

RESEARCH PUBLICATIONS-IRI (P)

A- Research Articles and Book Chapters

1. **Zakir-Hassan, G., Hassan, F.R., Khan, S.A., Punthakey, J.F., Akhtar, S. and Shabir, G.,** 2023. Water Security Challenges and Opportunities in Lahore – A City of Pakistan: in the Global Water Security Issues, Series 4, Water Security and Cities – Integrated Urban Water Management, UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000388100#>
2. **Zakir-Hassan, G., Allan, C., Punthakey, J.F., Baumgartner, L., Ahmad, M.** (2023). Groundwater Governance in Pakistan: An Emerging Challenge. In: Ahmad, M. (eds) Water Policy in Pakistan. Global Issues in Water Policy, vol 30. Springer, Cham. https://doi.org/10.1007/978-3-031-36131-9_6
3. **Zakir-Hassan, G., Akhtar, S., Shabir, G. and Hassan, F.R.,** 2023. Valuing groundwater for irrigated agriculture towards food security in Punjab, Pakistan. Journal of Agricultural Science and Agrotechnology, 2(1): 1-8. <https://doi.org/10.56391/JASA.2023.1007>
4. **Zakir-Hassan, G., Akhtar, S., Shabir, G., Hassan, F.R., Ashraf, H. and Sultan, M.,** 2023. Water budget study for groundwater recharge in Indus River Basin, Punjab (Pakistan). H2Open Journal, 6(3): 449-462. <http://iwaponline.com/h2open/article-pdf/6/3/449/1271628/h2oj0060449.pdf>
5. **Zakir-Hassan, G., Allan, C., Punthakey, J.F. and Baumgartner, L.,** (2023). Hydrogeochemical characterization of groundwater for Managed Aquifer Recharge (MAR)- A case study from Punjab Pakistan: Submitted. Groundwater for Sustainable Development by Elsevier.(under review)
6. **Zakir-Hassan, G., Allan, C., Punthakey, J.F. and Baumgartner, L.,** (2023). Assessment of groundwater contamination by heavy metals for a managed aquifer recharge project in Indus River Basin in Pakistan: Submitted. Environmental Monitoring and Assessment by Springer.
7. **Zakir-Hassan, G., Kahlown, M.A., Punthakey, J.F., Shabir, G., Aziz, M., Sultan, M., Ashraf, H., Nawaz, Q.U.A. and Majeed, F.,** 2023. Evaluation of hydraulic efficiency of lined irrigation channels – A case study from Punjab, Pakistan. Hydrology Research, 54(4): 523-546. <http://iwaponline.com/hr/article-pdf/54/4/523/1211072/nh0540523.pdf>
8. **Ghulam Zakir-Hassan, Akhtar, S., Punthakey, J.F. and Shabir, G.,** (2023). Assessment of groundwater potential and threats for its sustainable use- case study of greater Thal canal (GTC) area from Punjab Pakistan. Accepted in Water Productivity Journal.
9. **Zakir-Hassan, G., Shabir, G., Hassan, F. R., & Akhtar, S.** (2022). Groundwater-food security nexus under changing climate-historical prospective of Indus basin irrigation system in Pakistan. Int. J. Social Science Humanities Research, 5(10), 28-38. <http://www.gphjournal.org/index.php/ssh/article/view/717>
10. **Zakir-Hassan, G; Hassan, F, R; Khan, S. A.; Punthakey, J. F. Akhtar, S; Shabir G.** (2022): UNESCO and UNESCO i-WSSM.; Water Security and Cities - Integrated Urban Water Management (Series IV); “Water Security Challenges and Opportunities in Lahore – A City of Pakistan” . Global Water Security (GWSI) Series - No.4, UNESCO Publishing, Paris. *in press*.
