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EDUCATION:

Ph.D. (2010-2015)	Agricultural Engineering University of Agriculture, Faisalabad
M.Sc. (2007-2009)	Water Resources Management Centre of Excellence in Water Resources Engineering University of Engineering & Technology, Lahore
B.Sc. (2003 – 2007)	Agricultural Engineering University of Agriculture, Faisalabad
F.Sc. (2001- 2003)	Higher Secondary/Intermediate Examination Board of Intermediate & Secondary Education, Faisalabad
Matriculation (1999-2001)	Secondary School Examination Board of Intermediate & Secondary Education, Faisalabad

ACADEMIC DISTINCTION

- Higher Education Commission (HEC) Approved Supervisor for M.Sc and PhD students funded under various HEC in-country Scholarship Programs
- PhD Indigenous Fellowship in PhD Agricultural Engineering from Higher Education Commission (HEC), Pakistan under Indigenous 5000 PhD Fellowship Program from 01-11-2011 to 31-10-2014.
- PhD Research Fellowship in PhD Agricultural Engineering from University of Agriculture, Faisalabad (Sep 2010 to August 2011).
- One year merit scholarship in M.Sc Water Resources Management from CEWRE, UET, Lahore (2008-2009).

EXPERIENCE AND EMPLOYMENT

- **Assistant Professor (TTS)**, Department of Agricultural Engineering, Faculty of Agricultural Sciences & Technology. Bahauddin Zakariya University, Multan, Pakistan. (2016 to date)
- **Assistant Professor**, Under IPFP-HEC program, Department of Agricultural Engineering, Faculty of Agricultural Sciences & Technology. Bahauddin Zakariya University, Multan, Pakistan. (2015 to 2016)
- **Research Associate**, Department of Irrigation and Drainage, UAF in HEC funded project entitled “Performance Assessment and Evaluation of an Irrigated System Using Remote Sensing and GIS Techniques”. (Oct 2011 to Dec 2011)
- **Site Engineer**, Rehman Corporation, worked in different projects of Glass House, Green House, Mesh House, Tunnel and Drip Irrigation System. (June 2010 to Dec 2010)

Cumulative Impact Factor = 38.582

INTERNATIONAL PUBLICATIONS

1. Abdullah H, Farid HU, Naeem M, Zubair N, Khan ZM, Shahzad H, Sikandar P, Abrar M, Shakoor A, Mubeen M. Investigating On-Site Energy Consumption Patterns Using Vertical Electrical Sounding (VES) and Geographic Information System (GIS) Techniques. Sustainability. 2023; 15(24):16782. <https://doi.org/10.3390/su152416782> (IF=3.9)
2. Awais, M.; Arshad, M.; Ahmad, S.R.; Nazeer, A.; Waqas, M.M.; Aziz, R.; **Shakoor, A.**; Rizwan, M.; Chauhdary, J.N.; Mehmood, Q.; Ahmad, M. (2023) Simulation of Groundwater Flow Dynamics under Different Stresses Using MODFLOW in Rechna Doab, Pakistan. Sustainability 2023, 15, 661. <https://doi.org/10.3390/su15010661> (IF=3.889)
3. Khan, S., Ullah, Q., Khan, A. A., Hassan, S. S., **Shakoor, A.**, & Ijaz, M. (2022). Geostatistical investigation of groundwater quality zones for its applications in irrigated agriculture areas of Punjab (Pakistan). Environmental Earth Sciences, 81(3), 1-19. (IF=2.784)
4. Ahmed, N.; Lü, H.; Ahmed, S.; Nabi, G.; Wajid, M.A.; **Shakoor, A.**; Farid, H.U. (2021) Irrigation Supply and Demand, Land Use/Cover Change and Future Projections of Climate, in Indus Basin Irrigation System, Pakistan. Sustainability 2021, 13, 8695. <https://doi.org/10.3390/su13168695>. (IF=3.251)
5. Aslam, M.A, M. Arshad, **A. Shakoor**, M.J.M Cheema and E.A. Waraich. (2021). Sensor Based Efficient Surface Irrigation System For Improving Water Productivity Using Experimental And Modelling Techniques. Pak. J. Agri. Sci., 58(2), 655-666. (IF=0.618)
6. Ali A, HU Farid, ZM Khan, I Ahmad, MN Anjum, M Mubeen, **A Shakoor** (2021) Temporal Analysis for Detection of Anomalies in Precipitation Patterns over a Selected Area in the Indus Basin of Pakistan. Pure and Applied Geophysics 178 (2021), 651–669. (IF=1.618)

