



Principal Research Scientist, CSIR-WRI, Accra
Tel: 0302-779514/5 (Office) [0302779514](tel:0302779514) 0506513333 (mobile)| Email agyekum@wri.gov.gh

Degrees

PhD (Hydrogeology), University of Ghana, Legon
MSc. (Groundwater Hydrology), IHE, Delft, the Netherlands
BSc.(Hons) (Geological Engineering), University of Science and Technology, UST, Kumasi, Ghana.

Awards and Recognitions

2005 – 2009: University of Ghana - PhD

Active Affiliations

Ghana Institution of Geoscientists (GhIG)
Research Scientist Association
International Association of Hydrogeologists (IAH)

Profile

Dr. Agyekum is a Principal Research Scientist at the Water Research Institute of the Council for Scientific and Industrial Research (CSIR-WRI). He obtained his bachelor's degree in Geological Engineering from the Kwame Nkrumah University of Science & Technology (KNUST, Kumasi) in 1989, Master's degree in Groundwater Hydrology at the International Institute for Infrastructural, Hydraulics and Environmental Engineering (IHE), Delft, The Netherlands in 1998; and PhD in Hydrogeology at the University of Ghana in 2009.

He is a seasoned Hydrogeologist and Geophysicist who has worked on many groundwater-related projects throughout the country since 1991. He has undertaken various groundwater projects for governmental agencies and on several donor-funded projects including CWSA, Water Resources Commission, Danida, Kruger Consult, CIDA-HAP, DFID. He has work experience in Liberia, Sierra Leone, and Burkina-Faso. Dr. Agyekum has gained considerable experience in the areas of research and in-depth knowledge in Groundwater Resources Assessment, Geophysical Exploration, Borehole Construction and Design, Borehole Geo-logging and Pumping Test and Aquifer Evaluation.

In terms of groundwater assessment, Dr. Agyekum is an expert in pumping test and aquifer evaluation using the classical Theis and Cooper-Jacob analytical methods, as well as the use of the modern Aquitest Software. Furthermore, Dr. Agyekum is an expert in borehole geo-logging, using HRFM, GLOG, DUIN, TCGS, and 3ACS logging tools. He has supervised many post-graduate students at the Masters and MPhil programs in several Ghanaian Universities.

He is also a reviewer for some international peer-reviewed journals including Journal of African Earth Science (AES), International Journal of Climate Change Strategies and Management (IJCCMS) and Physics & Chemistry of the Earth (JPCE). He has obtained many research grants from funding agencies including the NUFFIC, DFID and ENRECA/DANIDA. He has published over 20 peer-reviewed articles in international journals.

Research Interests

- • Groundwater Monitoring using automatic logger and barometric divers
- • Geophysical borehole logging using HRFM, GLOG, DUIN, TCGS and 3ACS logging tools.
- • Groundwater Resources Assessment
- • Aquifer Evaluation

Current Research

- • Building understanding of climate variability into planning of Groundwater supplies from low storage aquifers in Africa (BRAVE)
- • Groundwater Assessment study of Ghana
- • Groundwater monitoring studies of selected river basins in Ghana
- • Aquifer Evaluation studies

Publications

1. W. A. Agyekum and E. Asare (2016) Challenges Associated with Groundwater Resources Development in Northern Ghana. Ghana Journal of Science; Vol. 56, pp.39-56
2. E. O. Amartey, T. T. Akiti, T. Armah and W. A. Agyekum (2016) Integrating gamma log and conventional electrical logs to improve identification of fracture zones in hard rocks for hydro-fracturing: a case study from Ghana. Journal of Applied Water Science, DOI 10.1007/s13201-016-0450-z
3. E. Manu, W. A. Agyekum, A. A. Duah, P. A. Mainoo, C. Okrah and S. Van-Dycke (2016) Improving Access to Potable Water Supply Using Integrated Geophysical Approach in a Rural Setting of Eastern Ghana. Environment and Forestry Journal, (2016). Vol. 95, pp. 40714-40719
4. W. A. Agyekum, K. Klitten, T. Armah, B. Banoeng-Yakubo and E. Okoe-Amartey (2013) Geophysical borehole logging for control of driller's records: Hydrogeological case study from Voltaian Sedimentary rocks in Northern Ghana. Journal of Applied Water Science, DOI 10.1007/s13201-013-0097-y
5. K. Kankam-Yeboah, C. Okrah, W. A. Agyekum, A. A. Duah, D. Ofori, and F. Logah (2013) Water Resources Management of Shared Transboundary Aquifer System – The Case Study of the Keta Basin. Ghana Journal of Science, Vol. 53, pp.39-51,
6. P. A. Mainoo, A. Duah, W.A. Agyekum and A. Menya (2012) Evaluation of Aquifer Characteristics of Voltaian Sedimentary Rocks in the Brong-Ahafo Region of Ghana. Journal of Ghana Science Association, Vol. 14, No. 2, pp.73-85
7. E. Obuobie, B. Diekkruieger, W. A. Agyekum and S. Agodzo (2012) Groundwater Level Monitoring and Recharge Estimation in the White Volta River Basin of Ghana. Journal of Africa Earth Sciences. pp.80-86
8. K. A. Asante, T. Agusa, C. A. Biney, W. A. Agyekum, M. Bello, M. Otsuka, T. Itai, S. Takahashi and S. Tanabe (2012) Multi-trace Elements levels and Arsenic Speciation in Urine of e-waste recycling workers from Alogboshie, Accra in Ghana. Journal of Science of the Total Environment, Vol. 424, pp.63-73
9. S. Dapaah-Siakwan, W. A. Agyekum and P. Amankwah-Mainoo (2011) Landfill Site Investigation in the Tema Metropolis Using 2-Dimensional Resistivity Technique. Ghana Journal of Science, Vol. 51, pp. 25-31.
10. W. A. Agyekum and K. Kankam-Yeboah (2011) Characteristics of a Crystalline Granitic Aquifer in North-Western Ghana. Ghana Journal of Science, Vol. 51, pp. 3-10.

