

HANIYUM MARIA KHAN

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PROFESSIONAL SUMMARY

Geoscientist with over 10 years' experience in structural geology, basin analysis, and 3D seismic interpretation using Petrel and other industry-standard software. Extensive background in quantitative earth science, reservoir modelling, and research on salt tectonics and hydrocarbon basins. Passionate about advancing understanding of salt basin dynamics for energy transition.

HIGHLIGHTED SKILLS:

- Structural geology, basin analysis, and reservoir characterization
- 3D seismic and well data interpretation (Petrel, Kingdom, OpendTect, Hampson Russell, Basin MoD, Petromod, Rockworks)
- Quantitative earth science & forward modelling
- Programming (Python, Matlab, Fortran), intermediate level
- Salt tectonics, sequence stratigraphy, and North Sea/South Atlantic basin theory experience

EDUCATION

Master of Science in Integrated Petroleum Geoscience

2016

University of Alberta

Edmonton, Canada

Research: Geological model of Onion Lake Post CHOPS Thermal Project. Advisor: Dr. Jose Martinez Alvarez (Jose.AlvarezMartinez@innotechalberta.ca), Adj. Professor, Department of Earth and Atmospheric Sciences, University of Alberta, Canada. Co. Advisor: Ron Sawatzky, Ph.D. (Ron.Sawatzky@innotechalberta.ca), Principal Researcher – Reservoir Engineering, Reservoir & Geosciences, InnoTech Alberta, Canada.

Software used: Petrel, Petromod, ArcGIS, Python

Master of Science in Geology

2009

University of Dhaka

Dhaka, Bangladesh

Research: Seismic Characterization in deciphering structure, tectonics and hydrocarbon potentiality of Kailashtila Gas Field. Advisor: Dr. Aftab Alam Khan (aftab@univdhaka.edu), Professor, Department of Geology, University of Dhaka, Bangladesh.

Bachelor of Science (Hons. 4 year integrated) in Geology

2007

University of Dhaka

Dhaka, Bangladesh

PUBLICATIONS

[Google Scholar Link: Haniyum Maria Khan](#)

Haniyum Maria Khan, Mohammad Moshir Rahman, Dr. Nadim Khandekar, 2024, Harnessing Bangladesh's Undeveloped Geothermal Potential: A Case Study of the Barapukuria Coal Basin. Journey for Sustainable Development and Peace Journal, 2(1), 68–81. <https://doi.org/10.3126/jsdpj.v2i1.63249>

Md. Shawkat Islam Sohel, Adrita Tithi, Mohammad Moshir Rahman, **Haniyum Maria Khan**, 2024, Assessing the Impact of Native and Plantation Forests on Catchment Water Yield in Tropical Regions: A meta-analysis, OHOW 2023 – The 2nd International Symposium on One Health, One World session Climate change and green recovery

Darimi Ameen Barshat, **Haniyum Maria Khan**, Md. Shawkat Islam Sohel, 2024, Assessing the Impact of Native and Plantation Forests on Catchment Water Yield in Tropical Regions: A meta-analysis, OHOW 2023 – The 2nd International Symposium on One Health, One World session Infrastructure Management and Sustainable Built Environment

Haniyum Maria Khan, Dr. Nadim Khandekar, 2023, To drill or not to drill for natural gas: A comparative economic and reservoir analysis, ICCGNB 2022 Conference, oral paper

Shahriar Rahman, **Haniyum Maria Khan**, 2022, Uncovering the policy gaps obstructing wind power development in Bangladesh, ICCGNB 2022 conference, Poster presentation

Md. Shawkat Islam Sohel, Sudipta Kumar Hore, Mohammed Abdus Salam, Muhammad Al-amin Hoque, Naser Ahmed, Mohammad Moshir Rahman, **Haniyum Maria Khan**, Sohanur Rahman, Analysis of erosion–accretion dynamics of major rivers of world's largest mangrove forest using geospatial techniques, Regional Studies in Marine Science, Volume 46, 2021, 101901, ISSN 2352-4855, <https://doi.org/10.1016/j.rsma.2021.101901>.

