste Valorization and Resource Conservation in Rice Processing Industries – An Analytical Study from a Developing Country - *Environmental Science and Pollution Research, 2020, 1-17;* DOI: https://doi.org/10.1007/s11356-020-10457-0

27. Seasonal variations in indoor air quality of urban and rural Asian households – *Current science, 2020, 118(11):1816-1821;*

28. Ambient Air Quality of Faisalabad with Relevance to the Seasonal Variations *MAPAN-Journal of Metrology Society of India* DOI: https://doi.org/10.1007/s12647-020-00387-0

29. Field testing phytoremediation of organic and inorganic pollutants of sewage drain by bacteria assisted water hyacinth - *International Journal of Phytoremediation* DOI: https://doi.org/10.1080/15226514.2020.1802574

30. Critical risk analysis of metals toxicity in wastewater irrigated soil and crops – a study of a semi-arid developing region – *Scientific Reports 10(1)* DOI: https://doi.org/10.1038/s41598-020-69815-0

31. Sustainability and CDM Potential Analysis of a Novel vs Conventional Bioenergy Projects in South Asia by Multi Criteria Decision Making Method - *Environmental Science and Pollution Research,* 2020 DOI: https://doi.org/10.1007/s11356-020-08862-6

32. An analytical study to predict the future of Pakistan's energy sustainability versus rest of South Asia - *Sustainable Energy Technologies and Assessments, 2020, Vol. 39(100707);*
33. An industrial scale testing and analysis of waste-to-energy production from various substrates by employing a modern anaerobic digestion plant - *Biomass and Bioenergy, 2020, Vol. 138(105571)*
34. Technoeconomic Modelling and Environmental Assessment of a modern PEMFC CHP system: A Case Study of an Eco-house at University of Nottingham – *Environmental Science and Pollution Research, 2019* DOI: *https://doi.org/10.1007/s11356-019-06054-5*
35. Environmental Impact and Economic Sustainability Analysis of a Novel Anaerobic Digestion Waste-to-Energy Pilot Plant in Pakistan – *Environmental Science and Pollution Research, 2019* DOI: *https://doi.org/10.1007/s11356-019-05902-8*
36. An assessment of wastewater pollution, treatment efficiency and management in a semi-arid urban area of Pakistan - *Desalination and Water Treatment, 2019* DOI: *https://doi.org/10.5004/dwt.2020.24949*
37. Comparative Assessment of Ambient Air Quality of Major Cities of Pakistan – *MAPAN, 2019* DOI: *https://doi.org/10.1007/s12647-019-00335-7*
38. Comparative analysis of air quality on petrol filling stations and related health impacts on their workers – *Air Quality, Atmosphere & Health*, *2019, Vol. 12(11): 1317-1322;*
39. A study on Recycling and Reuse of Sugar mill industrial waste– *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2019* DOI: *https://doi.org/10.1080/ 15567036.2019.1647311*
40. An enhanced algorithm for calculating the degree of greyness of interval grey numbers and its application – *Kybernetes* DOI: *https://doi.org/10.1108/K-10-2018-0562 2019*
41. Evaluation of Chinese Industry linkage ability by using an Enhanced Grey Possibility Clustering Model – *Journal of Grey System Vol. 31(4), 47-59; 2019*
42. Investigating the drinking and surface water quality and associated health risks in a semi-arid multi-industrial metropolis (Faisalabad), Pakistan – *Environmental Science and Pollution, 2019* DOI: *https://doi.org/10.1007/s11356-019-05367-9*
43. Treatment of textile effluents with Pistia stratiotes, Eichhornia crassipes and Oedogonium sp. – *International Journal of Phytoremediation, 2019* DOI: *https://doi.org/10.1080/ 15226514.2019.1577354*
44. Ecological risk assessment of metals in sediments and selective plants of Uchalli Wetland Complex (UWC) - A Ramsar site - *Environmental Science and Pollution Research (ESPR), 2019 (pp 1-17)* DOI: *https://doi.org/10.1007/s11356-019-04711-3 2019*
45. Determination and dispersion of pollutants from different fuel types used in brick kilns by using Gaussian's plume model - *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2019 Vol. 41(8):1022-1028*
46. Refuse-derived fuels as a renewable energy source in comparison to coal, rice husk, and sugarcane bagasse - *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects. 2019, Vol. 41(5):564-572*
47. Bioenergy recovery analysis from various waste substrates by employing a novel industrial scale AD plant - *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2018, Vol. 40(16):1935-1946*
48. Monitoring and Spatio-Temporal Variations of Pyrethroids Insecticides in Surface Water, Sediments and Fish of The River Chenab Pakistan - *Environmental Science and Pollution Research (ESPR),* ; *2018, Vol. 25*(23):22584-22597
49. Economic review of different designs of biogas plants at household level in Pakistan- *Renewable and Sustainable Energy Reviews, 2017, Vol. 74:221-229*
50. Life Cycle Assessment of a medium commercial scale biogas plant and nutritional assessment of effluent slurry — *Renewable and Sustainable Energy Reviews, 2017, Vol. 67:364-371*
51. Socio-economic, health and agriculture benefits of rural household biogas plants in energy scarce developing countries: A case study from Pakistan — *Renewable Energy, 2017 Vol. 108:19-25*
52. Comparison of different approaches for color and COD removal from paper and pulp industry effluent — *Desalination and Water Treatment, 2017, Vol. 88:162-168*
53. Design and Cost-benefit Analysis of a Novel Anaerobic Industrial Biogas Plant in Pakistan — *Renewable Energy, 2016, Vol. 90C:242-247*
54. Techno-economic Impacts of Innovative Commercial-Industrial Scale Bio-energy Plant in Pakistan— *Pakistan Journal of Agricultural Sciences, 2016, Vol. 53(3):647-652; 2016*