11. **Zakir-Hassan, G., Punthakey, J. F., Hassan, F. R., & Shabir, G.** (2022). Methodology for Identification of Potential Sites for Artificial Groundwater Recharge in Punjab Province of Pakistan. Canadian Journal of Agriculture and Crops, 7(2), 46-77. <https://onlinesciencepublishing.com/index.php/cjac/article/view/657>
12. **Zakir-Hassan, G., Akhtar, S., Punthakey, J.F., Jones, M.A., Afzal, M., Shabir, G. and Khan, M.A.H.,** (2023). Managed Aquifer Recharge (MAR) by rainfall harvesting- Case studies from Punjab Pakistan: submitted Water by MDPI
13. **Zakir-Hassan, G., Shabir, G., Yasmeen, F., & Hassan, A.** (2022). Evaluating the strength of stones for their use as an engineering material – A case study in DG Khan Area of Pakistan. *Global J Res Eng. Comput Sci.*, 2(6), 7-14. doi: <https://girpublication.com/wp-content/uploads/2023/01/GJRECS260156.pdf>
14. **Zakir-Hassan, G., Punthakey, J. F., Shabir, G., Yasmeen, F., Sultan, M., Ashraf, H., Ihsanullah, S., Majeed, F.** (2022). Physicochemical Investigation of Rainfall for Managed Aquifer Recharge in Punjab (Pakistan). *Water*, 14(14). doi:10.3390/w14142155, <https://www.mdpi.com/2073-4441/14/14/2155>
15. **Zakir-Hassan, G., Hassan, F. R., Akhtar, S., Rizvi, S. A., Shabir, G., & Khan, M. A. H.** (2022). Groundwater Modelling: A Tool for Groundwater Management to Support Urban

- Water Supply and Food Security. *Journal of Food Technology & Nutrition Sciences*, 4(3), 1-13. doi:10.47363/JFTNS/2022(4)146
16. **Zakir-Hassan, G.**, Shabir, G., Hassan, A., Rahim, M. S. A., & Noshin, S. (2022). Sediments for hill torrents management- Challenges and options in D G Khan Area in Pakistan. *Global J Res Agri Life Sci.*, 26, 28-37. doi: <https://gjpublication.com/wp-content/uploads/2023/01/GJRALS260150.pdf>
 17. **Zakir-Hassan, G.** (2022). Groundwater-Climatic changes Nexus and Food Security Challenges in Indus Basin of Pakistan. *MedPress Nutrition and Food Sciences*, 1(1). <http://medpresspublications.com/articles/mpnfs/mpnfs-202211001.pdf>
 18. **Zakir-Hassan, G.**, Akhtar, S., Shabir, G., Rafique, H., & Khan, M. A. H. (2022). Groundwater and nutritional health challenges- A case study from Indus river system in Pakistan. *Journal of Nutritional Health & Food Engineering*, 12(2), 61-64. doi:10.15406/jnhfe.2022.12.00357
 19. **Zakir-Hassan, G.**, Hassan, A., & Shabir, G. (2022). Evaluation of Impact of Soil Properties on Strength of Flood Levees in Indus River Basin of Pakistan. *Australian Journal of Engineering and Innovative Technology*, 4(3), 52-64. <https://universepg.com/public/storage/journal-pdf/Evaluation%20of%20impact%20of%20soil%20properties%20on%20strength%20of%20flood%20levees%20in%20indus%20river.pdf>
 20. **Zakir-Hassan, G.**, Hassan, F. R., Punthakey, J. F., & Shabir, G. (2021). Challenges for groundwater-irrigated agriculture and management opportunities in Punjab province of Pakistan. *International Journal of Research in Agronomy*, 4(2), 142-153.
 21. **Zakir-Hassan, G.**, Hassan, F. R., Shabir, G., & Rafique, H. (2021). Impact of Floods on Groundwater—A Case Study of Chaj Doab in Indus Basin of Pakistan. *International Journal of Food Science and Agriculture*, 5(4), 639-653. doi:10.26855/ijfsa.2021.12.011
 22. Iqbal, Z., Abbas, F., Mahmood, A., Ibrahim, M., Gul, M., Yamin, M., . . . **Sial, G. Z. H.** (2021). Human health risk of heavy metal contamination in groundwater and source apportionment. *International Journal of Environmental Science and Technology*. doi:10.1007/s13762-021-03611-9
 23. **Zakir-Hassan, Ghulam; Allan, Catherine; Shabir, G; and Akhtar, S.** (2020) “Global climatic changes-A threat for water resources in Pakistan” presented at “2nd International Conference on Emerging Trends in Earth and Environmental Sciences” organized by College of Earth and Environmental Sciences (CEES), Punjab University, 4-6 February 2020, Lahore, Pakistan.

B- International Presentations

1. **Zakir-Hassan, G**, Allan, C., Punthakey, J F., Baumgartner, L (2022) Groundwater a driver for boosting irrigated agriculture to support national growth in Punjab Pakistan. DocFest22, Graduate Research Conference Program, “Beyond the Doctoral Degree” Charles Sturt University, NSW, Australia
2. Salim, Shahid; Akhtar, Saleem; Punthakey, Jehangir. F; **Zakir-Hassan, Ghulam**; and Shabir, Ghulam (2021) “*Groundwater and livelihood- a case study from Indus River Basin in Pakistan*” presented at 24th International River Symposium 27-30 Sep 2021, Brisbane (Online), Australia.