Afrida Binte Iqbal, Mohammad Moshir Rahman, Dhiman Ranjan Mondal, Nadim Reza Khandaker, **Haniyum Maria Khan**, Gias Uddin Ahsan, Md. Jakariya, Md. Mainul Hossain, 2019, Assessment of Bangladesh groundwater for drinking and irrigation using weighted overlay analysis, Groundwater for Sustainable Development

H.M.Khan, A.S.M. Woobaidullah and C. Quamruzzaman, 2013, Seismic Interpretation of 2D Data over Kailashtila Gas Field, NE Bangladesh, International Journal of Engineering Technology and Advanced Engineering, Volume 3, Issue 11, November 2013

BOOK CHAPTER

Khan, H.M., Rahman, M.M. (2022). Transboundary River Management of the Ganges Brahmaputra–Meghna (GBM) Delta: Environmental Challenges and Strategies. In: Singh, V.P., Yadav, S., Yadav, K.K., Yadava, R.N. (eds) Environmental Degradation: Challenges and Strategies for Mitigation. Water Science and Technology Library, vol 104. Springer, Cham https://doi.org/10.1007/978-3-030-95542-7_23

EMPLOYMENT HISTORY

SENIOR LECTURER

2018 - Present

North South University

Dhaka, Bangladesh

- Delivered a diverse portfolio of undergraduate courses, including:
 1. Introduction to Environmental Science (ENV-107)
 2. Environmental Management (ENV-214)
 3. Geology and Geomorphology (ENV-311)
 4. Environmental Hydrology (ENV-303)
 5. Integrated Water Resource Planning and Management (ENV-410)
 6. Coastal Zone Management (ENV-412)
- Supervised and mentored undergraduate students in internships and thesis research, and served as a student advisor for the Environmental Science and Management program.
- Developed and administered examination procedures and grading in strict adherence to university policies and academic regulations.
- Collaborated as a departmental representative in the University Internal Quality Assurance Cell (IQAC), contributing to curriculum review and enhancement in line with University Grants Commission (UGC) guidelines.
- Managed departmental communications, including social media outreach and admissions-related correspondence.
- Supported the organization and execution of departmental events, workshops, webinars, and seminars to foster academic engagement and professional development.

EXPLORATION GEOLOGIST

2016 - 2018

ARD Geosciences

Edmonton, Canada

- Conducted regional and detailed geological mapping of exploration permit areas and lithogeochemical investigations of individual Spodumene deposits.

- Responsible for core analysis, property mapping, mineralogical identification, and geological interpretation.

GRADUATE STUDENT

2015-2016

Department of Earth and Atmospheric Sciences, University of Alberta

Edmonton, Canada

Cross-disciplinary training in geology, geophysics, petrophysics, and petroleum engineering with teamwork-oriented projects and presentations resembling modern-day oil and gas development and exploration.

- **Research project (Thesis) – conducted at InnoTech Alberta**
 - Geological Characterization of the Cummings Member at the Onion Lake post CHOPS thermal project.
 - Conducted a detailed petrophysical study using Petrel and relevant software to illustrate the significance of geological factors that govern the application of different enhanced oil recovery processes.
 - Integrated the petrophysical and geological model with oil production data to identify and compare zones affected by different oil recovery processes.

TECHNICAL PROFESSIONAL I-FRS

2014 - 2015

Halliburton International Inc.

Dhaka, Bangladesh

- Acquired, processed, and managed a combination of geophysical data for multiple operating companies to ensure completeness and consistency of data storage.
- Developed operational strategies for services based on technical and related factors.
- Maintained accurate metadata and prepared, processed, and interpreted specialized geospatial maps and deliverables for clients within specified deadlines.
- Organized and conducted workshops, seminars, and presentations for clients, students, and professionals to demonstrate the latest technological and economic developments and bridge the gap between industry and other private and public organizations.
- Performed quality assurance of acquired spatial data and processed/interpreted materials between operating companies, stakeholders, and third parties.
- Analyzed marketplace data for the energy sector to recommend strategic actions.

LECTURER, DEPARTMENT OF OCEANOGRAPHY

2013 - 2014

University of Dhaka

Dhaka, Bangladesh

- Taught and mentored two full time courses at undergraduate level including remote sensing and GIS.