### *BOOK CHAPTERS*

1. Nutritional and functional microalgae for human health, In book: Algae Biotechnology for Biomedical and Nutritional Applications, Elsevier B.V. January 2025, DOI: 10.1016/B978-0-443-24006-5.00010-9

2. Isotopic Tools for Tracing Water Pollutants, In book Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. October 2024. https://doi.org/10.1007/978-3-031-65129-8_6
3. Industrial Trends in Antibiotics, *In book: Recent Advances in Industrial Biochemistry*, Springer, Cham, May 2024, DOI: 10.1007/978-3-031-50989-6_8
4. Biodegradation of POPs in Contaminated Land/Water. In book: Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. October 2024. https://doi.org/10.1007/978-3-031-65129-8_8
5. Remediation of Persistent Organic Pollutants Using Advanced Techniques. *In: Emerging Contaminants and Plants, Springer, Cham, 2023*. DOI: *10.1007/978-3-031-22269-6_11*
6. Role of Microorganisms in the Remediation of Toxic Metals from Contaminated Soil. *In: Phytoremediation, Springer, Cham, 2023*. DOI: *https://link.springer.com/chapter/10.1007/978-3-031-17988-4_12*
7. Microalgal biofuels: A sustainable pathway for renewable energy. *In: Algal Biotechnology,* Elsevier B.V. 2022, DOI: *https://doi.org/10.1016/B978-0-323-90476-6.00004-2*
8. Hormones-active substances *In: In: Environmental Micropollutants*, Elsevier B.V. 2022, DOI: *https://doi.org/0.1016/B978-0-323-90555-8.00010-6*
9. Industrial chemicals as micropollutants in the environment *In: Environmental Micropollutants*, Elsevier B.V. 2022, DOI: *https://doi.org/10.1016/B978-0-323-90555-8.00010-6*
10. Monitoring of Microplastic Pollution. In *Microplastic Pollution* (pp. 67-76). Springer, Cham, 2022, DOI: *https://doi.org/10.1007/978-3-030-89220-3_3*

***CONFERENCE PAPERS***

1. Environmental sustainability analysis of a modern industrial scale biogas upgradation system during the Environmental Engineering and Assessment - - *Presented at "Canadian Society for Chemical Engineering 73rd Conference (CSChE 2023), Calgary TELUS Convention Centre, Calgary, Alberta, Canada" (Oct 29 – Nov 01, 2023)*
2. Comparative Efficiency Analysis of Ozone Oxidation and Physicochemical Process for Heavy Metal Removal from Electroplating Effluent - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
3. Smart Grid Vs Conventional Grid- A Comparative Analysis of Opportunities, Challenges and Future Implications in Pakistan - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
4. Role of Quality and Environmental Management Standards in the Development of Electronics Industry of Asia- *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
5. Socioeconomic Assessment of Processed Bio fertilizer In Pakistan - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
6. PM10 and Bound Pb Analysis in Major Bus Terminals of Lahore and Peshawar - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
7. Performance of Sediment Microbial Fuel Cell for Electrical Current Generation Using Khabeki Lake Sediments - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
8. Analysis and Health Impacts of PM2.5 in Main Bus Terminals of Lahore and Peshawar - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
9. Removal of Heavy Metals from Pharmaceutical Wastewater using Coconut Shells - *Presented at "Third International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (Sep 13-15, 2021)*
10. Integrated strategic environmental assessment in land use planning for renewable energy projects in Pakistan: strengths and weaknesses — *Presented at "Second International Conference on Emerging Trends in Earth and Environmental Sciences, CEES, University of the Punjab, Lahore" (March 4-6, 2020)*
11. Sustainability analysis of a novel industrial bioenergy system — *Presented and Published in Proceedings of "SET 2017 - The 16th International Conference on Sustainable Energy Technologies, University of Bologna, Italy" (July 17-20, 2017)*
12. Waste to energy potential of Agricultural waste its Socio- Economic benefits, Environmental Impacts and

management practices in Pakistan - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*

