

Name: Dr. Abdul-Wadood Moomen

Contact Information

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Education

1. ACADEMIC DEGREES AND INSTITUTIONS ATTENDED

1a. Academic degrees / certificates earned with dates

Table 1: degrees / certificates

Degree / Certificate	Area of Study	Date
Doctor of Philosophy (PhD)	Western Australian School of Mines (WASM)	2016
Bachelor's (Honours)	Geography & Resource Development	2011
QQI Level 6	Project Management	2020
Certificate of Advanced Studies	Geomatics for Sustainable Environment	2020
Diploma	Basic Education	2007
Senior Secondary School Cert.	Wa Senior Secondary School	2000

1b. Institutions attended with dates

2018 -2021 University College Dublin (UCD) – Postdoctoral Fellowship, Ireland

2019- 2020 University of Geneva, Switzerland

2019 - 2019 University of Bologna, Italy (EIT RawMatCop Academy)

2012- 2016 Curtin University, Perth, Western Australia

2007 – 2011 University of Ghana, Accra, Ghana

2004 – 2007 Bagabaga College of Education, Tamale

1998 – 2000 Wa Senior Secondary School (WASSEC), Wa

Research

Areas of Research: Sustainable Mining, Urban Mining, Development Minerals, Sustainable Consumption and Production, Mineral Resource Development and Management, Mineral Exploration, Mine Development, Environmental Management, Impact Assessment, Earth Resources, Land Information Management.

Other Relevant Training Certificates

Project Appraisal and Contract Negotiation: *Mining Project Development and Capacity Building for Critical Minerals*. Deloitte, USA Department of State, Energy and Mineral Governance Programme (EMGP).

Geoscience and Data Management: *Harnessing Critical Minerals to Accelerate Economic Growth | Materials*. Deloitte, USA Department of State EMGP.

Gender & Mining Governance: Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF); International Institute for Sustainable Development, UN Development Programme (UNDP), Swedish Environmental Protection Agency.

Artisanal and Small-Scale Mining: Pan-African Support to Geological Sciences (PanAfGEO) and Technology Africa-EU Partnership, Geological Survey of Denmark (GEUS).

Raw Materials Copernicus Academy: European Institute of Technology (EIT) Raw Materials Copernicus Academy (RawMatCop) – University of Bologna, Italy; Liege University, Belgium; Lulea University of Technology, Sweden

Project Management 6N4090: DCM Quality and Qualifications Ireland (QQI) Level 6 Certificate IV, Dublin, Ireland.

Land Degradation Neutrality (LDN) and the LDN Toolbox: Group on Earth Observations – Land Degradation Neutrality (GEO-LDN) flagship, Regional Centre for Mapping Resources for Development (RCMRD), Conservation International, WOCAT.

Perspectives on LDN – monitoring and beyond: GEO-LDN, GEO Secretariat, United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany.

Environmental Security and Sustaining Peace: SDG Academy; Environmental Law Institute, Nicholas School of the Environment – Duke University, University of California – Irvine, UN Environment Programme (UNEP), The Earth Institute – Columbia University.

Ecosystem Services: a Method for Sustainable Development: University of Geneva, Switzerland

Formal Employment History

Table 2: Academic ranks attained with dates

Date	Rank	Institution
2021 –	Head	Department of Sustainable Mineral Resource Development, UENR
2021 –	GEO-LDN Coordinator	UENR
2020 –	Senior Lecturer	UENR
2018 - 2020	Lecturer	UENR
2017 - 2018	Lecturer	Kwame Nkrumah University of Science & Technology (KNUST)
2013 - 2017	Sessional Academic	Western Australian School of Mines (WASM) – Faculty of Science & Engineering, Curtin University
2010 – 2012	Project Manager	XiZhongmei Chinese Construction Company Ltd., Tamale
2007 - 2012	Teacher	Ghana Education Service, Tamale Metropolis

Affiliations

International Fellowship: European Union’s Horizon 2020 Programme, Marie Skłodowska-Curie Actions (MSCA); University College Dublin (UCD), Ireland;

Guest Researcher: Global Resources Information Division (GRID), United Nations Environment Programme (UNEP), Europe Regional Office, Geneva, Switzerland

Invited Scientist: Institute of Environmental Sciences, EnviroSPACE Lab, University of Geneva

