



CURRICULUM VITAE of Arup Kumar Biswas, PhD

CONTACT:

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Date of birth: 10 September 1981
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PROFESSIONAL INFORMATION

- May 2016- present **Deputy Director, Hydrocarbon Unit, Energy and Minerals Resources Division**, Ministry of Power, Energy and Minerals Resources, Government of the People's Republic of Bangladesh. Web: www.hcu.org.bd
- Dec 2014 to May 2016 **Junior Specialist, Center for Environmental and Geographic Information Services (CEGIS)**, (A Public Trust under the Ministry of Water Resources, Bangladesh), House # 6, Road # 23/C, Gulshan - 1, Dhaka-1212, Bangladesh, Web: www.cegisbd.com
- Jan 2008 to Feb 2014 **Senior Geologist, Premier Minerals Limited**, Bangladesh office: Rupayan Golden Age (7th Floor), 99, Gulshan ave, Gulshan-2, Dhaka-1212; Head office: **Premier Group Minerals Ltd**; Level 4, 55 Clarence St. Sydney, Australia. Tel: 0406077714 (Australia).

ACADEMIC BACKGROUND

- 2019-2023 Doctor of Philosophy (PhD) in Sustainable Energy Management (SEM), Prince of Songkla University (PSU), Hat Yai campus, Songkhla, Thailand, 90110.
Thesis: Evaluation of potentiality of Underground Coal Gasification (UCG) at Jamalganj in Northwestern Bangladesh
- 2005-2007 Master of Science in Hydrogeology & Environmental Geology, University of Dhaka, Dhaka, Bangladesh
Project: Assessment of the water quality within the premises of the University of Dhaka, Bangladesh
- 1999-2005 Bachelor of Science (Hons.) in Geology, University of Dhaka, Dhaka, Bangladesh.

RESEARCH INTERESTS

♣ Sustainable Energy Management ♣ Clean Coal Technologies (CCT) ♣ Coal petrology, Geochemistry, Mineralogy ♣ Underground Coal Gasification (UCG) Physico-chemical process, hydrodynamics, etc. ♣ Syngas characterization, Gasification efficiency ♣ Energy Transition, Alternate fuels, Decarbonization ♣ Geo-information Science and Earth Observation

PUBLICATIONS

1. **Arup Kumar Biswas**, Md. Rafiqul Islam, Md. Fuad Hasan, Jafar Sharafeldeem Albagir, Mohammad, Kuaanan Techato, Khamphe Phoungthong, and Makatar Wae-Hayee, “*Geostatistical Analysis to Determine Underground Coal Gasification (UCG) Site for Exploiting Jamalganj Coalfield in NW Bangladesh*,” in “*Engineering Design and Technical Application of Physical Science: An integrated Approach for Sustainable Development*,” PART III: CASE STUDIES; Chapter 11, Publisher: **Apple Academic Press**, Inc.; 2023. (Edited book - WOS indexed) (*In press*) [Link](#)
2. **A. K. Biswas**, M. R. Islam, and M. A. Habib, “*An analytical investigation of critical factors to prioritize coalfields for Underground Coal Gasification – Bangladesh case*,” **Heliyon**, vol. 9, no. 7, July 2023, doi: <http://dx.doi.org/10.1016/j.heliyon.2023.e18416>
3. M. F. Hasan, M. M. Rahman, M. A. Ullah Bulbul, **A. K. Biswas**, M. Farhad, and M. A. Rahman, “*Assessment of Coal Permeability using Injection Falloff Test and Effect of Temperature and Skin Factor on It: A Case Study for Coal Seams of Jamalganj Coalfield, Bangladesh*”, **The Dhaka University Journal of Earth and Environmental Sciences**, pp. 103–112, May 2022, doi: <http://dx.doi.org/10.3329/dujees.v10i3.59076>
4. **A. K. Biswas**, W. Suksuwan, K. Phoungthong, and M. Wae-hayee, “*Effect of Equivalent Ratio (ER) On the Flow and Combustion Characteristics in A Typical Underground Coal Gasification (UCG) Cavity*”, **Journal of Advanced Research in Fluid Mechanics and Thermal Sciences**, vol. 86, no. 2, pp. 28–38, Aug. 2021, <http://dx.doi.org/10.37934/arfmts.86.2.2838>
5. J.-M. Garnier, F. Travassac, V. Lenoble, J. Rose, Y. Zheng, M.S. Hossain, S.H. Chowdhury, **A. K. Biswas**, K.M. Ahmed, Z. Cheng, A. van Geen, *Temporal variations in arsenic uptake by rice plants in Bangladesh: The role of iron plaque in paddy fields irrigated with groundwater*. **Science of the Total Environment**, 2010. doi:[10.1016/j.scitotenv.2010.05.019](https://doi.org/10.1016/j.scitotenv.2010.05.019)

Publications in the academic conference

6. Conference’s Name: *20th Heat and Mass Transfer in Thermal Equipment and Process*; Date/Month/Year and Place: *March 18-19, 2021; Samila Beach Resort and Hotel, Songkhla, Thailand*.