11. W. A. Agyekum, S. Dapaah-Siakwan, P. Amankwah-Mainoo and P. K. Darko (2009) Application of Integrated Geophysical Techniques for monitoring wells site selection in the White Volta River Basin. Journal of the Ghana Science Association. Vol. 11, No.1, June, 2009. pp 40-50.
12. B. Keraita, P. Drechsel, W. A. Agyekum and L. Hope (2007) In Search of Safer Irrigation Water for Urban Vegetable Farming in Ghana. Urban Agriculture, Vol. 17, 2007. pp. 17-19. (Editor: Rene van Veenhuizen).
13. W. A. Agyekum and S. Dapaah-Siakwan (2002) Hydraulic Characteristics of a granitic Aquifer in Central Ghana. Journal of Ghana Science Association, Vol. 4, No. 1, 2002, pp. 63-69
14. Okrah, C. and W. A. Agyekum (2013). Building understanding of climate variability into planning of Groundwater supplies from low storage aquifers in Africa. Report on BRAVE Stakeholder Consultative Workshop held at Jaria Hotel, East-Legon, Accra-Ghana on 25th September, 2013, 27pp, CSIR/WRI/ECP/CO/2013/1.
15. K. Klitten and W. A. Agyekum (March, 2008): Lithological Characteristics of Voltaian Sedimentary Rocks Evaluated from Geophysical Logs in Drilled Water Wells in the Northern Region of Ghana. In Fieko Kalsbeek (Editor), The Voltaian Basin Ghana. Proceedings of Workshop and Excursion, March 10-17, Geological Survey of Denmark and Greenland (GEUS), Copenhagen-Denmark, pp. 57- 60
16. W. A. Agyekum and K. Klitten (March 2008). Detailed Geophysical Logging of Voltaian Sedimentary Rocks in Drilled Water Wells in the Northern Region of Ghana. In Fieko Kalsbeek (Editor). The Voltaian Basin Ghana. Proceedings of Workshop and Excursion, March 10-17, Geological Survey of Denmark and Greenland (GEUS), Copenhagen-Denmark, pp 69- 72.

CONTRIBUTION TO BOOKS

1. Agyekum, W. A., Duah, A. A., Okrah, C. and Manu, E. (2017). Groundwater Recharge Studies and Trends in the Lower Volta River Basin, Ghana. Chapter 6, pp. 117-133. In: Ntiemoa-Baidoo, Y., Ampomah, B. Y. and Ofori, E. A. (eds). (2017). Dams, Development and Downstream Communities: Implications for Re-optimising the Operations of the Akosombo and Kpong Dams in Ghana. Digibooks Gh. Ltd., Tema, Ghana

BOOKS

Chapter in a refereed book

- 1) William A. Agyekum, Anthony A. Duah, Collins Okrah and Evans Manu (2017): Groundwater Recharge and Trends in the Lower Volta River Basin, Ghana (Chapter 6), pp 117-134, In Dams, Development and Downstream Communities: Implications for Re-Optimizing the Operations of the Akosombo and Kpong Dams in Ghana (Eds: Ntiemoa-Baidu, Y; Ampomah, B.Y and Ofori, E. A). Digibooks Gh. Ltd, Tema, Ghana. ISBN: 978-9988-2-5046-1
- 2) Collins Okrah; William A. Agyekum and Anthony A. Duah (2017): Improving Access to Potable Water Supply for Downstream Communities of the Volta Lake (Chapter 18), pp 397-418,

In Dams, Development and Downstream Communities: Implications for Re-Optimizing the Operations of the Akosombo and Kpong Dams in Ghana (Eds: Ntiamoa-Baidu, Y; Ampomah, B.Y and Ofosu, E. A). Digibooks Gh. Ltd, Tema, Ghana. ISBN: 978-9988-2-5046-1

3) Emmanuel Obuobie, Boubacar Barry and William Agyekum (2016): Groundwater Resources of the Volta Basin (Chapter 4), pp 46-61, In The Volta River Basin: Water for Food, Economic growth and Environment (Editors: Timothy O. Williams, Marloes Mul, Charles Biney and Vladimir Smakhtin). Earthscan Series on Major River Basins of the World. Routledge Taylor and Francis Group. Hb: 9781138900240, eBook: 9781315707334

4) William A. Agyekum; S. Dapaah-Siakwan. The Occurrence of Groundwater in North-eastern Ghana, (Chapter 12), pp 199-214, In: Applied Groundwater Studies in Africa. (Editors: Segun M. A. Adelenia & A.M. MacDonald), International Association of Hydrogeologists. IAH Selected

papers on Hydrogeology, Volume 13, CRC Press. ISBN13: 978-0-203-88949-7 (Ebook).