Selected Services

08/2023 to Present – Participant / Reviewer

Mining Project Development and Capacity Building for Critical Minerals. U.S. Department of State Bureau of Energy Resources (ENR). Energy and Mineral Governance Program (EMGP); **Value chain Roundtable** with International Council on Minerals & Metals (ICMM); **ENR MINEARC**: Mineral Resources & Sustainable Exploration; **ENR Value chain Roundtable** on Private Sector Outreach Handbook. *Harnessing Critical Minerals to Accelerate Economic Growth | Materials*

01/2022 to present – Convener;

Annual Transformational Dialogue on Artisanal and Small-Scale Mining, School of Mines and Built Environment (SMBE), University of Energy and Natural Resources (UENR).

02/2024 to Present – Resource Person

OECD Forum on Responsible Mineral Supply Chains. *Harnessing Earth Observation for Environmental Due Diligence*. Sectoral Program on Raw Materials and Development of the Federal Institute for Geosciences and Natural Resources (BGR), Germany.

06/2023 to Present – Mining Sector Resource Person

Skills Gap Analysis and Audit in Twelve Economic Sectors in Ghana. Commission for Technical and Vocational Education and Training (CTVET), Ghana. Ministry of Education.

10/2020 to 09/2021 – Africa Representative on Scientific Advisory Group

Policy development, implementation, and evaluation. The Minamata Convention on the use of Mercury in Artisanal & Small-Scale Gold Mining (ASGM) monitoring. Minamata Convention Secretariat, UNEP, Global Resources Information Division (UNEP/GRID-Geneva) – and the University of Geneva, Switzerland.

03/2021 to 11/2022 – Resource Person

Training the geoscientific cadres of the Geological Surveys of Africa through the development of an innovative program. Pan-African Support to the EuroGeoSurveys – Organisation of Geological Surveys of Africa Partnership (PanAfGEO). Southern Africa Project.

Other Memberships

Professionally related experience

- | | |
|-----------------|---|
| 2017- Present: | Accra Mining Network (AMN) |
| 2019 – Present: | Member, ASM Geospatial discussion Group, UNEP |
| 2022 - Present: | Member; Earth Observations for Managing Mineral and Non-Renewable Energy Resources. GEO MiDO + EO4MIN Initiative. |
| 2019 – Present: | Environmental Peacebuilding Association |
| 2021 – Present: | Alumni Association – EU Horizon 2020 MSCA Fellows |

- 2021 – Present: Alumni Association – The Irish Research Council (IRC), CAROLINE International Fellowship, University College Dublin (UCD) - Ireland
- 2021 – Present: Alumni Association – European Institute of Technology Raw Materials Copernicus (EIT RawMatCop) Academy, University of Bologna (UniBo), Bologna, Italy
- 2017 – Present: Alumni Association – Western Australian School of Mines (WASM) - Curtin University
- 2023 – Present: Ghana Geospatial Society
- 2020 – Present: AfriGEO (Africa Group on Earth Observation)
- 2019 – Present: Future Earth
- 2023 – Present: Ghana Geospatial Society

Resource Mobilisation / Projects Funding History

08/2024 to 07/2025

Coordinator: GEO-LDN Scholarship Awards Agreement
Total Grant (€170,000.00)

04/2023 to 08/2024

Coordinator: GEO-LDN Scholarship Awards Agreement
Total Grant (€70,000.00)

04/2023 to 12/2023

Principal Investigator: International Institute of Tropical Agriculture (IITA) – Land Use and Land Cover Mapping of Cereal Root Mixed Farming Systems in the Northern Savannah Regions of Ghana. Total Grant (\$14,945.00)

01/2022 to present:

Organizer; Annual Transformational Dialogue on Small-Scale Mining, SMBE, UENR – Total Mobilizations as of 2024; over (GHC1,050,000.00)

06/2018 to 05/2021:

Awardee: European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 713279: Total Grant (€254,256.60)

11/2013 – 5/2016

Awardee: The Crawford Fund of Australia; Research Training and Fieldwork (AUD12,000.00)

11/2013 – 2/2016

Awardee: International Mining for Development Centre (IM4DC); Action Research Funding (AUD10,000.00)