7. Ahmad, F., Adeel, M., Qiu B, J., M., Shoaib, M., **Shakoor, A.**, Chandio, F.A., **2021**. Sowing uniformity of bed-type pneumatic maize Planter at various seed bed preparation levels and machine travel speed. *Int J Agric & Biol Eng*, 2021; 14(1): 165–171. **(IF=1.349)**
8. Farid, H.U., I. Ahmad, Z.M. Khan, A. Bakhsh, M.N. Anjum, **A. Shakoor**, A. Farooq. **2021**. Prediction and maximization of wheat grain yield in semiarid environment by using artificial neural networks. *Fresenius Environmental Bulletin*. Vol. 30 (02A/2021): 1977-1987. **(IF= 0.533)**
9. Noor, S., H Ashraf, G Hussain, M Sultan, T Miyazaki, **A. Shakoor**, MH Mahmood, M Riaz. **2021**. Spatiotemporal investigation of evaporative cooling options for greenhouse air-conditioning application in Pakistan. *Fresenius Environmental Bulletin*. Vol. 30 (03/2021): 2858-2870. **(IF= 0.533)**
10. Arsalan, M., ZM Khan, M Sultan, I Ali, **A Shakoor**, MH Mahmood, M Ahmad, RR Shamshiri, MA Imran, MU Khalid. **2021**. Experimental investigation of a wastewater treatment system utilizing maize cob as trickling filter media. *Fresenius Environmental Bulletin*. Volume 30– No. 01/2021: 148-157 **(IF= 0.533)**
11. Shabir, F., M Sultan, S Noor, G Hussain, T Miyazaki, **A Shakoor**, R Kanwal, Yasir Niaz, MA Imran, MU Khalid. **2021**. Study on adsorption equilibrium of adsorbent-refrigerant pairs for adsorption cooling system application. *Fresenius Environmental Bulletin*. Volume 30– No. 01/2021: 216-224. **(IF= 0.533)**
12. Ashraf M.N, M.H. Mahmood, M. Sultan, N. Banaeian, M. Usman, S.M. Ibrahim, M.U.B.U. Butt, M. Waseem, I. Ali, **A. Shakoor** and Z.M. Khan. **2020**. Investigation of Input and Output Energy for Wheat Production: A Comprehensive Study for Tehsil Mailsi (Pakistan). *Sustainability* 2020, 12, 6884; doi:10.3390/su12176884. **(IF = 2.576)**
13. Ahsen, R., Z.M. Khan, H.U. Farid and **A. Shakoor** and I. Ali. **2020**. Estimation of cropped area and irrigation water requirement using remote sensing and GIS. *The J. Animal & Plant Sciences*, 30(4): 876-884. **(IF = 0.529)**
14. Ahmed N, Wang GX, Oluwafemi A, Munir S, HU Zhao-yong, **Shakoor A**, Imran MA. **2020**. Temperature trends and elevation dependent warming during 1965 – 2014 in headwaters of Yangtze River, Qinghai Tibetan Plateau. *Journal of Mountain Science* 17(3). 556-571 <https://doi.org/10.1007/s11629-019-5438-3>. **(IF = 1.423)**
15. **Shakoor, A.**, Zahid M.K., H.U. Farid, M. Sultan, I. Ahmad, N. Ahmad, M.H. Mahmood, M.U. Ali. **2020**. Delineation of Regional Groundwater Vulnerability using DRASTIC Model for Agricultural Application in Pakistan. *Arabian Journal of Geosciences*, (2020)13:195-206. <https://doi.org/10.1007/s12517-020-5161-y> **(IF= 1.224)**
16. Farid, H. U., Ahmad, I., Anjum, M. N., Khan, Z. M., Iqbal, M. M., **Shakoor, A.**, & Mubeen, M. **2019**. Assessing seasonal and long-term changes in groundwater quality due to over-abstraction using geostatistical techniques. *Environmental Earth Sciences*, 78(13), 386. **(IF= 1.871)**

