

CURRICULUM VITAE

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CONTACT DETAILS

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1. BRIEF BIODATA

Date of Birth: 21st July 1968

Place of Birth: Amiyi-Akah, Njaba L. G. A. Imo State

Marital Status: Married

Nationality: Nigerian

Country of Residence: Nigeria

2. EDUCATIONAL AND VOCATIONAL QUALIFICATIONS

2012 PhD (Agric. & Bioresources Engineering), University of Nigeria, Nsukka.

1994 C. & G. I and II (Information Technology), Microtech Computer Institute Southgate, London United Kingdom

1993 MSc (Chem. Engineering), University of Chemical Technology & Metallurgy, Sofia Bulgaria, formerly Higher Institute of Chem. Technology & Metallurgy, Sofia.

1987 - 1988 GA Nasr Institute Sofia. University Preparatory Studies. Advanced Level Certificate in Physics, Chemistry and Mathematics.

1986 St. Saviour's High School, Umuakah Imo State, Nigeria. West African School Certificate (5As and 3Cs)

1981 Town School Umuaka. First School Leaving Certificate (Credit Grade).

3. EMPLOYMENT HISTORY / WORK EXPERIENCE

August 2016 - Date: **Senior Lecturer**, Food and Bioprocess and Renewable Energy Options, Department of Agric. and Bioresources Engineering, University of Nigeria, Nsukka.

2012 - 2016: **Senior Research Fellow** Renewable Energy with emphasis on Biomass Conversion Technologies; Solar Thermal Applications etc.

National Centre for Energy Research and Development (NCERD),
University of Nigeria Nsukka

2012 - Present: **Head, Energy Info. & Manpower Development Unit**, NCERD

2012 - Present: **Senior Lecturer**: Department of Agric. & Bioresources
Engineering, University of Nigeria, Nsukka.

2008 - 2012 **Research Fellow I** National Ctr. for Energy Research and
Development

2008-2012 **Lecturer I**, Dept. of Agric. & Bioresources Engineering, University
of Nigeria Nsukka

2004-2008 **Research Fellow II** National Ctr. for Energy Research and
Development, UNN

2004-2008 **Lecturer II**, Dept. of Agric. & Bioresources Engineering,
University of Nigeria Nsukka

2003-2004 **Asst. Research Fellow**, National Ctr. for Energy Research and
Development, UNN.

2001-2003 **P/T Lecturer**, Faculty of Engineering University of Port Harcourt

1998-2000 **Process Engineer**, Brident Oil Exploration Nig. Ltd, Port Harcourt

1996-1997 **Process Engineer** (NYSC), Indorama Ltd, formerly Eleme
Petrochemicals Ltd., Port Harcourt

1994-1996 **Operator**, White Arrow Express, London (Involved in automated
parcel sorting operations).

4. PROFESSIONAL TRAINING COURSES ATTENDED

- a) Training and Research Fellowship in Italian Laboratories, ENEA Research Centre Trisaia Italy (Nov. 2004 - Dec. 2005)
- b) UNESCO Training programme on Solar Thermal and Biomass for East European and South Mediterranean Engineers, ENEA Research Centre Trisaia, Italy (Jan. 16th -Feb. 14th 2005)
- c) Training Programme on Installation and Maintenance of Selected Renewable Energy Research Devices and Equipment at the Sokoto Energy Research Centre, Usmanu Dan Fodio University Sokoto (February 1-16, 2006)
- d) Training Programme on National Energy Data Bank, ECN/Balisha Concepts Ltd., Federal Min. of Energy Abuja, 6th June 2007
- e) Training and Research Fellowship in Italian Laboratories, ENEA Research Centre Trisaia Italy (March - July 2009)

- f) National Workshop on Creating Awareness for the use of Automotive Biodiesel and Bioethanol as Fuels for Vehicles in Nigeria, Sheraton Hotel and Towers, Abuja 9th December, 2009
- g) International Training Workshop on Solar Photovoltaics and other Renewable Energy Technology for Policy Makers, Practitioners and Youth Corp Members, Rockview hotel, Abuja, 2-6 August, 2010.
- h) 3-Day Workshop for intending corporate members of the Nigerian Society of Engineers, Zodiac Hotel Enugu (July 2011).
- i) Training on ISO Standards for design and testing of improved Woodstoves, Aprovecho Research Center, Cottage Grove Oregon, U.S.A. (Jul. 29th - Aug. 16th 2013).

5. AWARDS AND ACADEMIC DISTINCTIONS

1987-1993 UNESCO/BEA SCHOLARSHIP FOR UNIVERSITY EDUCATION, SOFIA, BULGARIA

1993 BEST GRADUATING STUDENT IN THE FUELS DEPT. OF THE UNIVERSITY OF CHEMICAL TECHNOLOGY AND METALLURGY, SOFIA

NOV. 2004 - DEC. 2005 VISITING RESEARCH FELLOW ICTP, ITALY

FEB. 2009 - Jul. 2009 VISITING RESEARCH FELLOW ICTP, ITALY

2012/13 VC'S TOP PRIZE FOR POSTGRADUATE RESEARCH IN THE FACULTY OF ENGINEERING

NOV. 2014 ELSEVIER OUTSTANDING REVIEWER AWARD (ECM JOURNAL)

6. MAIN AREAS OF EXPERTISE / RESEARCH ACTIVITIES

I am a Chemical Engineer with in-depth knowledge of renewable energy research, especially in the fields of biomass, solar thermal technologies etc. I have taught Food and Bioprocess Engineering as well as Industrial Chemistry courses since 2006. My current research interests include biomass and waste-to-energy conversion processes from agricultural waste, stove design/testing, gasification, biodiesel etc. I have served as a consultant to the German International Co-operation Agency (GIZ) as well as the International Centre for Energy, Environment and Development (ICEED) on various renewable energy projects. I represent the Nigerian Technical Committee on Clean Cookstoves and Cooking Solutions in the Technical Committee (TC 285) of the International Organization for Standardization (ISO).