Selected Partners

1. The Ghana Chamber of Mines
2. Chamber of Bullion Traders of Ghana
3. Ghana National Association of Small-Scale Miners (GNASSM)
4. Media Coalition Against Illegal Mining in Ghana
5. Ministry of Lands and Natural Resources (MLNR)
6. Minerals Commission (MinCom)
7. Minerals Development Fund (MDF)
8. Minerals Income Investment Fund (MIIF)
9. Ghana Geological Survey Authority (GGSA)
10. Precious Minerals Marketing Company (PMMC)
11. Environmental Protection Agency (EPA)
12. University of Mines and Technology (UMaT), Tarkwa
13. U.S. Department of State Bureau of Energy Resources (ENR). Energy and Mineral Governance Program (EMGP); U.S. Embassy – Ghana
14. Federal Institute for Geosciences and Natural Resources (BGR), Germany
15. Minamata Convention Secretariat, UNEP
16. UNCCD
17. The Pan-African Support to the EuroGeoSurveys – (PanAfGEO), Denmark
18. Western Australian School of Mines (WASM), Australia
19. Colorado School of Mines, Golden, Denver, Colorado, USA
20. University of British Columbia (UBC), Vancouver, Canada
21. University of Calgary, Calgary, Canada
22. University of New South Wales, Sydney, Australia
23. University Al-Gamel Al-Nasser of Conakry, Republic of Guinea
24. Regional Centre for Mapping of Resources for Development, Nairobi, Kenya
25. Newmont Ghana Gold Corp
26. Nguvu Mining Limited
27. Adelphi Berlin – Think Tank on Sustainable Resource Development, Germany
28. European Institute of Technology (EIT) Raw Materials Copernicus
29. Group on Earth Observation Land Degradation Neutrality (GOE-LDN), UNCCD / GIZ
30. Multimedia Group of Ghana (Joy TV / Joy FM / Hit FM / Adom)
31. Ghana Broadcasting Corporation (GBC)

Selected Publications

Refereed Journal Articles

1. Moomen, A. W., Lacroix, P., Benvenuti, A., Planque, M., Ibrahim, E., & Giuliani, G. (2024). Assessing the strategic applications of remote sensing for addressing illicit artisanal and small-scale gold mining activities. *GeoJournal*, 89(3), 92.
2. Moomen, A. W., & Odame-Appiah, D. (2023). Examining the spatial incongruity between mining sector and beekeeping activities. In *Natural Resources Forum* (Vol. 47, No. 2, pp. 177-191). Oxford, UK: Blackwell Publishing Ltd.
3. Moomen, A. W., Lacroix, P., Benvenuti, A., Planque, M., Piller, T., Davis, K., ... & Giuliani, G. (2022). Assessing the Applications of Earth Observation Data for Monitoring Artisanal and Small-Scale Gold Mining (ASGM) in Developing Countries. *Remote Sensing*, 14(13), 2971. <https://doi.org/10.3390/rs14132971>.
4. A.-W. Moomen, Lacroix, P., Bertolotto, M., & Jensen, D. (2020). The Drive towards Consensual Perspectives for Enhancing Sustainable Mining. *Resources*, 9(12), 147. DOI: <https://doi.org/10.3390/resources9120147>.