17. Farid, H.U., Z.M. Khan, I. Ahmad, **A. Shako**or, M.N. Anjum, M.M. Iqbal, M. Mubeen and M. Asghar. **2019**. Estimation of infiltration models' parameters and their comparison to simulate the onsite soil infiltration characteristics. *Int J Agric & Biol Eng*, 12(3): 84–91. **(IF= 1.267)**
18. Zahid M. Khan, Rana M.A. Kanwar, Hafiz U. Farid, M. Sultan, M. Arsalan, M. Ahmad, **A. Shako**or and M.M.A. Aslam. **2019**. Wastewater Evaluation for Multan (Pakistan): Characterization and Agricultural Reuse. *Polish Journal of Environmental Studies*, Pol. J. Environ. Stud. Vol. 28, No. 4 (2019), 2159-2174. DOI: 10.15244/pjoes/90838. **(IF=1.12)**.
19. Tayyab, M., Dong, X., Ahmad, I., Zahra, A., Zhou, J., Zeng, X. and **Shako**or, **A.** **2019**. Identifying Half-Century Precipitation Trends in a Chinese Lake Basin. *Pol. J. Environ. Stud.* Vol. 28, No. 3 (2019), 1-16. DOI: 10.15244/pjoes/85674. **(IF=1.12)**
20. **Shako**or, **A.**, M. Arshad, R. Ahmad, Z.M. Khan, U. Qamar, H.U. Farid, M. Sultan and F. Ahmad. **2018**. Development of groundwater flow model (MODFLOW) to simulate the escalating groundwater pumping in the Punjab, Pakistan. *Pak. J. Agri. Sci.*, Vol. 55(3), 635-644. DOI: 10.21162/PAKJAS/18.4909. **(IF=0.69)**
21. Hafiz U. Farid, Allah Bakhsh, Muhammad U. Ali, Zahid Mahmood-Khan, **Aamir Shako**or, Imran Ali. **2017**. Field investigation of aquifer storage recovery (ASR) technique to recharge groundwater: a case study in Punjab province of Pakistan. *Water Science and Technology: Water Supply*. Doi:10.2166/ws.2017.083 **(IF=0.573)**
22. **Shako**or, **A.**, Z.M. Khan, M. Arshad, H.U. Farid, M. Sultan, M. Azmat, M.A. Shahid and Z. Hussain. **2017**. Regional groundwater quality management through hydrogeological modelling in LCC (West) Faisalabad Pakistan. *Journal of Chemistry*, 1-16. Doi: 10.1155/2017/2041648 **(IF= 1.30)**
23. Aslam, M.M.A., Z.M. Khan, M. Sultan, Y. Niaz, M. H. Mahmood, M. Shoaib, **A. Shako**or and M. Ahmad. **2017**. Performance Evaluation of Trickling Filter-Based Wastewater Treatment System Utilizing Cotton Sticks as Filter Media. *Pol. J. Environ. Stud.* Vol. 26, No. 5, 1955-1962. **(IF=0.871)**
24. **Shako**or, **A.**, M. Arshad, A. Bakhsh and R. Ahmad (**2015**). GIS based assessment and delineation of groundwater quality zones and its impact on agricultural productivity. *Pak. J. Agri. Sci.*, 52(3):837-843. **(IF=1.049)**
25. Mongat, A.S., M. Arshad, A. Bakhsh, **A. Shako**or, L. Anjum, U. Kalsoom and F. Shamim (**2015**). Design, installation and evaluation of solar drip irrigation system at Mini Dam command area. *Pak. J. Agri. Sci.*, 52(2): 310-318. **(IF=1.049)**
26. Irfan, M., M. Arshad, **A. Shako**or and L. Anjum (**2014**) Impact of irrigation management practices and water quality on maize production and water use efficiency. *J. Anim. Plant Sci.* 24(5): 1518-1524. **(IF=0.448)**
27. Ghani, M.W., M. Arshad, A. Shabbir, **A. Shako**or, N. Mehmood and I. Ahmad (**2013**). Investigation of Potential Water Harvesting Sites at Potohar Using Modeling Approach. *Pak. J. Agri. Sci.* 50(4), 723-729. **(IF= 1.054)**

28. Arshad, M., **A. Shakoore**, I. Ahmad and M. Ahmad (2013). Hydraulic Transmissivity Determination for the Groundwater Exploration Using Vertical Electric Sounding Method In Comparison to the Traditional Methods. Pak. J. Agri. Sci., 50(3): 487-492. *(IF=1.054)*
29. **Shakoore, A.**, M. Arshad, A.R. Tariq and I. Ahmad (2012). Evaluating the Role of Bentonite Embedment in Controlling Infiltration and Improve Root Zone Water Distribution in Coarse Soil. Pak. J. Agri. Sci., 49(3): 375-380. *(IF=1.24)*
30. Shabbir, A., M. Arshad, A. Bakhsh, M. Usman, **A. Shakoore**, I. Ahmad and A. Ahmad (2012). Apparent and Real Water Productivity for Cotton-Wheat Zone of Punjab, Pakistan. Pak. J. Agri. Sci., 49(3):357-363. *(IF=1.24)*
31. Javaid, F., M. Arshad, M. Azam, A. Shabbir and **A. Shakoore** (2012). Performance Assessment of Lined Watercourses in District Jhang. Pak. J. Agri. Sci., 49(1): 79-83. *(IF=1.24)*

NATIONAL (HEC-Approved)

32. Ali, A., & **Shakoore, A.** (2022). Delineation and Evaluation of Groundwater Quality by using GIS mapping system and Statistical Approaches in Southern Punjab, Pakistan. NUST Journal of Engineering Sciences, 15(1), 1-11.
33. Farid, H.U., M. Zubair, Z.M. Khan, **A. Shakoore**, B. Mustafa, A.A. Khan, M.N. Anjum, I. Ahmad and M. Mubeen (2019) Identification of influencing factors for optimal adoptability of High Efficiency Irrigation System (HEIS) in Punjab, Pakistan. Sarhad Journal of Agriculture, 35(2): 539-549. <http://dx.doi.org/10.17582/journal.sja/2019/35.2.539.549>.
34. Javed, Q., M. Arshad, A. Bakhsh, **A. Shakoore**, Z.A. Chatha and I. Ahmad (2015). Redesigning of drip irrigation system using locally manufactured material to control pipe losses for orchard. Pak. j. life Soc. Sci., 13(1):16-19. *(HEC Y-Category)*
35. Shabbir, A., M. Arshad, A. Shabbir, **A. Shakoore** and I. Ahmad (2015). Impact assessment of sewerage drain on tubewell water quality using MT3D model. Pak. J. Agri., Agril. Engg., Vet. Sci., 31 (2): 269-278.*(HEC Y-Category)*
36. Chatha, Z.A., M. Arshad, A. Bakhah and **A. Shakoore** (2015). Statistical analysis for lining the watercourses. J. Agri. Res. 53(1): 109-118. *(HEC Y-Category)*
37. Chatha, Z.A., M. Arshad, A. Bakhah and **A. Shakoore** (2014). Optimum length of lining for watercourse improvement using graphical approach. J. Agri. Res., 52(4): 589-595. *(HEC Y-Category)*
38. Chatha, Z.A., M. Arshad, A. Bakhah and **A. Shakoore** (2014). Design and cost analysis of watercourse lining for sustainable water saving. J. Agric. Res., 52(4): 581-588. *(HEC Y-Category)*