3. **Zakir-Hassan, Ghulam**; Hassan; FR; Shabir, G; and Rafique, Haroon (2021), “*Irrigated agriculture and groundwater nexus under changing climate- a case study from Punjab, Pakistan*” abstract presented at *Global Conference on Agriculture and Horticulture September 30 to October 2, 2021 (Online)*
4. **Zakir-Hassan, G**; Akhtar, S; and Shabir, G (2021) “*Valuing groundwater as a source of livelihood in Punjab-Pakistan*” presented at World Water Day, March 27, 2021, by Pakistan Engineering Congress and WWF-Pakistan at Lahore, Pakistan
5. **Zakir-Hassan, G.**, Shabir, G., Yasmin, F., & Ghaffar, M. A. (2022). *Environmental challenges for groundwater-irrigated agriculture in Punjab Pakistan*. Paper presented at the International Conference on Recent Trends in Environmental Sustainability: 21-23 February, COMSAT University Islamabad, Vehari Campus, Vehari, Pakistan
6. **Zakir-Hassan, G.**, Butt, M. A. S., Shabir, G., & Akhtar, S. (2021). *Urbanization and groundwater sustainability-A case study of Lahore Pakistan*” Presented at *Intl Conference on Urban Drainage (ICUD), 24-29 Oct 2021, Melbourne, Australia*.
7. **Hassan, G. Z.**, Hassan, F. R., & Shabbir, G. (2019). Impact of climate change on groundwater use for sustainable agriculture and food production in Indus Basin of Pakistan: presented at the 1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Scenarios: April 3-5, 2019, Ghazi University, Dera Ghazi Khan, Punjab, Pakistan.
8. **Hassan, Ghulam Zakir; Allan, Catherine; Punthakey, J F; Mitchell, Michael; Akhtar, Saleem (2019)**, Groundwater-regulation-governance-management nexus: A case study from Punjab Pakistan: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
9. **Anjum, L; Awan, UK; Punthakey, JF; Hassan, G Z; Akhtar, S; Nawaz, A; Mitchell, M (2019)**, Estimation of Water Balance of Lower Bari Doab Canal (LBDC) Command Area: A Modelling Approach: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
10. **Akhtar, Saira; Hassan, Ghulam Zakir; Zeeshan, M; Ghafoor, Abdul (2019)**, Lining of canals and ground water recharging: socio-economic implications for sustainable agricultural development in Pakistan: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
11. **Hassan. G. Z. and Hassan. F. R. and Shabir, G (2019)** “Impact of climate change on groundwater use for sustainable agriculture and food production in Indus Basin of Pakistan”, 1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Scenarios: April,
12. **Zakir-Hassan, G; Allan, Catherine; Punthakey, Jehangir F., and Baumgartner, Lee (2021)**, “*Potential of managed aquifer recharge in an irrigated river basin- a case study from Punjab Pakistan*” abstract presented at 24th International River Symposium 27-30 Sep 2021, Brisbane (online), Australia.
13. **Hassan, G. Z., Allan, C., & Hassan, F. R. (2019)**. *Historical sustainability of groundwater in Indus Basin of Pakistan*: Paper presented at the 3rd World Irrigation Forum of ICID, 1-7 September, Bali, Indonesia.
14. **Zakir-Hassan, G**; Allan, Catherine; Punthakey, Jehangir F., and Baumgartner, Lee (2021), “*Potential of managed aquifer recharge in an irrigated river basin- a case study from Punjab Pakistan*” Presented at 24th International River Symposium 27-30 Sep 2021, Brisbane (online), Australia.

15. **Hassan, Ghulam Zakir; Shabir, G; and Hassan, FR (2019):** Groundwater modelling-A tool for sustainable aquifer management under changing climate: In Elsayah, S (ed) MODSIM2019, 23rd International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 1-6 at Canberra, Australia. ISBN: 978-0-9758400-9-2.
16. **Zakir-Hassan, G., Butt, M. A. S., Shabir, G., & Akhtar, S. (2021).** *Urbanization and groundwater sustainability-A case study of Lahore Pakistan*” Presented at Intl Conference on Urban Drainage (ICUD), 24-29 Oct 2021, Melbourne, Australia.
17. Mitchell, M., Punthakey, J. F., Allan, C., Culas, R., Khan, M., ul Hasan, F., Ashfaq, M., Baig, I. A., Khair, S. M., Rashid, A., Ahmed, F., Akhtar, S., Ali, A., **Zakir Hassan, G.**, Mangan, T., Qureshi, A. L., Memon, A., & Nangraj, M. (2020). *Improving groundwater management to enhance agriculture and farming livelihoods in Pakistan*. 32. Abstract from Research for a Changing World. (final report) Submitted to ACIAR, Australia. <https://www.csu.edu.au/research/ilws/engagement/events/ilws-conference-2020>
18. Punthakey, J. F., Mitchell, M., Allan, C., Culas, R., Awan, U. K., Anjum, L., Rana, A. N., Akhtar, S., **Hassan, G. Z.**, Ahmad, W., Ejaz, S., Memon, A., & Qureshi, A. L. (2020). *Improving sustainable management of groundwater resources in Pakistan*. 27. Abstract from Research for a Changing World, ILWS Conference 2020, Charles Sturt University, Australia. <https://www.csu.edu.au/research/ilws/engagement/events/ilws-conference-2020>
19. **Zakir-Hassan, Ghulam; Butt, M Arif Saeed; Shabir, Ghulam; and Akhtar, Saleem (2021)** “*Urbanization and groundwater sustainability-A case study of Lahore Pakistan*” Presented at Intl Conference on Urban Drainage (ICUD), 24-29 Oct 2021, Melbourne, Australia.