5. A.-W. Moomen, D. Jensen, P. Lacroix, M. Bertolotto (2019). *Assessing the Policy Adoption and Impact of Geoinformation for enhancing Sustainable Mining in Africa*. Journal of Cleaner Production. DOI: <https://doi.org/10.1016/j.jclepro.2019.118361>
6. A.-W. Moomen, M. Bertolotto, P. Lacroix, & D. Jensen (2019). *Inadequate Adaptation of Geospatial Information for Sustainable Mining towards Agenda 2030 Sustainable Development Goals*. Journal of Cleaner Production. 238 (2019) 117954. DOI: <https://doi.org/10.1016/j.jclepro.2019.117954>
7. AW Moomen, A Dewan (2017). Assessing the spatial relationships between mining and land degradation: evidence from Ghana. International Journal of Mining, Reclamation & Environment. 31(7): 505-518. Published Refereed? Yes, Open Access? Yes. <https://doi.org/10.1080/17480930.2016.1188253>.
8. AW Moomen, A Dewan (2017). Probing the perspectives of stakeholder engagement and resistance against large-scale surface mining in developing countries. Corporate Social Responsibility and Environmental Management. 24(2): 85-95. Published. Refereed? Yes, Open Access? Yes. <https://doi.org/10.1002/csr.1396>.
9. AW Moomen. (2017). *Strategies for managing large-scale mining sector land use conflicts in the global south*. Resources Policy. 51: 85-93. Published. Refereed? Yes, Open Access? Yes. <https://doi.org/10.1016/j.resourpol.2016.11.010>.
10. AW Moomen, A Dewan, R Corner. (2016). *Landscape Assessment for Sustainable Resettlement of Potentially Displaced Communities in Ghana's emerging North-west Gold Province*. Journal of Cleaner Production. 133: 701–711. Published. Refereed? Yes, Open Access? Yes. <https://doi.org/10.1016/j.jclepro.2016.06.004>.
11. AW Moomen, A Dewan (2016). *Investigating Potential Mining Induced Water Stress in Ghana's North-West Gold Province*. Extractive Industries and Society. 3(3): 802–812. Published. Refereed? Yes, Open Access. <https://doi.org/10.1016/j.exis.2016.04.002>.
12. AW Moomen, A Dewan (2016). *Analysis of spatial interactions between the Shea industry and Mining sector activities in the emerging north-west gold province of Ghana*. Resources Policy. 48: 104-111. Published. Refereed? Yes, Open Access? Yes. <https://doi.org/10.1016/j.resourpol.2016.03.001>.
13. Tetteh, A. T., Moomen, A. W., Yevugah, L. L., & Tengnibuor, A. (2024). Geospatial Approach to Pluvial Flood-Risk and Vulnerability Assessment in Sunyani Municipality *Heliyon*. Volume 10, Issue 18, e38013. DOI: [10.1016/j.heliyon.2024.e38013](https://doi.org/10.1016/j.heliyon.2024.e38013).
14. Moomen, A. W., Yevugah, L. L., Boakye, L., Osei, J. D., & Muthoni, F. (2024). Review of Applications of Remote Sensing towards Sustainable Agriculture in the Northern Savannah Regions of Ghana. *Agriculture*, 14(4), 546.
15. Muthoni, F., Moomen, A.-W., & Yevugah, L. L. (2024). Land degradation assessment in Ghana [Dataset]. IITA. <https://doi.org/10.25502/DQAA-7E05/D>.

Refereed Published Scientific/Technical Reports

1. Planque, M., Benvenuti, A., Piller, T., Moomen, A.-W., Lacroix, P., Giuliani, G. (2022). Remote Sensing in support of ASGM policy development, evaluation and implementation - *Technical Guidance Document*. Global Mercury Partnership. UNEP, GRID-Geneva, Switzerland. <https://minamataconvention.org/en/monitoring-mercury-and-around-sites-artisanal-and-small-scale-gold-mining-asgm>.
2. Moomen, W.A., Yevugah, L.L., Boakye, L. and Osei, D.J. 2023. Resilient Agri-Food Systems: Sustainable Intensification of Mixed Farming Systems – Quarterly Progress Report. Review of Land Use, Land Cover, and Land Degradation Mapping for

Resilience and Sustainable Land Management in the Cereal Root – Mixed Farming System areas. Ibadan, Nigeria: IITA. <https://hdl.handle.net/10568/134547>

Refereed Unpublished Scientific/Technical Reports

1. (2024). *Future Skills Requirement in the various Sectors Report. Mining Sector Report. Skills Gap Analysis and Audit in Twelve Economic Sectors in Ghana.* Commission for Technical and Vocational Education and Training (C-TVET).
2. (2024). *Report on the Skills Gap Analysis of the Industries in the Twelve Sectors. Mining Sector Report. Skills Gap Analysis and Audit in Twelve Economic Sectors in Ghana.* Commission for Technical and Vocational Education and Training (C-TVET).
3. (2023). *Profiles of Occupations in the Twelve Economic Sectors of Ghana. Mining Sector Overview.* Commission for Technical and Vocational Education and Training (CTVET). Ministry of Education, Ghana. Submitted to Baobab Company Group.

Refereed Book Publications

1. Planque, M., Benvenuti, A., Moomen, A.-W., Lacroix, P. (2022). How can remote sensing support artisanal and small-scale gold mining policy development, implementation and evaluation? *A practitioner's guide.* Global Mercury Partnership. UNEP, GRID-Geneva, Switzerland. <https://minamataconvention.org/en/monitoring-mercury-and-around-sites-artisanal-and-small-scale-gold-mining-asgm>.