BOOK CHAPTER

39. Farid, H. U., Khan, Z. M., **Shakoor, A.**, Mubeen, M., Ayub, H. U., Kanwar, R.M.A. & Bilal, M. (2022). Water Resources in Relation to Climate Change. In: Jatoi, W.N., Mubeen, M., Ahmad, A., Cheema, M.A., Lin, Z., Hashmi, M.Z. (eds) Building Climate Resilience in Agriculture. Springer, Cham. https://doi.org/10.1007/978-3-030-79408-8_10 (online on 22 October 2021)
40. Arshad, M. and **A. Shakoor**. 2017. Irrigation Water Quality. Book Chapter #7, Pp. 145-160. In: Applied Irrigation Engineering. University of Agriculture, Faisalabad, Pakistan. ISBN 978-969-8237-97-4

NATIONAL (Other)

41. Awais, H.M., M. Arshad, A. Shakoor, M. Sohail Afzal and Abid Sarwar. 2020. Assessment of spatio-temporal fluctuations in groundwater level and its impact on tubewell energy nexus. J. Glob. Innov. Agric. Soc. Sci., 2020, 8(3):161-165.
42. Anjum, A., U. Zafar, H. M. Awais and A. Shakoor (2019). Impact of puddling on water productivity of rice under raised bed technology. J. Glob. Innov. Agric. Soc. Sci., 2019, 7(3):129-134.
43. Yonas, M.W., T. Qadir, K. Mubeen and A. Shakoor (2019). Yield declining trend of cotton in Pakistan: different agronomic and biological approaches for control of cotton mealy bug (*Phenacoccus Solenopsis*). J. Glob. Innov. Agric. Soc. Sci., 2019, 7(2): 65-72.
44. Qadir, T., K. Akhtar, A. Ahmad, **A. Shakoor**, M. Saqib, S. Hussain and M. Rafiq (2019). Wheat production under changing climate: consequences of environmental vulnerabilities on different abiotic and biotic stresses. J. Glob. Inn. Agri. Sci. 7(1) 7-17.
45. Hussain, S., A.A. Khan, **A. Shakoor**, A. Goheer, T. Qadir, M.M. Khan and Z. Hussain. (2018). Effect of cold and heat stress on different stages of Wheat: A Review. J. Glob. Inn. Agri. Sci. 6(4) 123-128.
46. Ali, A., H.U. Farid, Z.M. Khan, **A. Shakoor**, M. Nadeem, M. Usman Ali, F. Baig, M. Usman and H. Shahzad. 2018. Subsurface investigation for groundwater formation in district Rahim Yar Khan (Pakistan) using vertical electrical techniques. J. Glob. Inn. Agri. Sci. 6(3) 94-100.
47. Khalid, M.B., M. Arshad, **A. Shakoor**, H.U. Farid, M. Nadeem, F. Baig, M.U. Ali and H.M. Awais. (2018). Embedment of sandy soil to increase surface irrigation efficiency and crop yield under modeling and experimental approach. J. Glob. Inn. Agri. Sci. 6(3) 88-93.
48. **Shakoor, A.**, Z.M. Khan, H.U. Farid, I. Ahmad, N. Ahmad, M. Nadeem, M. Usman Ali, F. Baig. (2018). Delineation of regional groundwater vulnerability and determining its impact on agriculture productivity. J. Glob. Inn. Agri. Sci. 6(2): 47-53.