20. **Zakir-Hassan, G;** Allan, Catherine; Punthakey, Jehangir F., and Baumgartner, Lee (2021), “*Potential of managed aquifer recharge in an irrigated river basin- a case study from Punjab Pakistan*” abstract presented at 24th International River Symposium 27-30 Sep 2021, Brisbane (online), Australia. <https://riversymposium.com/>
21. Salim, Shahid; Akhtar, Saleem; Punthakey, Jehangir. F; **Zakir-Hassan, Ghulam;** and Shabir, Ghulam (2021) “*Groundwater and livelihood- a case study from Indus River Basin in Pakistan*” abstract presented at 24th International River Symposium 27-30 Sep 2021, Brisbane (Online), Australia. <https://riversymposium.com/>
22. **Zakir-Hassan, Ghulam; Allan, Catherine; Punthakey, JF; Shabir, Ghulam; Hassan, Adnan (2021)** Groundwater-Livelihood-Food Security Linkages-A Case Study from Punjab Pakistan; Abstract from 47th IHA Congress Brazil. <https://iah.org/events/47th-iah-congress>
23. **Zakir-Hassan, Ghulam; Hassan; FR; Shabir, G; and Rafique, Haroon (2021),** “*Irrigated agriculture and groundwater nexus under changing climate- a case study from Punjab, Pakistan*” abstract presented at Global Conference on Agriculture and Horticulture September 30 to October 2, 2021 (Online).
24. **Zakir-Hassan, G,** Hassan, Hassan, Adnan; Hassan, Faiz Raza; Shabir, Ghulam; Aziz, Marjan; and Noshin, Summaya (2021) “*Plastic pollution, canal irrigation and groundwater contamination in Punjab, Pakistan: Implications for policy and community engagement*” submitted to The International Journal of Community and Social Development, SAGE Publications
25. **Zakir-Hassan, Ghulam; Shabir, Ghulam Shabir; Punthakey, Jehangir F; Hassan, Faiz Raza; and Rafique, Hassan (2021)** “*Groundwater-food security-energy linkages in Indus River Basin of Punjab Pakistan*; submitted to World Water Congress, IWRA 11-17 Sep 2021.
26. **Zakir-Hassan, G;** Allan, Catherine; Akhtar, Saira; **and Shabir, Ghulam (2021)** “*Community participation for land and water care by improving groundwater management- a case study from Punjab Pakistan*” presented as a poster presentation at National Landcare Conference 4-6 August 2021, Sydney, Australia.
27. **Zakir-Hassan, G;** Akhtar, S; and Shabir, G (2021) “*Valuing groundwater as a source of livelihood in Punjab-Pakistan*” presented at World Water Day, March 27, 2021, by Pakistan Engineering Congress and WWF-Pakistan at Lahore, Pakistan
28. **Zakir-Hassan, G;** Allan, Catherine; Punthakey, Jehangir F; and Baumgartner, Lee (2021), *My research journey- field work under Covid-19 pandemic: presented at DocFest21*, Charles Sturt University, Australia
29. **Zakir-Hassan, G;** Allan, Catherine; Punthakey, Jehangir F; and Baumgartner, Lee (2020) *Groundwater monitoring: a pre-requisite for its management:* presented at online conference

- by Institute for Land Water and Society (ILWS), Charles Sturt University, Australia. <https://www.csu.edu.au/research/ilws/engagement/events/ilws-conference-2020>
30. **Zakir-Hassan, Ghulam (2020)** “21st century and challenges for groundwater sustainability” presented at **Conference on “21st Century- Water Challenges and Industrialization”** organized by Water Care Services Pakistan and WWF-Pakistan on 19-02-2020 at Lahore, Pakistan
 31. **Zakir-Hassan, Ghulam; Allan, Catherine; Shabir, G; and Akhtar, S (2020)** “Global climatic changes-A threat for water resources in Pakistan” presented at “**2nd International Conference on Emerging Trends in Earth and Environmental Sciences**” organized by College of Earth and Environmental Sciences (CEES), Punjab University, 4-6 February 2020, Lahore, Pakistan
 32. **Hassan, Ghulam Zakir; Shabir, G; and Hassan, FR (2019):** Groundwater modelling-A tool for sustainable aquifer management under changing climate: In Elsawah, S (ed) MODSIM2019, 23rd International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 1-6 at Canberra, Australia. ISBN: 978-0-9758400-9-2.
