

Academic Staff Profile

Personal Profile

Personal Details

Name: Dr Booker Onyango Osodo Title/Qualification:Dr /PhD Department:Energy, Gas and Petroleum Engineering Designation/Position:Lecturer Email:osodo.booker@ku.ac.ke Contact Address:P.O. Box 43844 Nairobi Area of Specialization: -Renewable Energy Technology -Power Mechanics Technology Research Interests: -Biomass Conversion Processes -Biofuels GoogleScholar:https://scholar.google.com/citations?view_op=new_articles&hl=en&imq=Booker+Onyango+Osodo# ORCID ID: 0000-0002-7215-8953	
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Academic & Professional Qualifications

<i>INSTITUTION</i>	<i>DURATION</i>	<i>CERTIFICATE</i>
Kenyatta University	2012-2018	PhD (Renewable Energy Technology)
Moi University	2001-2005	M. Phil (Tech. Ed.)
Moi University	1997-2001	B. Ed (Tech)
Kenyatta University College	1980-1983	Dip.Ed (Sc.)
Kisumu Boys High School (PC)	1995	KCSE
Alliance High School	1978-1979	EAACE
Alliance High School	1974-1977	EACE

Employment History

<i>YEAR</i>	<i>JOB DESCRIPTION/ INSTITUTION</i>	<i>QUALIFICATIONS</i>	<i>UNITS/COURSES</i>
2020 – to date	Lecturer, Kenyatta University	PhD (Renewable Energy), M.Phil. (Tech.Ed.) B.Ed (Tech).	• Various Renewable Energy Units

		PhD (Renewable Energy), M.Phil. (Tech.Ed.) B.Ed. (Tech)	
2018 - 2020	Lecturer, Egerton University, Kenya		• Solid and Structural Mechanics • Research Methods • Ergonomics • Renewable Energy
2018-2020	Lecturer, Egerton University, Kenya	M.Phil. (Tech.Ed.) B.Ed. (Tech)	• Solid and Structural Mechanics • Research Methods • Ergonomics • Renewable Energy
2001-2007	Senior Lecturer, RVTTI	M.Phil. (Tech.Ed.) B.Ed. (Tech)	• Engineering Science • Automotive Engineering • Thermodynamics
1996-1997	Teacher, Horace Ongili Sec.School	Dip.Ed (Sc)	Chemistry/Biology
1983-1996	Teacher, Sawagongo High School	Dip.Ed (Sc)	Chemistry/ Biology

Publications

Conference/Workshops/Seminar Papers

Conference Papers

-Osodo, B.O., Nyaanga, D., Kiplagat, J. & Muguthu, J. (2018). *Optimisation of an Experimental Forced Convection Grain Dryer using Taguchi Approach*. Presented at Pan African Society for Agricultural Engineering (PASAE) Conference, Nairobi: 25th – 28th March 2018.

Student Co-authored Publications

In Referred Journals

- Rachwonyo, O.O., Njoka, F., & Osodo, B.O. (2026). Co-digestion of water hyacinth with human faecal matter for optimal biogas production in Kisumu, Kenya. *Agric EngInt: CIGR Journal* Open access at <http://www.cigrjournal.org> Vol. 28, No.2 (204-221)
- Agwati, M.O., Osodo, B.O. & Muguthu, J. (2025) Optimization of biogas production from co-digestion of sugarcane trash blended with sugarcane vinasse *Agricultural Engineering International: CIGR Journal* 27 (2): 249 - 267
- Brown, E., Njoka, F., Osodo, B., Kombe, E. (2025). Hydrothermal gasification of sisal wastes as an alternative to conventional gasification for hydrogen-rich gas production, *Energy Conversion and Management*, Volume 339, 119968, ISSN 0196-8904, <https://doi.org/10.1016/j.enconman.2025.119968>.
<https://www.sciencedirect.com/science/article/pii/S0196890425004923>
- Muchele, E.M., Osodo, B.O., Omosa, I & Kombe, E.Y. (2025). Characterisation of Food Wastes from the Hotel Industry as a Potential Feedstock for Energy Production. *Energy Nexus*. 17 1-11
- Gitu, P., B. Osodo, and Ambusso, W. (2024). Optimization of a Geothermal Maize Dryer for Minimum Drying Time. *Indian National Academy of Engineering*, 9:893–902
<https://doi.org/10.1007/s41403-024-00494-3>
- Lomunyak, G., Osodo, B., Njoka, F. & Kombe, E. (2024). Characterization, optimization and emission analysis of manually-made charcoal dust briquettes with starch, paper and algae binders. *Heliyon*, Volume 10, Issue 24, e40991
- Gitu, P., B. Osodo, and Ambusso, W. (2024). Design and performance evaluation of a geothermal dryer for maize drying. *Agricultural Engineering International: CIGR Journal*, 26(1): w7
- Matasyoh, I. M., Osodo, B., Muguthu, J., & Kombe, E. (2024). Characterization, performance evaluation and optimization of wheat straw – bagasse blended fuel pellets. *International Journal of Renewable Energy Development*, 13(3), 457-465.
<https://doi.org/10.61435/ijred.2024.58098>
- Terenoi, V., Wekesa, D.W. & Osodo, B.O. (2023). Evaluation of Young Coconut Husks for Bioethanol Production. *International Journal of Science and Research (IJSR)* 12(6):1307-1314