CONFERENCE PUBLICATIONS

49. **Shakoor, A.**, Ali, M., Khan, Z. M., Farid, H. U., & Aslam, M. A. (2022). Application of Satellite Remote Sensing Data to Manage Groundwater in Irrigated Canal Zone of Punjab. *Environmental Sciences Proceedings*, 23(1), 20.
50. Farid, H.U., Khan, Z. M., Anjum, M. N., **Shakoor, A.**, & Qureshi, H. S. (2022). Precision Nitrogen Management for Cotton Using (GreenSeeker) Handheld Crop Sensors. *Environmental Sciences Proceedings*, 23(1), 12.
51. **Shakoor, A.**, S.Q.A Naqvi, Z.M. Khan and H.U. Farid 2022. Determining Canal Water Deficit in Lower Chenab Canal (LCC) System using Remote Sensing Technique. CEWRE/ICHWRE/22/007/pp:41-45. ISBN: 978-969-8670-06-01
52. Shahzad, H., H.U Farid, M.N. Rasool, Z.M. Khan and **A. Shakoor** 2022. Pressurized irrigation Field-Adoption constraints in Multan Region Punjab Pakistan. CEWRE/ICHWRE/22/007/pp:19-26. ISBN: 978-969-8670-06-01
53. Farid, H.U., M. Naeem, Z.M. Khan, I. Ahmad, S. Hussain, **A. Shakoor**, H. Shahzad 2022. Use of Tubewell Auditing and VES Techniques for Enhancing Pumping Efficiency. CEWRE/ICHWRE/22/007/pp:27-33. ISBN: 978-969-8670-06-01.
54. Abbas, K., H.U. Farid, Z.M Khan, **A. Shakoor**, H. Shahzad, K.M. Zakariya. 2021, Assessment of Climate Change Impact on productivity of Cotton-Wheat using DSSAT Model. In: 1st Conference on Sustainable Water Resources Management 2021. Centre of Excellence in Water Resources Engineering: UET Lahore-Pakistan, pp.14-19. ISBN: 978-969-8670-06-01.
55. Rasheed, I., **A. Shakoor**, Z.M. Khan, H.U. Farid, I. Ahmad, N. Ahmad, Q. Iqbal, H.M. Kamran, M.A. Wajid 2021. Application of Geostatistical Algorithms to Investigate Groundwater Quality Zones for Irrigated Agriculture. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 147-154. ISBN: 978-969-8670-06-01
56. Iqbal, Q., **A. Shakoor**, Z.M. Khan, H.U. Farid, I. Ahmad, M. Awais, I. Rasheed, HM Kamran, MA. 2021. Application of Multispectral images using R-Studio package to Estimate Canal Water Deficit: A comprehensive study of Multan Irrigation Zone. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 218-215. ISBN: 978-969-8670-06-01.
57. Kamran, HM., **A. Shakoor**, ZM Khan, HU Farid, I. Ahmad, H.M. Awais, Q. Iqbal, I. Rasheed, M.A. Wajid. 2021. Quantifying Potential Impact of Temperature Variations on Water Demand in Multan Irrigation Zone. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 264-271. ISBN: 978-969-8670-06-01.
58. Jabeen, A., SHH Shah, **A. Shakoor**, M.A Wajid, MA Shahi, HU Farid. 2021. Climate Change Impact Assessment on Irrigation Water Supply and Demand in Rechna Doab, Pakistan. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 272-279. ISBN: 978-969-8670-06-01.

59. Shahzad, H., HU Farid, ZM Khan, **A. Shakoor**, RMA Kanwar, K. Abbas. **2021**. Formulation of Precision Input Management Strategy for Wheat using Handheld Crop Sensor. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 226-232. ISBN: 978-969-8670-06-01.
60. Wajid, M.A., S.H.H. Shah, **A. Shakoor**, H.U. Farid, I. Ahmad, N. Ahmad, M.A. Shahid and A. Jabeen. **2021**. Optimization of Water Allocation Based on Irrigation Water Supply and Demand in Chaj Doab, Pakistan. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 209-217. ISBN: 978-969-8670-06-01.
61. Farid, H.U., A. Ali, Z.M. Khan, I. Ahmad and **A. Shakoor**. **2021**. Subsurface investigation for Groundwater formation in District Rahim Yar Khan (Pakistan) using Vertical Electrical Techniques. 2021. In: Intl. Conf. on Hydrology and Water Res. 2021. CEWRE: UET Lahore-Pakistan, pp. 175-182. ISBN: 978-969-8670-06-01.
62. Sifat-Ullah, H., M. Ishaq, H. Ashraf, H.M.U. Raza, M. Sultan, S. Hanif, A. Shakoor (**2021**). Performance Evaluation of Evaporative Cooling Options For Livestock Thermal Comfort. Intl. Conf. on Energy, Water and Environment – ICEWE-2021. 31st March 2021, Lahore, Pakistan.
63. Ishaq, M., H. Sifat-Ullah, M. Aleem, K. Shahzad, M. Sultan, S. Hanif, **A. Shakoor (2021)**. Investigating Desiccant Dehumidification System For The Storage of Grapes. Intl. Conf. on Energy, Water and Environment – ICEWE-2021. 31st March 2021, Lahore, Pakistan.
64. Shakoor, A., M.K. Zahid, H.U. Farid, M. Sultan, A.A. Khan, I. Ahmad, M. Azmat. **2018**. Groundwater vulnerability mapping in Faisalabad District using GIS based DRASTIC Model. MATEC Web of Conf. 246, 01001 (2018). Vol. 246 (3), Article# 01001. Intl. Symposium on Water System Operations, (ISWSO 2018). <https://doi.org/10.1051/mateconf/201824601001>
65. Niaz, H., F. Shabir, S. Hassan, F. Majeed, A. Shakoor, H.A. Anjum. (**2016**). Design and development of small-scale solar tunnel dryer for agricultural applications. 1st National Conference on Agricultural Engineering & Sciences at BZU, 30-31 May, 2016. Pp-26.
66. Shakoor, A., Zahid Mehmood Khan, Mehmood Ahmad and M.A. Wajid. (**2016**). Design and calibration of semi-automated irrigation system based on soil moisture sensor. 1st National Conference on Agricultural Engineering & Sciences at BZU, 30-31 May, 2016. Pp-35.
67. Ahmad, M., M.A. Wajid, Z.M. Khan, A. Shakoor and Q. Abbas. (**2016**). Evaluate different interpolation techniques in GIS for groundwater quality mapping. 1st National Conference on Agricultural Engineering & Sciences at BZU, 30-31 May, 2016. Pp-36.
68. Shakoor, A., M. Usman Ghani, H. Bashir and H.U. Farid. **2011**. Determination of Kostiakov equation parameters and their effects on infiltration rate. International seminar on the eve of Golden Jubilee Year Celebration Week of Department of Farm Machinery & Power, UAF held from March 21-26, 2011. Pp. 227-234.