 33. **Hassan, Ghulam Zakir; Allan, Catherine; Punthakey, J F; Mitchell, Michael; Akhtar, Saleem (2019),** Groundwater-regulation-governance-management nexus: A case study from Punjab Pakistan: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
 34. Anjum, L; Awan, UK; Punthakey, JF; **Hassan, G Z;** Akhtar, S; Nawaz, A; Mitchell, M (2019), Estimation of Water Balance of Lower Bari Doab Canal (LBDC) Command Area: A Modelling Approach: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
 35. **Akhtar, Saira; Hassan, Ghulam Zakir; Zeeshan, M; Ghafoor, Abdul (2019),** Lining of canals and ground water recharging: socio-economic implications for sustainable agricultural development in Pakistan: presented at Australasian Groundwater Conference: Groundwater in a Changing World; Brisbane 24-27 Nov, Queensland, Australia; Flinders University. <https://doi.org/10.25957/5DEF2C732D6D6>
 36. **Hassan. G. Z. and Hassan. F. R. and Shabir, G (2019)** “Impact of climate change on groundwater use for sustainable agriculture and food production in Indus Basin of Pakistan”, 1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Scenarios: April, 3-5, Ghazi University, Dera Ghazi Khan, Punjab, Pakistan.
 37. **Hassan, G. Z., Shabir, G., Hassan, F. R., & Akhtar, S. (2017).** *Wastewater-a threat for groundwater: Presented on World Water Day-2017, Paper No.139, pp 173-191, Proceedings Pakistan Engineering Congress, Lahore, Pakistan*
 38. **Hassan, G. Z., Hassan, F. R., & Shabir, G. (2017).** *Food security challenges under climatic changes and groundwater-energy nexus- case study of Punjab-Pakistan: 23rd International Congress on Irrigation and Drainage-ICID, 8-14 October 2017, Mexico City, Mexico.*
 39. Punthakey, J. F.; Khan, M., Riaz; M., Javid; & **Hassan, G. Z. (2016).** *Intensive surface and groundwater use and salinity impacts in Rechna Doab, Pakistan: 43rd IAH Congress, September 25-29th, Montpellier, France.*
 40. **Hassan, G. Z. (2016).** *Groundwater use for agriculture and sustainability concerns., 43rd IAH Congress, September 25-29th, Montpellier, France.*
 41. **Hassan. G. Z. and Hassan. F. R. (2017)** “Sustainable use of groundwater for irrigated agriculture: A case study of Punjab, Pakistan” *European Water* 57: 475-480, 2017. https://www.ewra.net/ew/pdf/EW_2017_57_67.pdf
 42. **Hassan. G. Z., Hassan. F. R., Akhtar. S, (2017).** *Impact of Drainage Effluents on Groundwater Quality- A Case Study from Lahore Pakistan*, Research Article, presented and published in proceedings of the *13th International Drainage Workshop of ICID* Ahwaz, Iran 4 – 7 March 2017 on Drainage and Environmental Sustainability, ISBN:976-600-96875-1-0, PP 26-27.
 43. **Hassan. G. Z., Hassan. F. R., Akhtar. S, (2016).** *Environmental Issues and Concerns of Groundwater in Lahore”, Proceedings of the Pakistan Academy of Sciences: Pakistan Academy of Sciences, B. Life and Environmental Sciences* 53 (3): 163–178 (2016), ISSN: 2518-4261 (print), ISSN 2518-427X (online) Received, January 2016; Accepted, August 2016. <https://paspk.org/wp-content/uploads/2016/10/Environmental-Issues-and-Concerns.pdf>

44. **Hassan. G. Z., Hassan. F. R., (2016).** “*Groundwater-Energy-Food Security Nexus in Pakistan*. Proceedings of the International Workshop on Sustainable Energy Solutions for Community Development in Pakistan (November 8-9, 2016) at Faisalabad PP-70.
45. **Hassan. G. Z., Hassan. F. R., (2016).** *Sustainable Development and Management of Groundwater for Irrigated Agriculture in Punjab- Constraints and Options*. Proceedings of the International conference on Sustainable Agriculture in Pakistan, ISBN: 978-969-9035-13-5 (November 17-19, 2016) at Faisalabad PP-7.