Publication: Arup Kumar Biswas, Khamphe Phoungthong, Wasu Suksuwan, Whacharapat Wattanasrirote, and Makatar Wae-hayee, “Flow and Combustion Characteristics in a Cavity of Underground Coal Gasification (UCG) using CFD”, *Journal of Faculty of Engineering*, Chiang Mai University, March 2021.

7. Conference’s Name: *Sriwijaya International Conference on Engineering and Technology (SICETO 2021)*; Date/Month/Year and Place: *25-26 October 2021, The Zuri Hotel, Palembang – South Sumatera – Indonesia*.

Publication: Arup Kumar Biswas, Khamphe Phoungthong, Whacharapat Wattanasrirote, Kuaanan Techato and Makatar Wae-hayee, “Selection criteria of coalfields for Underground Coal Gasification (UCG)”, *Journal of Faculty of Engineering*, Universitas Sriwijaya, October 2021

SCHOLARSHIP/ GRANT/ AWARD

1. **IGS-Energy scholarship** - Recipient of the *Interdisciplinary Graduate School of Energy System* (IGS-Energy) scholarship with amount of supported money 162,000.00/- Baht starting from September 2019 until February 2021.
2. **FEM scholarship** – in the role of “Teaching Assistant”, secured tuition fees amounting to 280,000.00/- Baht for the duration July 2019 to January, 2022 under the *Faculty of Environmental Management Scholarship*.
3. **Thesis grant** - Awarded by the *Graduate School Dissertation Funding* for 2020 Fiscal Year, the Thesis grant amounting 50,000.00/- Baht to accomplish research targets towards thesis preparation.
4. **Graduate Studies Grant** - achieved *Graduate Studies Grant* under the *Research Fund, FEM-PSU* for the academic year of 2/2020 and 2/2021 equivalent to 56,000.00/- Baht upon achieving specific research milestones.
5. **Conference Grant** – FEM supported the Conference (international) grant of 9,381.00/- Baht (equivalent to 300 USD) in April 2021.

REPORTS PREPARED

1. A Glossary of Power, Energy & Mineral Resources, 2018 ([http://hcu.org.bd/site/view/publications/-](http://hcu.org.bd/site/view/publications/))
2. Report on Energy Scenario of Bangladesh 2017-2018, 2016-17, 2015-16 ([http://hcu.org.bd/site/view/publications/-](http://hcu.org.bd/site/view/publications/))
3. Monitoring of environment parameters and implementation of Environmental Management Plan during pre-construction and construction period along with Engineering Activities for site development of Khulna 1320 MW Coal based Thermal Power Plant. (4th, 5th, 6th and 7th Quarter Monitoring Report)

CONFERENCE/ SEMINAR/ WORKSHOP/ TRAINING

International conference (attended)

- International Conference on *INTERNATIONAL ENERGY EFFICIENCY DAY 2017*, organized by Institute for Policy, Advocacy and Governance (IPAG) in cooperation with the Ministry of Power, Energy and Mineral Resource (MoPEMR), Government of Bangladesh. March 05, 2017 in Dhaka, Bangladesh.
- International Conference on *SUSTAINABLE BLUE ECONOMY FOR THE DEVELOPMENT OF BANGLADESH*, organized by Department of Oceanography (University of Dhaka), Blue Economy Cell (MoPEMR), BIMRAD and Greentech Foundation Bangladesh. April 24, 2019 in Dhaka, Bangladesh.

National Seminar/Workshop (joined)

- Seminar on “*Exploration Strategy to develop hydrocarbon potential of Bangladesh*” organized by Hydrocarbon Unit. 25 April 2019 in Dhaka, Bangladesh.