-Sheila, C.M., Osodo, B.O. & Nyaanga, D.M. (2021). Characterization and Ranking of Various Mix Ratios of Cow, Pig and Sheep Manure. *Journal of Energy Research and Reviews* 7(3): 1-7

-Sheila, C.M., Osodo, B.O. & Nyaanga, D.M. (2020). Optimal Mix Ratio, Total Solids and Organic Loading Rates for Anaerobic Digestion. *The Journal of Engineering in Agriculture and the Environment (JEAEE)* 6(2) 40-60

-Owino, G.O. & Osodo, B.O. (2017). Forced Convection Grain Drying by Solar Evacuated Tubes Solved using Comsol Multiphysics. *International Journal of Innovative Research in Science and Technology* 5 (4): 5102-5197

Other Publications

-Osodo, B.O., Nyaanga, D. & Kiplagat, J. (2019). Simulation of Grain Quantity, Fan and Solar Collector Sizes for an Experimental Forced Convection Grain Dryer. *Agriculture and Food Sciences Research*.

-Osodo, B.O., Nyaanga, D. (2018). Investigating the Effect of Selected Parameters on Moisture Removal Rate of an Experimental Forced Convection Solar Grain Dryer. *International Journal of Energy Engineering*. 8(1) 12-18

-Osodo, B.O., Nyaanga, D., Kiplagat, J. & Muguthu, J. (2018). Optimum Air Velocity, Air Temperature and Maize Layer Thickness for Highest Moisture Removal Rate and Drying Efficiency in a Forced Convection Grain Dryer. *American Journal of Food Science and Technology* 6(6): 263-273

-Osodo, B.O., Nyaanga, D. & Muguthu, J. (2017). Selection and Verification of a Drying Model for Maize (*Zea mays* L.) in a Forced Convection Grain Dryer. *American Journal of Food Science and Technology* 5(3): 93-100

-Osodo, B.O., Nyaanga, D., Kiplagat, J. & Owino, G. (2015). Optimisation of Grain Layer Thickness in the Design of Solar Grain Dryer by Simulation. *International Journal of Innovative Research in Science and Technology* 4(5): 1333-1337

-Osodo, B.O., Kithyo, I., Ogola, W.O. & Ndambuki, J. (2008). Turning Motor Vehicle Waste to Energy. *International Journal of Pure and Applied Science* 1(3) 71-78

Funded Projects

-Part of a team of colleagues from Egerton University, Kisii University and KEFFRI that was awarded KALRO/KCSAP Sustainable Energy Value chain funding in 2020.

Conferenced/Workshops/Seminars Attended

1. 37th Kenyatta University Postgraduate Seminar (December 2018)
2. Energy Management Training (May 2015)-Kenya Association of Manufacturers
3. Research Proposal Writing Training (September 2011) -NACOSTI
4. E-learning Capacity Building Course (May 2011) - FUTURISTIC
5. Academic Advising Training (February 2009) - Faculty of Engineering and Technology, Egerton University
6. Pedagogy Workshop (September 2008) - Egerton University
7. AutoCAD, Civil 3D & Revit (May 2008) Gath Management Limited
8. Access and Use of Electronic Resources (February 2008) - Egerton University
9. KSAE Annual Conference (December 2007) KSAE

Supervision of Postgraduate Students

Masters

1. *Effect of Selected Feedstocks, Mix ratios, Total solids and Organic Loading Rates on Biogas Production rate* by Sheila Matwek Masters Thesis, Egerton University (Graduated December 2021)
2. *Evaluation of Young Coconut Husk for Bioethanol Production* by Veronica Nkooyio Terenoi. Masters Thesis, Multimedia University of Kenya: Graduated December 2023
3. *Characterization, Evaluation and Performance Optimization of Wheat Straw– Bagasse Blended Fuel Pellets* by Isabel Matasyoh. Masters Thesis, Kenyatta University (Graduated December 2024)
4. *Sizing, Testing and Optimization of a Geothermal Maize Dryer* by Patrick G. Kanjuki. Masters Thesis, Kenyatta University (Graduated in July 2025)