- Prepared examination schedules and procedures in accordance with university's policies and legislations.
- Organized industry panels for collaboration with training and internship providers to arrange practical examinations, interviews and presentations.
- Conceptualized and implemented interdisciplinary collaborations between different branches of natural and applied sciences to include the study of oceans and its relation to the earth, atmosphere and natural resources.
- Initiated research collaborations with the Woods Hole Oceanographic Institution, USA, to advance the department's research in oceanography and facilitate student exchange programs.

ASSISTANT MANAGER (GEOPHYSICS)

2009 - 2013

Bangladesh Petroleum Exploration & Production Co. Ltd

Dhaka, Bangladesh

- Created specialized maps to manage exploration activities, pipeline networks, production cycle, and demographic information to manage service activities and perform assessments.
- Collaborated with government agencies, Ministry of Energy, stakeholders and service companies for project proposals, data analysis, strategic planning and risk assessment.
- Processed and received spatial data following internal standards using Trimble Geomatics to ensure timely data storage.
- Reviewed Environmental Impact Assessment reports and associated spatial data to promote sustainable development plan, to minimize the adverse significant biophysical, social and other relevant effects and to protect the productivity and capacity of natural systems.
- Created regional technical framework using a number of data types to provide maintenance of accurate data and major asset development plan approval by management.
- Provided technical support to influence development strategy of mature assets and field prioritization decisions.

RESEARCH STUDENT

2009 to 2009

Project Title: "Health Hazard and Arsenic Mobilization in Bangladesh Groundwater". The Environmental Research Project conducted by Columbia University, New York of the USA. Employer: Kazi Matin Ahmed Ph. D., Professor, Department of Geology, University of Dhaka, Dhaka – 1000

- Baseline Survey: Baseline survey to understand the distribution of arsenic in the aquifers of the Araihaazur Upazila area of Bangladesh.

RESEARCH STUDENT

2006 to 2006

Project Title: "Transfert et transformation de la spéciation de l'arsenic dans la rhizosphère du riz résultant de l'irrigation par des eaux contaminées au Bangladesh." Employer: Jean-Marie Garnier,

Ph.D. [garnier@cerege.fr], Equipe: Physico chimie aux interfaces, C.E.R.E.G.E. UMR 6536-CNRS, Europôle Méditerranéen de l'Arbois, BP 80, 13545 Aix-en-Provence Cedex, France.

- Hydrogeological investigation: Core sampling, DO and Fe level measurement, Sediment extraction analysis.

HIGHLIGHTS OF QUALIFICATIONS

- Six years of specialized digital mapping experience in producing and maintaining property assessment and utility mapping, environment impact and damage assessments, planning and socio-economic development as well as keeping pace with changing user requirements, client needs and new product and software enhancements
- Six years of experience working in fast paced environments with government, stakeholders and service companies in strategic planning, reliable data delivery and risk assessment to ensure accurate and steady flow and meet overall development goals
- Four years of experience working with Environmental Impact Assessment and associated spatial data to ensure that the environmental considerations are explicitly addressed and incorporated into the development and decision-making process

ACCOMPLISHMENTS

- Received South Asian Water Association Fellowship in 2010
- Worked as a team member for the first ever 3D seismic survey conducted by Bangladesh Petroleum Exploration & Production Co. Ltd.
- Received the Outstanding Achievement Award for exceptional technical contribution in energy sector from the government of the Peoples Republic of Bangladesh.

OTHER VOLUNTARY INVOLVEMENTS

COMMITTEE MEMBER | APEGA

January 2016 – September 2016

- Volunteered as a member for the student liaison committee of the University of Alberta student chapter to help and organize events for geosciences students for networking and exploring career options.

VOLUNTEER STUDENT | GEOPHYSICAL LAB, UNIVERSITY OF ALBERTA

November 2016 – May 2017

- Volunteered to work for Dr. Douglas Schmidt to organize and process 2D and 3D seismic data acquired over the Alberta-Saskatchewan border.