- Seminar on “*Challenges and Opportunities in Hydrocarbon Exploration and Development in Bangladesh*” organized by Department of Geology (University of Dhaka). 10 January 2019 in Dhaka, Bangladesh.
- Seminar on “*National Coal Policy*” organized by PETROBANGLA. 08 January 2019 in Dhaka, Bangladesh.
- Seminar on “*Coal Resource as a Primary Source of Energy towards Energy Security of Bangladesh*” organized by Hydrocarbon Unit. 30 January 2018 at Geological Survey of Bangladesh (GSB) in Dhaka, Bangladesh.
- Workshop on “*SDG and SDG tracker*” organized by Bangladesh Bureau of Statistics. 10 April 2019 in Dhaka, Bangladesh.

International Training (received)

- Queensland, Australia - Exploring and prospecting new areas of Zircon and Rutile potentiality and justifying existing data of Au, Ag, Bi, Mo, Sb, Zn, Cu etc. on-site within PMPL (Premier Mining Pvt. Ltd.) owned mining tenements at Chillagoe, QLD, Australia, under direct supervision of a JORC Code - Competent Person (Chief geologist Mr. Ian Reudavey) and organized by Premier Minerals Limited (PML), June 2011 – August 2011.

International Trainer (disseminated)

- Global Warming Mitigation and Adaptation by Balancing Sustainable Energy Management 2021 (GSEM 2021) hosted by Thailand International Development Cooperation Agency (TICA), Thailand, 07-27 July 2021; conducted 2 sessions - *Sustainable Development Goals (SDGs)* and *Clean Coal Technology (CCT)* on 09 July 2021 and 19 July 2021 respectively. <https://sites.google.com/psu.ac.th/gsem-2021/home>

National Training (received)

- “*Occupational Safety, Health and Environmental Management*” Bangladesh Petroleum Institute (BPI), Dhaka, Bangladesh, 18 Nov 2016 – 22 Nov 2016.
- “*Sustainable Development Goal (SDG)*” Bangladesh Petroleum Institute (BPI), Dhaka, Bangladesh, 03 Mar 2019 – 05 Mar 2019.
- “TOT (Training of Trainers) for implementation of E-filing”, Access to Information (a2i) program, Prime Minister’s Office, Dhaka, Bangladesh, 23 Jan 2017 – 26 Jan 2017.

PROFESSIONAL EXPERIENCE

- Accomplished doctoral research with the specialization in sustainable energy management, authored several peer-reviewed papers in reputed journals, lectured as a trainer in the national/ international dissemination workshops, appeared as a reviewer for different journals, etc.
- Being involved in the Government sector initiatives regarding primary energy development, substantial experience has been earned through - ♣ analyze, plan and monitor exploration, production, and development activities; ♣ facilitate the ministry in formulating policies related to primary energy and long-term energy security; ♣

monitor and investigate domestic and regional energy markets; ♣ research for intervening alternate fuel options towards Energy transition, etc.

- Working experience in the Coastal areas (Teknaf, Cox's Bazar and several Islands of Bay of Bengal) of Bangladesh to investigate Heavy Minerals depositional environment and processes, sample collection and data acquisition (Augering and shallow boring of approximately 300 wells), creating geological and Geomorphological maps and reports of Heavy minerals occurrence in Bangladesh. Accomplishment includes assessment of mineral grades, potentiality of extraction and preparation of mineral zonation map.
- Working experience on processing and simulation of surface and subsurface geological data to aid the Reserve Estimation.
- Adept in ArcGIS with particular interest in spatial analysis, Land use planning and Land cover analysis, georeferencing, digitizing, mosaicing, Contour & DEM preparation, prediction modelling and spatial analysis.

PROFESSIONAL EXPOSURE

1. Lectured in the dissemination workshops of GSEM 2021 organized by TICA (held on 9th and 19th of July 2021 in FEM, Prince of Songkla University, Thailand).
2. Presented paper (on 18 March 2021) in the international conference hosted by Chiang Mai University, Thailand
3. Presented paper (on 28 March 2021) in the international conference hosted by 4th WVCASEA & 6th IS-FMTS, Malaysia
4. Presented paper (on 25 October 2021) in the international conference hosted by Universitas Sriwijaya, Indonesia
5. Member of the Executive Committee of DUGAA (Dhaka University Geology Alumni Association)
6. Associate Member, Bangladesh Geological Society (BGS)
7. Reviewer (2023) of Journal of Bangladesh Petroleum Institute
8. Reviewer (2023) of Heliyon (Elsevier)

DECLARATION

I hereby declare that all the furnished details are authentic and inclusive to the best of my knowledge.

September 2023

Arup Kumar Biswas