46. **Hassan. G. Z., Hassan. F. R., Rizvi. S. A, (2015).** *Groundwater Management using MODFLOW- A case study of Rechna Doab, Punjab, Pakistan*, Paper No. 760, Proceedings 73rd Annual Session 2014-2015, Pakistan Engineering Congress, Lahore.
47. **Hassan. G. Z., Yasar A., Akhtar. S, Hassan. F. R., (2015).** *Groundwater Recharge Estimation in an irrigated Area- A case study of Rechna Doab, Punjab, Pakistan*, pp 27-28, Engineering news, Volume 46 January to June 2015 No. 1 - 2, on World Water Day, Pakistan Engineering Congress, Lahore.
48. **Hassan. G. Z., Hassan. F. R., Akhtar. S, (2014).** *Environment threats to groundwater in Lahore area*”, pp 68-98, Volume 45 April 2014 to September 2014 No. 3 - 4, on World Environment Day, Pakistan Engineering Congress, Lahore, Pakistan.
49. **Hassan. G. Z., Hassan. F. R., Akhtar. S, (2014).** “*Groundwater Investigations using Electrical Resistivity Survey in Rechna Doab, Punjab, Pakistan*”, pp 57-73, Volume 45 October 2013 to March 2014 No. 1 -2, Proceedings World Water Day Pakistan Engineering Congress, Lahore, Pakistan.
50. **Hassan. G. Z., Shabir. G., Hassan. F. R., Akhtar. S. (2013).** “*Impact of Pollution in Ravi River on Groundwater underlying the Lahore City*”, Paper No. 749, pp 357-380, Volume 73, Proceeding 72nd Annual Session 2011-2013.Pakistan Engineering Congress, Lahore, Pakistan.
51. **Hassan G. Z and Bhutta M. N (1998).** “*Groundwater Flow Simulation Model for Faisalabad Aquifer*” Journal of Drainage and Water Management” of Pakistan Council of Research in Water Resources, Drainage Research Centre, Tando Jam No. 1 Volume-2, PP-13-22, January-June 1998, Pakistan.
52. **Hassan G. Z and Bhutta M. N (1997)** “*Assessment of Groundwater Quality for Faisalabad by different Methods*” Pakistan Journal of Water Resources (formally known as Journal of Drainage and Water Management ISBN: 1021-5409, Pakistan Council of Research in Water Resources, Pakistan
53. Journal of Drainage and Water Management” of Pakistan Council of Research in Water Resources, Drainage Research Centre, Tando Jam, No. 2 Volume-1, PP 37-45, July-December 1997.
54. **Hassan G. Z and Bhutta M. N (1996).** “*A Water Balance Model to Estimate Groundwater Recharge in Rechna Doab, Pakistan*” *Irrigation and Drainage System*” 10: 297-317 the Netherlands.
55. **Hassan G. Z and Bhutta M. N (1995)** “*Rainfall Analysis for Water Resources Applications: A Case Study at Bahawalnagar Pakistan*” Journal of Engineering and Applied Sciences” of University of Engineering and Technology, 1995, Peshawar, Pakistan.

C- PAPERS PRESENTED AT CONFERENCES/WORKSHOPS/SEMINARS

| Sr. No. | Title of the Paper | Presented at |
|---------|--|--|
| 1. | Groundwater Management and Hydro-Informatics | International Conference on “Hydro-Informatics and Water Management” 27-28 June 2018 By NUST-UNESCO, Islamabad, Pakistan |
| 2. | Plastic Pollution and Its Impact on Water Resources | World Environment Day 2018, 23 June 2018 by Pak Engg. Congress (PEC), Lahore, Pakistan |
| 3. | Flood Water Storage in Aquifer Through Natural Recharge- A Case Study of Rechna Doab, Punjab, Pakistan. | World Water Day 2018 at PEC, Lahore Pakistan 05 June 2018 |
| 4. | Pakistan’s Water Resources and Current Challenges | World Water Day 2018 DEPARTMENT OF ENVIRONMENTAL SCIENCES Lahore College for Women University 22-3-2018 Lahore, Pakistan |
| 5. | Environmental Concerns for Sustainable Use of Groundwater for Food Security in Punjab Hassan. G. Z., Hassan. F. R., (2017). | World Environment Day-2017 By Pakistan Engineering Congress Lahore Pakistan |
| 6. | Impacts of Climatic Changes on Groundwater Sustainability - A Case Study of Chaj Doab, Punjab, Pakistan, | Intl Conference on Trends in Earth and Environmental Sciences, 9-10 March 2017. College of Earth and Environmental Sciences, University of the Punjab, Lahore, Pakistan |
| 7. | Impacts of Climatic Changes on Water Resources of Pakistan and Mitigation Plans | National Consultative Workshop 11 January 2017, at Pak Engineering Council, Islamabad, Pakistan |
| 8. | Impact of Global Climatic Changes on Sustainable use of Groundwater in Punjab | World Environment Day 2016 by Pakistan Engineering Congress Lahore, Pakistan |
| 9. | Groundwater Management through Artificial Recharge-A Potential for Jobs | World Water Day 2016 by Pakistan Engineering Congress Lahore, Pakistan |