Refereed Book Chapter Publications

1. Moomen. A.-W. (2022). *Remote Sensing in the Small-Scale Mining Sub-Sector Development in Southern Africa* in Tychsen, J., Batista, M.J., Carvalho, J. (2022), “Artisanal and Small-Scale Mining Handbook for Southern Africa Region”, Geological Survey of Denmark and Greenland, Copenhagen, Denmark and Geological Survey of Portugal, Lisbon, Portugal, 262 pp.

<https://panafgeo.eurogeosurveys.org/media/publications/>.

Selected Full-Length Peer-reviewed Conference Publications

2. AW Moomen, I Yussif (2019). *Evaluation of Farmland availability and Large-Scale Mining Sector Activities at Village Scale.* IEEE Xplore. The 8th International Conference on Agro-Geoinformatics. Istanbul, Turkey. Conference Date: 2019/7. Extended Paper **Publisher:** IEEE. **DOI:** [10.1109/Agro-Geoinformatics.2019.8820560](https://doi.org/10.1109/Agro-Geoinformatics.2019.8820560). Refereed? Yes.
3. AW Moomen, M Bertolotto, P Lacroix, & D. Jensen (2019). *Exploring Spatial Symbiosis of Agriculture and Mining for Sustainable Development in Northwest Ghana.* IEEE Xplore. Extended Conference Paper. Refereed? The 8th International Conference on Agro-Geoinformatics, Istanbul, Turkey. Conference Date: 2019/7. **Publisher:** IEEE. **DOI:** 10.1109/Agro-Geoinformatics.2019.8820500.
4. AW Moomen, A Dewan. (2015). *Mining, Agricultural space and land use conflicts: the role of local government.* IEEE Xplore. The 4th International Conference on Agro-Geoinformatics, Istanbul, Turkey. Conference Date: 2015/7. Extended Paper **Publisher:** IEEE. **DOI:** [10.1109/Agro-Geoinformatics.2015.7248103](https://doi.org/10.1109/Agro-Geoinformatics.2015.7248103). Refereed? Yes.

Selected Presentations

1. (2024). Harnessing Earth Observation for Due Diligence. OECD Forum on Responsible Mineral Supply Chains. OECD Headquarters, Paris, France. 20th to 24th May 2024.
2. (2024). *Leveraging Opportunities of Academic Institutions for E-Waste Management in Ghana*. Session Moderator. Africa Environmental Health and Pollution Management Program (AEHPMP) – Regional Conference on Mercury and E-Waste Pollution Management. Accra, Ghana. 7th to 11th May 2024.
3. (2023). Remote Sensing for Monitoring and Managing Illegal Mining: Case studies in D.R. Congo and Columbia. 2nd Annual Transformational Dialogue on Small-Scale Mining. University of Energy and Natural Resources (UENR), Sunyani, Ghana. 17th to 18th May 2023.
1. (2024). Plenary Session on Land degradation neutrality for a sustainable future: GEOLDN Help Desk as a catalyst to harnessing the power of earth observation technology to generate meaningful insights on land degradation trends aligning with SDG 15.3.1. Post Graduate Program GEOLDN. 8th AfriGEO Symposium. RCMRD, Nairobi, Kenya. 12th to 15th August 2024.
2. (2019). Mapping potential ramifications of Illegal Artisanal Small-Scale Mining Activities onto the Sustainable Development Goals in Northwest Ghana. Harnessing the Extractive Industries for Development 2019 (EX4DEV19) Forum: the link between Artisanal and Small-Scale Mining (ASM) and the Sustainable Development Goals (SDGs). 8th November 2019. Surrey Business School, University of Surrey, Guilford Surrey, UK. Main Audience: Development Consultancies, Policymakers, and NGOs.
3. (2019). *Evaluation of Farmland availability and Large-Scale Mining Sector Activities at Village Scale*. The 8th International Conference on Agro-Geoinformatics; 16-19 July 2019, Istanbul, Turkey. Main Audience: Researcher.
4. (2019). *Exploring the Spatial Symbiosis of Agriculture and Mining for Sustainable Development in Northwest Ghana*. The 'CAROLINE' "Collaborative Research for a Responsive and Innovative Europe" research workshop. The Irish Research Council (IRC), Dublin. 25th September 2019. Main Audience: Knowledge User, Researcher
5. (2018). *Impacts of climate change on the environmental risks of mining and a secure raw material supply*. Expert workshop; climate change and adaptation, mining, ecology and supply chain management. Adelphi Research, Berlin, Germany: 29th November.
6. (2018). *Development of Time Robust Geoinformation for Enhancing Sustainable Mining in Northwest Ghana*. MapX; Global Resources Information Division, Science Division, UNEP, International Environment House, Geneva, Switzerland: 20th Nov.
7. (2022). Remote Sensing for Mineral Exploration. PanAfGEO II Workshop on training of Geological Survey Authorities for ASM monitoring and management in Southern Africa. Maputo, Mozambique. 27th – 30th September 2022. Guest Lecture.
8. (2022). *Mining and Food Security in the emerging Northwest Mining region of Ghana*. 43rd Canadian Symposium on Remote Sensing and the 10th International Conference on Agro-Geoinformatics. Quebec City, Canada. 11th – 14th July 2022.
9. (2022). *Proposal for Real-time monitoring of illicit artisanal and small-scale mining in Ghana*. 2-day transformational dialogue on small-scale mining in Ghana. University of Energy and Natural Resources (UENR), Sunyani, Ghana. 25th-26th May 2022.
10. (2021). *The Use of Smart Technologies for tracking illegal small-scale mining and logging in Ghana*. U ENR, Sunyani, Ghana. 19th September 2021.