TECHNICAL SKILLS AND PROGRAMMING

- Geoscience Software: Petrel, Kingdom, OpendTect, Hampson Russell

- Programming: Python, Matlab, Fortran, R; developed scripts in Python for geological data analysis
- Modelling Tools: Petromod, Basinmod, Rockworks
- GIS tools: ArcGIS, Erdas Imagine, QGIS

TECHNICAL REPORTS

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) April-2013
Technical Report on the 3D Seismic Data Interpretation of Bakhrabad Gas Field, Bangladesh.

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) October-2012
Technical Report on the 3D Seismic Data Interpretation of Titas Gas Field, Bangladesh.

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) April-2012
Technical Report on the 3D Seismic Data Interpretation of KailashTila and Sylhet Gas Field, Bangladesh.

JGI inc. and MOECO, Japan Dec-2011
A Joint Study on the Petroleum Prospectivity of Surma Basin, Bangladesh.

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) Nov-2011
Technical Report on the 3D Seismic Data Interpretation of Rashidpur Gas Field, Bangladesh.

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) Nov-2010
Technical Report on the 2D Seismic Interpretation of Rupganj Prospect, Bangladesh.

Bangladesh Petroleum Exploration and Production Co. Ltd. (BAPEX) July-2010
Technical Report on the 2D Seismic Interpretation of Netrokona Prospect, Bangladesh

TRAININGS

- Training on 2D and 3D seismic data interpretation using Petrel, Kingdom, and Tigris
- Training on wireline log processing and interpretation by Halliburton International Inc.
- Training on Basin Modelling using Basinmod 1D and 2D
- Training on Reservoir Characterization at PMRE, BUET
- Training on advanced Courses of ArcGIS 9.3.1 and ERDAS IMAGINE.
- Training on Wireline Log Interpretation.
- Training on Stochastic Reservoir Interpretation
- Training on Environment & Environmental Laws in Bangladesh
- Regional training of SAWA fellows on “Interdisciplinary research in water resource management”.

AWARDS, GRANTS, MEMBERSHIPS

- South Asian Water Association (SAWA) Fellowship
- CTRGC research grants for the 2020-2021 cycle, NSU
- Associate member of AAPG, SEG, and EAGE

LANGUAGE PROFICIENCY

- English: Full Professional Proficiency (IELTS academic: 7.5; general: 8), Completed Master's from the University of Alberta, Canada
- Bengali: Native
- Hindi and Urdu: Basic speaking

ONGOING RESEARCH

Finding the prospective geothermal reservoirs in Bangladesh for commercial development: a deep-dive analysis of the Barapukuria coal mine area

UNDERGRADUATE THESIS SUPERVISED

- Cost-Benefit Analysis & Environmental Valuation of the Barapukuria Coal Mine: Assessing Trade-offs and Feasibility of Coal Mine Expansion in Dinajpur
- Investigating the discrepancy of DWASA water quality between slum and non-slum areas: A Comparative Analysis
- From Climate to Crust: Analysing the Effects of Temperature on Local Seismic Events
- Seismic Energy Budget and Earthquake Hazard Assessment: Insights from Historical Earthquake Data of Bangladesh
- Finding the prospective geothermal reservoirs in Bangladesh for commercial development: A case study from the Barapukuria coal mine area
- Investigating the discrepancy of DWASA water quality between slum and non-slum areas: A Comparative Analysis
- The Gaps and Implications of Bangladesh's Environmental Laws on Single-Use Plastic Pollution: The Case of a PET Bottle.
- Prospects of floating agriculture practice as an adaptive technique of fighting climate change impacts: A case study of Kashiani Upazila.
- The gauging of river water ramification caused by the combined cycle system of Meghnaghat Power Plant.
- Investigating the causes of canal degradation in the Adi Buriganga Khal, Dhaka.
- Assessing the potential of tidal river management in the Khalpetua River, Shatkhira.

CREATIVE WORKS

- Advanced photography student at Chaya Institute of Photography

- Completed basic courses on photography from Pathshala South Asian Media Institute and Bishwa Shahitya Kendra
- Participated in three photography exhibitions (Life of Paaril, Urban Photography, and Portraits of Photographers) from the Bishwa Shahitya Kendra