| 10. | Sustainable Development and Management of Groundwater- Lahore City | 74th Annual Session by Pakistan Engineering Congress, Lahore, Pakistan |
| 11. | Impact of Soil Characteristics on Failure of Flood Bunds-Case Study From Punjab Pakistan | 74th Annual Session by Pakistan Engineering Congress, Lahore, Pakistan |
| 12. | Groundwater and energy issues for food security in Pakistan | International Conference: Asia Pacific Policy Dialogue on Water, Energy and Food Security for Poverty Alleviation in Dry-land Regions 23-25 November 2016, UNESCO-UAAR, Rawalpindi, Pakistan |
| 13. | Groundwater-Energy-Food Security Nexus in Pakistan | International Workshop on Sustainable Energy Solutions for Community Development in Pakistan November 08-09, 2016) at Faisalabad published in proceedings PP-70 UAF-Germany |
| 14. | Groundwater Sustainability in Indus Basin Pakistan Under Global Climatic Changes | Water and Environment: Sustainable Development in Changing Climate. WEF National Conference Islamabad, 17-19 October 2016 WEF-ICIMOD |
| 15. | An Overview of Irrigation Research Institute’s (IRI) on-going initiatives | 3rd Session on City-Wide Partnership for Sustainable Water Use and Water Stewardship Date: 25th August, 2016 |
| 16. | Flood 2014 & its Impact on Groundwater in Rechna Doab, Punjab, Pakistan | International Workshop on “Standardizing Flood Forecasting and Warning Approaches in Trans boundary Catchments” 19-20 April 2016 UNESCO-PMD |

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| 17. | Hassan. G. Z., Shabir. G., Akhtar. S. (2016). | <p style="text-align: center;">3rd International Conference on Global Environmental Changes & Green Expo March 22-23, 2016</p> |
| 18. | Sustainable Use of Groundwater Under Global Climatic Changes | <p style="text-align: center;">3rd international Conference on Global Environmental Changes at GCU Faisalabad, 21-22 March 2016</p> |
| 19. | Challenges and Options for Sustainable Use of Groundwater | <p style="text-align: center;">National Conference on Water for People Water by People World Water Day 2016, 19 March 2016</p> <p style="text-align: center;">Royal Society of Chemistry, The Environ Monitor, National Foundation for Environmental Education & Research and IMGA</p> |
| 20. | Groundwater Recharge Estimation in an Irrigated Area- A case study of Rechna Doab, Punjab, Pakistan | <p style="text-align: center;">World Water Day 2015 by Pakistan Engineering Congress</p> |
| 21. | Issues of Groundwater in Urban Areas –A Case Study of Lahore Aquifer | <p style="text-align: center;">World Water Day 2015 by Lahore Chamber Of Commerce and Industry (LCCI)</p> |
| 22. | Groundwater - A Natural Resource Under Serious Threats | <p style="text-align: center;">World Environment Day 2015 by Pakistan Engineering Congress</p> |
| 23. | Means of Transportation-Present & Future | <p style="text-align: center;">Symposium on the Theme of “Means of Transportation-Present & Future” by Pakistan Engineering Congress 27 December 2015</p> |
| 24. | Groundwater Management using MODFLOW- A case study of Rechna Doab, Punjab, Pakistan | <p style="text-align: center;">73rd Annual Session 2015 of Pakistan Engineering Congress 24,25 December 2015</p> |
| 25. | Environmental Issues and Concerns of Groundwater in Lahore | <p style="text-align: center;">UMT “National Multidisciplinary Engineering Conference 2015” published by PAS</p> |
| 26. | An Overview of Groundwater Issues and Options in Punjab | <p style="text-align: center;">Intl Conference on Water Resources University of Agriculture Faisalabad 2015</p> |
| 27. | Groundwater Investigations using Electrical Resistivity Survey in Rechna Doab, Punjab, Pakistan | <p style="text-align: center;">World Water Day 2014 by Pakistan Engineering Congress</p> |
| 28. | Environment Threats to Groundwater in Lahore Area | <p style="text-align: center;">World Environment Day 2014 Seminar by Pakistan Engineering Congress</p> |
| 29. | Impact of Pollution in Ravi River on Groundwater underlying the Lahore City | <p style="text-align: center;">72nd Annual Session 2013 of Pakistan Engineering Congress</p> |
| 30. | Environmental Impact Analysis of Development Project | <p style="text-align: center;">Two Day Conference On Environmental Impact Analysis of Development Project by Pakistan Academy for Rural Development Peshawar 19,20 October 1999</p> |