11. (2021). *Reflecting over the Communiqué from the National Dialogue on Small-scale Mining*. Northern Regional Dialogue on Small-scale Mining and Deforestation. University for Development Studies, Tamale, Ghana. 19th July 2021.
12. (2024). Plenary Session on EO for Agriculture and Food Security. Remote Sensing for Sustainable Agriculture in the Northern Savannah Regions of Ghana. 8th AfriGEO Symposium. RCMRD, Nairobi, Kenya. 12th to 15th August 2024.

Selected International Conference Membership

1. UNCCD CoP 16, Riyadh, Kingdom of Saudi Arabia, 2024.
2. OECD Forum on Responsible Mineral Supply Chains. Paris, France. *Federal Institute for Geosciences and Natural Resources, Germany*.
3. University of Energy and Natural Resources, Mining Indaba. Cape Town International Conference Center (CTICC), *Cape Town, South Africa*.
4. The Africa Down Under Conference. Perth, Western Australia.
5. Africa Australia Research Forum. Bread from Stone. Perth, Western Australia.
6. Resource Development, Environmental Degradation & Modern Slavery. ECR Dialogue 2: Environmental Destruction. U21 Early Career Researcher Workshop 2020. Modern Slavery, Forced Labour and Human Trafficking: Research Roadmaps to 2030. University of Nottingham's Researcher Academy and the Rights Lab. UK.
7. Land Degradation Neutrality: Preparing future decision-makers – Opportunities and how to support through the postgraduate programmes at the UENR in Sunyani, Ghana. 8th AfriGEO Symposium. **Session6**: GEO-LDN Help Desk, Second Keynote address. RCMRD, Nairobi, Kenya.
8. GEO Week 2022 Side Event on showcase of Earth Observation (EO) data and technologies support of sustainable practice and mining policies. Accra
9. GEO Week Side Event. GEO Week 2023 & Ministerial Summit. Flash talks, showcase sessions & workshop on EO data and technologies in support of mineral exploration & mine monitoring. *CTICC, Cape Town, South Africa*
10. *Global Webinar on Geospatial and Other Data Sources for Environment Statistics: Assessing the Impact of the Economy on the Environment*. Remote Sensing in support of ASGM policy development (example in Eastern DR Congo). The impact of illegal economies on the environment: monitoring of illegal mineral mining. UNODC, UNEP.
11. *Applications of Remote Sensing in Small-scale Mining Management & Mineral Exploration*. Regional Workshop on ASM for the Southern Africa Region Mozambique. Maputo.

Professional Scientific web addresses

<https://orcid.org/0000-0002-6842-5078>

Web of Science Researcher ID: [X-8644-2019](#);

https://www.researchgate.net/profile/Abdul_Wadood_Moomen2

www.wadoodmoomen.net