ABSTRACT

69. Shakoor, A., Z. Mahmood K, H.U. Farid, E. Ahmad, H. Ashraf and M.H. Irfan (**2019**). Climate Change Effects on Reference Evapotranspiration Across Different Zones of Punjab-

Pakistan. 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management”, June 19-21, 2019, Rawalakot, Azad Jammu and Kashmir-Pakistan.

70. Shakoor, A., Zahid M.K., H.U. Farid, M. Sultan and H. Ashraf (2019) Assessment of Spatio-temporal Variability of Climatic Parameters and their effect on Reference Evapotranspiration in Punjab, Pakistan". Abstract published in 1st Intl Conference on Sustainable Agriculture: Food Security under Changing Climate Change Scenarios, April 3-5, 2019, pp 123.
71. Shakoor, A., M. Arshad, Z.M. Khan and F. Majeed (2016) Installation and optimization of Solar water pumping system for irrigation purpose in Pakistan. Intl. workshop on sustainable energy solution for community development in Pakistan, (November 08-09, 2016) P-65.
72. Majeed, M., Z.M. Khan, A. Munir, H.U. Farid, A. Shakoor and A. Nazeer (2016). Installation and optimization of Solar water pumping system for irrigation purpose in Pakistan. Intl. workshop on sustainable energy solution for community development in Pakistan. (November 08-09, 2016) P-36
73. Awais, H.M, M. Arshad, A. Shakoor, Z. Mahmood and H.U. Faird (2015). Delineation of Spatio-Temporal Fluctuation in Groundwater Level and Its Impact on Tubewell Energy Nexus. International Workshop on Renewable Energy Technologies for Community Development in Pakistan organized by University of Agriculture Faisalabad-Pakistan & University of Kassel, Germany. ISBN: 978-969-9035-11-1(Nov. 4-6, 2015).
74. Majeed, F., Z.M. Khan, A. Munir, M. Sultan, H.U. Farid, A. Shakoor and A. Nazeer (2015) Performance Evaluation of Solar water pumping System for irrigation: A case study in Gujranwala (Pakistan). International Workshop on Renewable Energy Technologies for Community Development in Pakistan organized by University of Agriculture Faisalabad-Pakistan & University of Kassel, Germany. ISBN: 978-969-9035-11-1 (Nov. 4-6, 2015).
75. Arshad, M., A.S. Mongat, A. Shakoor and L. Anjum (2013). Efficiency of drip irrigation system with solar pump. International Conference on Renewable Energy Technologies in Pakistan. Organized by University of Agriculture, Faisalabad, Pakistan & University of Kassel, Germany (October 1-3, 2013).

RESEARCH PROJECTS

➤ On Going

Title	Status	Funding Source	Duration	Amount (millions)
Research on Evapotranspiration Estimation of Field Crops through Innovative Portable Mini-Lysimeter for Improving Water Productivity	PI	HEC under NRPU	3 years	2.367
Optimization of Canal Water Allocation	PI	BZU-	1 year	0.165

Under Changing Climate in Multan Irrigation Zone		Multan	(2022-23)	

➤ **Completed**

Title	Status	Funding Source	Duration	Amount (millions)
Use of Soft Computing Techniques to Estimate Evapotranspiration in Southern Punjab	Co-PI	HEC under NRPU	3 years (2018 to date)	3.863
Efficient Water Management of Surface Irrigation System Using Modelling Technique	PI	BZU-Multan	1 year (2017-18)	0.15
Field application of intelligent irrigation system to conserve water	PI	BZU-Multan	1 year (2017-18)	0.15
Groundwater Vulnerability Mapping Using GIS Based DRASTIC Model	PI	HEC under SRGP	1 year (2016-17)	0.340
Evaluation of Bentonite and Hydrogel Application in Sandy Soil – Innovative Water Saving Techniques to Improve Irrigation Efficiency	PI	BZU-Multan	1 year (2015-16)	0.15

PhD RESEARCH SCHOLARS

Currently enrolled = 02
Completed = 01

Scholar's Name	Session	Role	Title of Thesis	Status
Engr. Muhammad Abubkar Aslam	2016-19	Co-Supervisor	Application of sensor based precision irrigation system for improving water productivity of cereal crops using modeling and experimental techniques	Completed
Engr. Muhammad Junaid	2020-23	Supervisor	Not yet decided	In progress
Engr. Zahid Habib	2021-24	Supervisor	Not yet decided	In progress