| 31. | Industrial Hazardous Waste Management” | <p style="text-align: center;">Workshop on “Industrial Hazardous Waste Management” at National Institute of Public Administration, NIPA Lahore 28, 30 April 1997</p> |
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D- RESEARCH PROJECTS/ASSIGNMENTS COMPLETED

| Sr. No. | Title of the study | Description/Status | Year |
|----------------|--|---|-------------|
| 1. | Improving sustainable groundwater management: A case study of artificial recharge in Punjab Pakistan | PhD Project at Charles Sturt University Australia | 2019-24 |
| 2. | Groundwater Recharge for Aquifer Management in Punjab | On-going Project | 2015-19 |
| 3. | Hydrological Study for Ravi River in Punjab | | 2017 |
| 4. | Study on Impact Assessment of Canal Lining in Punjab | Ongoing- JICA Funded Project | 2017 |
| 5. | Sediment study of Hill Torrent in DG Khan Irrigation Zone | Ongoing | 2016-17 |
| 6. | Impact of Floods on Groundwater | Ongoing | 2016-17 |
| 7. | Improving Groundwater management to enhance agriculture and farming livelihood in Pakistan | ACIAR- Funded- LWR036/2015 | 2016-2020 |
| 8. | Study on Impacts of Floods on Groundwater | Evaluated the impacts of flood 2014 on groundwater recharge and further potential of groundwater storage in Rechan and Chaj Doab after flood 2014. Also evaluated other benefits of floods. | 2015 |
| 9. | Recharge of Aquifer for Groundwater Management in Punjab | Punjab Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore, Pakistan | 2015 |
| 10. | Study for Groundwater Management for Developing integrated water use policy & Regulatory framework SRA for handover and training of | Punjab Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore, Pakistan | 2015 |
| 11. | surface-groundwater and econometric models to end users in Pakistan (April 2015 to June 2016) | ACIAR-Funded | 2015-16 |
| 12. | Groundwater Policy and Regulatory Framework | On-going Project | 2017 |
| 13. | Monitoring the health of Flood Bunds in Punjab | Completed | 2014-15 |
| 14. | Research Studies on Artificial Recharge of Aquifer in Punjab | Research Report No. IRR-Phy/579 Punjab Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore, Pakistan | 2013 |
| 15. | Groundwater Investigation for FDA-City Housing Scheme, Faisalabad, Pakistan | Study completed using groundwater modeling approach (MODFLOW) and report issued IRR-Phy/577 December 2012 | 2011-12 |
| 16. | Monitoring and Evaluation of Impact of Pollution in Ravi River on Groundwater, near Lahore, Pakistan | Currently working on it using groundwater modeling approach and one paper published in Pakistan Engineering Congress 72 th Session Proceedings 2013 (paper No 749). | 2011-12 |
| 17. | Groundwater Modelling and Management in Punjab | Asian Development Bank Funded project | 2009-11 |
| 18. | Research Studies on Artificial Recharge of Aquifer in Punjab | Research Report No. 552-A/Phy Punjab Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore, Pakistan | 2008-09 |
| 19. | Optimising Canal and Groundwater Management to Assist Water User Associations in Maximizing Crop Production and Managing Salinization in Australia and Pakistan (LWR/2005/144) | ACIAR- Funded Project | 2005 |

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| 20. | Measurement of Seepage losses from Irrigation Channels, under Punjab Private Sector Groundwater Development Project. | Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore | 1998-99 |
| 21. | Canal Seepage Measurements under JICA Project | Irrigation Research Institute, Irrigation Department, Govt. of the Punjab, Lahore | 1995-96 |
| 22. | Rainfall Analysis for Fordwah Eastern Sadiqia (South) Irrigation and Drainage Project, Bahawalnagar Derivation of Depth-Duration-Intensity-Frequency Relationships for Rainfall Data of Bahawalnagar, Pakistan. | Research Report, No. 159, International Water logging and Salinity Research Institute, Lahore, Pakistan. | 1995 |
| 23. | Intensity-Frequency Relationships for Rainfall Data of Bahawalnagar, Pakistan. | Institute of Engineer Pakistan, Lahore, Pakistan. | 1995 |
| 24. | Fitting a Theoretical Distribution to Rainfall Data of Bahawalnagar | Pakistan Engineer” Lahore, Pakistan. | 1995 |
| 25. | Evaluation of Groundwater Resources of Faisalabad, Pakistan | A thesis submitted in partial fulfillment of the requirement for the degree of Master of Engineering, Asian Institute of Technology, Thailand ,(Thesis No IR-92-11) | 1993 |