13. Energy Utilization and Efficiency Analytics for Knitwear Industry- a Case Study of Pakistan - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
14. Environmental Footprint of Leather Industry **-** *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
15. Economic Analysis and Recycling of Plastic Waste Post Consumer Pet Bottle in Lahore Pakistan - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
16. Industry Energy Efficiency Auditing of Polyester Textile - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
17. Economic Potential of Plastic PET Bottle Recycling and Degradation in Lahore Pakistan - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
18. Treatment and Extraction of Nickel from Edible Oil Waste Sludge and Its Particle Size Analysis through PXRD (Powder X-Ray Diffraction) - *Presented at "Second International Conference on Environmental and Sustainable Development, GC University, Lahore, Pakistan" (March 13-14, 2018)*
19. Financial assessment of a Creative Industrial scale biogas plant — *Presented at "First International Conference on Emerging Trends in Earth and Environmental Sciences, CEES, University of the Punjab, Lahore" (March 9-10, 2017)*
20. CBA-Reuse and Recycling of fiberglass composites (FRP) waste in Pakistan — *Presented and Published in Proceedings of "First International Conference on Environ-mental and Sustainable Development, GC University, Lahore, Pakistan" (December 16-17, 2014)*

## Research Grants and Contracts

1. *PI:* Design, development, and installation of a novel multi-digester based industrial-scale bioenergy Plant of 175 kWh at Vision Engineering Ltd. 49 Km Lahore-Multan Road *(completed) under Private Industrial Funding/Collaboration, PKR 10.0 million*
2. PI: Portable Fiberglass Composite based (moveable drum-type) Biogas Digester and various Energy Meters (Uniphase Static, Multiphase Static-AMR, and Bi-directional Net Meter) for Alternative Energy Lab. SDSC, GC University Lahore *(completed). Funded under Private Industrial Funding/Collaboration, PKR 1.0 million*
3. *Co-PI:* Electricity Production and Enrichment of Electroactive Microorganisms using Sediment Microbial Fuel Cells. *Funded by HEC, PKR 1.0 million (completed)*
4. *PI:* Design and Development of a Novel Hybrid Waste-to-Energy Bioenergy cum Bio-fertilizer Processing plant of 2 MWh (Phase-I) *(completed). Funded under Private Industrial Funding/Collaboration, PKR 30.0 million*
5. *PI:* Modernization and extension of above (Phase-II, *ongoing*), *PKR 20.0 million*
6. PI: Nutritional balancing, field experimentation and commercialization of processed biofertilizer (Phase-III of above project, *ongoing*), *PKR 15.0 million*

## Other Research or Creative Accomplishments

- Upgradation (Development and Installation of Novel Composite Floating Drum Biogas Plant and Single-Polyphase Static and Net Energy Metering Systems) at Alternative Energy at Sustainable Development Study Centre, GC University Lahore
- Design & development of novel **industrial scale bio-energy plant of 175kW capacity** at Phool Nagar, District Kasur, Pakistan. Specific design features include fixed (FRP) domed multi-digesters and fermentation tunnel system.
- Design & development of modern **industrial scale bio-energy plant of 250 kW capacity** located at Halloki, District Lahore Pakistan. Specific design features include multi- digesters and FRP lined fermentation tunnel system.
- Design, development & implementation of **13kW On-grid Solar** Home System with Thin Film Amorphous Solar Panels & Storage Battery Bank at WAPDA Town, Lahore.
- Design, development & implementation of **21kW Off-grid Solar** Office Block & Parking Area with

Poly-crystalline Solar Panels.

- Design & development of Sustainable FRP Waste-bins, Flowerpots, Boxes etc. with Recycled FRP/GRP (Fiberglass Composites) waste.
- Design and development of "**Environmental Regulatory Compliance**" for various industrial units
- Design and development of '**Environment, Health & Safety (EHS) Management Systems'** for different organization
- Design and development of '**Hazardousness – Operability, Hazzard Analysis and Critical Control Points**' for various industries