M.SC. RESEARCH STUDENTS

Currently enrolled = 02
Completed = 08

Sr. No.	Student's Name	Session	Title of Thesis	Status
1	Abbas Ali	2016-18	Enhancement of Irrigation Efficiency and Crop Water Productivity Using WinSRFR Model	Completed
2	Zahid Habib	2016-18	Impact of Saline Groundwater on Crop Water Productivity in Lodhran District Pakistan	Completed

3	Qamar Iqbal	2017-19	Application of Remote Sensing and GIS for Water Resources Management in Command Area of Multan Irrigation Zone	Completed
4	Muhamad Zeeshan Ali	2017-19	Prediction of Saturated Hydraulic Conductivity of Soil from Particle Size Using Modelling Approaches	Completed
5	Hafiz Muhammad Kamran	2017-19	Quantifying Potential Impact of Temperature Variations on Water Demand in Multan Irrigation Zone	Completed
6	Muhammad Imran Rasheed	2017-19	Investigating Groundwater Quality Zones in Lower Chenab Canal Command Area Using GIS Based Geostatistical Algorithms	Completed
7	Ali Raza MAGE-18-06	2018-20	Application of Satellite Remote Sensing Data to Manage Groundwater in Irrigated Canal Zone of Punjab	Completed
8	Syed Qasim Ali Naqvi	2018-20	Managing Canal Water Deficit in Lower Chenab Canal System Using Remote Sensing Technique	Completed
9	Hafiz Faizan U Rehman	2019-21	Investigating Spatio-Temporal attributes of Reference Evapotranspiration and its driving climatic factors: A comprehensive study of Punjab, Pakistan	Completed
10	Waqar Ahmad	2020-22	Application of Soil Vegetation Indices for Assessing Agricultural Land Suitability Using GIS Based Multicriteria Decision Analysis	Completed
11	Mudassar Nawaz	2020-22	Impact assessment of spatio-temporal variation of climatic parameters on water requirements of major crops in Punjab Pakistan	Completed
12	Wajahat Mehroz	2020-22	Evaluation of Precise Land Levelling on Surface Irrigation Performance: Field and Modelling Approach	Completed
13	Faheel Bin Zubair Awan	2021-23	Assessing the impact of Central Pivot Irrigation Technology in Enhancing Crop Production in Thal Areas of South Punjab	In process
14	Mahmood Ahmed	2021-23	Evaluating Canal Irrigation Performance using Remote Sensing Algorithm in Sahiwal Irrigation Zone	In process
15	Usama Mehmood	2022-24	Technical Performance Assessment and Optimization of Center Pivot Irrigation Systems: A Comprehensive Study for Punjab Pakistan ((Tentative)	In process
16	Syed Farasat Ali Shah	2022-24	Design and Development of Sensor-Based Digital Flow Meters Using AI Techniques for Remote Discharge Monitoring (Tentative)	In process
17				

B.SC. STUDENTS (PROJECT & REPORT)

Currently enrolled = 05
Completed = 26

AWARDS and HONORS

- The annual and performance-based increments were awarded by the VC of BZU for year 2020.

- The annual and performance-based increments were awarded by the VC of BZU for year 2019.
- Microsoft Office Specialist test successfully qualified on 31 Dec. 2018.
- The annual and performance-based increments were awarded by the VC of BZU for year 2018.
- The annual and performance-based increments were awarded by the VC of BZU for year 2017.
- The performance-based increment was awarded by the VC of BZU for year 2017.
- Incentive of Rs. 25000/- for Research Publications from BZU for consecutive five years from 2016 to 2020.
- PhD Indigenous Fellowship from Higher Education Commission (HEC), Pakistan under Indigenous 5000 PhD Fellowship Program from 01-11-2011 to 31-10-2014 (**PKR 1.142 million**)
- PhD Research Fellowship from University of Agriculture, Faisalabad, Sep 2010 to August 2011 (**PKR 0.169 million**)

CONFERENCES/TRAININGS/WORKSHOPS

- Training workshop on “Revealing the Advantages of Crop Type Mapping and Geospatial Applications through Results Sharing” was attended, Organized by Food and Agriculture Organization (FAO), held on September 20th, 2023 at PC, Lahore.
- Organized one day seminar on “Entrepreneurial Aspirations for Agricultural Engineers under Regional Plan9, Punjab Information Technology Board (PITB): Entrepreneurship Need and University Education” as Focal Person at Dept. of Agricultural Engineering, BZU, Multan on 08-Dec-**2022**.
- Focal Person of two days training workshop on “Principles of Efficient Tractor Operation; Environmental impact of diesel exhaust, its remedies, and EPA standards”, Jointly Organized by CNH Industrial (Pakistan Office) and Department of Agricultural Engineering, BZU at BZU; held on 13-14 Sep., **2022**
- Research work entitled “Determining Canal Water Deficit in Lower Chenab Canal (LCC) System using Remote Sensing Technique” presented in webinar- 2nd Int. Conference on “Hydrology and Water Resources”, held on 30 March, **2022**.
- Research work entitled “Groundwater Vulnerability Mapping Using GIS Based DRASTIC Model” presented in seminar on “World Water Day 2022, Groundwater- Making the Invisible-Visible” at Dept. of Agri. Engg., BZU, Jointly organized by BZU, WWF & PEPSICO, held on 24 March, **2022**.
- Organized a seminar on “High Efficient Irrigation Systems (HEIS): Designing Factors, Installation and Field Experiences” as Focal Person at Dept. of Agricultural Engineering, BZU, Multan on 25 Jan., **2022**.