5. *Simulation and Optimization of Biohydrogen Production using Food Wastes from the Hotel Industry in Nairobi City County, Kenya*. Emily Machuma Muchele. Masters Thesis, Kenyatta University (Graduated in December 2025)

6. *Hydrothermal Gasification of Sisal Wastes as an Alternative to Conventional Gasification for Hydrogen-Rich Gas Products* by Emmanuel Brown Masinde. Masters Thesis, Kenyatta University (Graduated in July 2026)

7. *Optimization of Biogas Production in Co-Digestion of Poultry Litter, Sisal Waste and Cattle Manure* by Maleve Aaron Mutua. Masters Thesis, Kenyatta University (Graduated in July 2026)

8. *Natural Binders as Improvers of Manually-Made Briquettes* by George Lomunyak. Masters Thesis, Kenyatta University (Graduated in July 2026)

Professional/ Consultancy (Editor/ Peer review in journals, Networks/ Collaborations, External Examiner, Patents)

THESIS EXAMINATION

1. *Development and Performance Evaluation of a Solar Greenhouse Dryer with Desiccant Energy Storage for Tomato Drying* by Susan Andrew Mbacho MSc. Thesis (Internal Independent Examiner, 2nd August, 2021, Kenyatta University)
2. *Development of a Biogas to Bio-Methane Upgrading System for Domestic Cooking: a Case of Kenya* by Reuben Gad MSc. Thesis (Internal Independent Examiner, 14th February, 2023, Kenyatta University)
3. *Optimisation of Biogas Production using some Process Parameters in a Fixed Dome Laboratory Bioreactor* by Henry Masinde Barasa PhD Thesis (Internal Independent Examiner, 2020, Egerton University)
4. *Assessment of Energy Saving and Carbon Emission Reduction of Improved Biomass Cookstoves for Low Income Households* by Wahome N. Joseph. MSc Thesis (External Examiner, October 2024, Multimedia University of Kenya)

Consultancy

-Was part of the Skiqa Group Ltd team which consulted for Practical Action in Kajiado, Nakuru, Kisumu, Kilifi and Nairobi Counties on 'Enhancement of Local Manufacturing and Energy Crop Cultivation for Clean Cooking Supply Chains in Kenya (ELMECC) project in January - February 2026.

Community Service and Other Engagements

- Member of TVETA appointed Technical Team Developing Curricula for Oyo Technical and Professional Institute, Republic of Congo
- Member, Board of Governors, Chamasiri Technical and Vocational College (2023 to date)
- Patron, ACK St Martins Wendani Choir (2021-2023)
- Choir Master, All Saints Egerton, ACK Church (2018- 2020)
- Member of Parish Council, All Saints Egerton, ACK Church (2016-2012)
- Youth Patron, All Saints Egerton Church (2013- 2016)
- Education Secretary, Uriri Parish (1995- 1997)
- Choir Master, St Michael's ACK Church (1980-1997)

Affiliation of Professional Bodies

-Member, Institute of Engineering Technologists and Technicians

Administrative Positions Held

Recognized university administrative positions

- Post Graduate Coordinator, Energy Technology Department, Kenyatta University (2020 to date)
- Integrity Assurance Officer, Egerton University (2016 to 2020)
- Examinations Officer, Industrial and Energy Engineering Department, Egerton University (2014- to 2020)
- Coordinator, ISO/Performance Contract, Industrial and Energy Engineering Department, Egerton University (2011-2014).

- Secretary at Departmental meetings, Industrial and Energy Engineering Department, Egerton University (2009-2014).
- Coordinator, Industrial attachment/Industrial visits, Industrial and Energy Engineering Department, Egerton University (2007-2015).

Other administrative positions Held

- Departmental library representative, RVTTI-2007
- Course tutor, Diploma in Automotive Engineering, RVTTI-from 2004
- Project coordinator, Diploma projects, RVTTI-from 2005
- Secretary, Maths/Science panel, Mech/Auto department, RVTTI-from 2004
- House master, Warom House, Sawagongo High School(1985-1995)
- Chair, Chemistry panel, Siaya District Mock Examination Council-1995
- Choir Master, Sawagongo High School(1987-1994)
- Examiner and Team Leader, Kenya National Examination Council(1985-1994)

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