- Training workshop on “Design of Solar Pumped irrigated field through Precision Surface Irrigation System using WinSRFR Model” was attended, jointly Organized by KFUEIT and IWMI, held on 22-23 December **2020**. PEC_CPD Credit Point = 1.
- Resource Person in Training Workshop entitled, “WinSRFR model for design and simulation of precise surface irrigation system” jointly organized by Agri. Engg. Dept., BZU and Pakistan Engineering Council (PEC), Islamabad on 09-07-**2020**. CPD Credit Point 0.5.
- Research paper entitled, “Enhancing crop water productivity under surface irrigation system: Experimental and modelling approaches” presented at 1st e-seminar “Agricultural Mechanization: Practices, Issues & Prospects in Pakistan”, jointly organized by Department of Agricultural Engineering, BZU, Multan and Agricultural Mechanization Research Institute (AMRI), Multan, held on 18-06-**2020**.
- Attended training workshop on “Research Methodology, Publications, Innovation, Patents and Writing Techniques” held on 4-5th November, **2019** organized by ORIC, Bahauddin Zakariya University, Multan.
- Paper presented on “Climate Change Effects on Reference Evapotranspiration Across Different Zones of Punjab-Pakistan” in 6th International Conference on “Sustainable Agriculture in Changing Climate: Strategies and Management”, June 19-21, **2019**, Rawalakot, Azad Jammu and Kashmir-Pakistan.
- Attended seminar on “Water Crisis and Pakistan” held on 18th March, **2019** organized by Department of Agricultural Engineering, Bahauddin Zakariya University, Multan.
- Paper presented on “Assessment of Spatio-temporal Variability of Climatic Parameters and their effect on Reference Evapotranspiration in Punjab, Pakistan” in 1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Change Scenarios on April 4, **2019** jointly organised Ghazi University, DG Khan and HEC, Pakistan.
- Participation in the awareness seminar on “Technology Development Fund (TDF)” held on 15th May, **2018** organized by ORIC, BZU and TDF, HEC at IMS Hall, BZU, Multan.
- Paper presented on “Groundwater Vulnerability Mapping in Faisalabad District Using GIS Based Drastic Model” in “International Science Policy Conference on Climate Change (SP3C)- 18-20 December **2017**” jointly organised by USPCAS-W at MUET, GCISC, COMSATS, HEC and the University of Utah, USA at Marriott Hotel Islamabad.
- Lecture delivered on “WinSRFR for Hydulic analysis of Surface Irrigation System” Dated March 25, 2017 at University of Agriculture Faisalabad. This seminar is jointly organized on the eve of World Water Day- **2017** by UAF, WMRC, PEC and US-Pakistan Centre for advance studies in Agriculture and Food.
- One day seminar attended on “World Water Day 2017: Why Waste Water?” organised by Uni. of Agriculture Faisalabad and Pakistan Engineering Council at UAF, Faisalabad on March 25, **2017**. (0.5 CPD Credit Point)
- Training attended on “Pakistan Water Dialogue: Training Workshop on Design of Broad-Crested Weirs with WinFlume” organized by IWMI at NARC, Islamabad Dec. 17, **2015**.

- Training attended on “PAKISTAN WATER DIALOGUE: Training Workshop on Analysis of Surface Irrigation Systems with WinSRFR” organized by IWMI at NARC, Islamabad December 15- 16, **2015**.
- Workshop attended on “International Workshop on Renewable Energy Technologies for Community Development in Pakistan” organized by University of Agriculture Faisalabad-Pakistan & University of Kassel, Germany at UAF. (November 4-6, **2015**)
- Lecture delivered on MODFLOW in one day short course entitled “Hydrological Modelling Using Remote Sensing” at University of Agriculture Faisalabad on October 16, **2014**.
- One day short course attended on “Drinking Water Quality Issues in Pakistan: Present Scenario Remedies & Management Practices” at University of Agriculture Faisalabad on June 05, **2014**.
- Paper presented in “1st International Conference on Global Environmental Changes” arranged by GC University Faisalabad on January 15-16, **2013**.
- Workshop attended on “GIS, GPS and Mobile Mapper” arranged by the Department of Irrigation and Drainage in collaboration with Nova Scotia Agriculture College, Canada. (14-15 December, **2011**).
- One day short course attended on "Parameter of Environmental Impact Assessment", arranged by Pakistan Engineering Council at Old Senate Hall, UAF, held on June 8, **2011**.
- Intensive course attended on "Remote Sensing & Digital Image Processing", held by directorate of Research and Dept. of Irrigation and Drainage, University of Agriculture Faisalabad. (29-11-2010 to 26-12-**2010**)

TECHNICAL SOFTWARE

ArcGIS, PMWIM, ERDAS IMAGINE, AutoCAD (2D & 3D), SIRMOD, WinSRFR, WinFlume and CROPWAT

PROFESSIONAL AFFILIATION: Pakistan Engineering Council (AGRI/2631)