7. TEACHING AND SUPERVISION EXPERIENCE

I have taught undergraduate courses since 2001. I have also supervised many undergraduate projects in the Faculty of Engineering. Among many others, I have taught the following undergraduate courses: Introduction to Engineering, Chemical Process Technology, Electrification of Farmsteads, Alternative Energy Systems, Storage of Agricultural Products, Industrial Food storage, Biomass Engineering, Transport Phenomena, etc. I have taught postgraduate degree courses since 2010 and supervised a number of postgraduate research projects during the period.

8. MEMBERSHIP OF PROFESSIONAL BODIES

- a) Nigerian Society of Chemical Engineers (NSChE),
- b) Nigerian Society of Engineers (NSE Reg. No. 26353);
- c) Solar Energy Society of Nigeria (SESN);
- g) Council for the Regulation of Engineering in Nigeria (COREN R25849).

9. EDITORSHIP/REVIEWERSHIP OF LEARNED SOCIETY PUBLICATIONS

- a) Founding Editor, Journal of Renewable and Alternative Energy Technologies;
- b) Member of Editorial Board, International Journal of Water Resources and Environmental Engineering;
- c) Co-edited the Proceedings of the 1st International W/shop on Renewable Energy for Sustainable Development in Africa, 2007;
- d) Co-edited the Proceedings of the 5th Annual National Conf. of the Nigerian Association of Hydrological Sciences (NAHS), University of Nigeria Nsukka, 21-24 October, 2013;
- e) Reviewer for Elsevier Journal of Energy Conversion and Management;
- f) Reviewer for Elsevier Journal of Powder Technology;
- g) Reviewer for Elsevier Journal of Food and Bioproducts Processing;
- h) Reviewer for Nigerian Journal of Solar Energy
- i) Reviewer for CIGR Journal of Agricultural Engineering Research.

10. PROFESSIONAL ACHIEVEMENTS/ AWARDS & RECOGNITION

(a) **Lecturer on Renewable Energy**, National Power Sector Apprenticeship Scheme (NAPSAS) organized by the National Power Training Institute of Nigeria (NAPTIN) for the Federal Ministry of Power, April 2015.

(b) **Consultant/Director**, ICEED Centre for Stove Testing and Training, Afikpo Ebonyi State Nigeria. The Centre is the first Regional Testing and Knowledge Centre (RTKC) on Biomass Cookstoves in Nigeria, 2013 - date.

(c) **Secretary of LOC**: 1st International Workshop on Renewable Energy for Sustainable Development in Africa (IWRESDA), 29th July - 2nd August, 2007. University of Nigeria, Nsukka.

(d) **Secretary of LOC**: 2nd International Workshop on Renewable Energy for Sustainable Development in Africa (IWRESDA), 27th-29th July, 2010. Reiz Continental Hotel Abuja, Nigeria.

(e) **Secretary of LOC**: 3rd International Workshop on Renewable Energy for Sustainable Development in Africa (IWRESDA), 5th - 8th Nov., 2012. Nondon Hotel, Enugu, Nigeria.

(f) **Certified Stove Tester and Lead Expert** of the Nigerian Technical Committee on Clean Cookstoves and Cooking Solutions. Nigeria Country Rep. at the ISO Technical Committee (TC 285) on Improved Woodstoves Standards, 2013 - date.

(g) **Lead Expert of the Nigerian Team** at the Technical Committee (TC 285) of the International Organization for Standardization (ISO) on Clean Cookstoves and Cooking Solutions, February 10-15, 2014, Heron Portico Hotel Nairobi, Kenya.

(h) **Lead Expert of the Nigerian Team** at the Technical Committee (TC 285) of the International Organization for Standardization (ISO) on Clean Cookstoves and Cooking Solutions, November, 3-6, 2015, Alisa Hotel Accra, Ghana.

11. SOME COMPLETED R. & D. PROJECTS

1. Installation of the Laboratory Emissions Monitoring System (LEMS) at the First Nigerian Regional Biomass Stove Testing Centre in Afikpo, Ebonyi State, Nigeria, 2013 (**Lead Expert**). The project was funded by the Global Alliance for Clean Cookstoves and United Nations Foundation, through the International Centre for Energy, Environment and Development (ICEED).

2. Baseline Study on Solar Water Heaters in Nigeria, September to December, 2013 (**Team Member**). The project was funded by the German Co-operation Agency (GIZ).
3. Modelling the Methyl Ester Yield of Neem Oil in a Batch Reactor, 2009-2012 (**PhD Research Project**), partly funded by the National Centre for Energy Research and Development, University of Nigeria.
4. Design, Construction and Performance Evaluation of a Roof-type, Active Solar Cassava Dryer, 2007-2008 (**Principal Investigator**). The project was funded by the National Centre for Energy Research and Development, University of Nigeria.
5. HYDROSYN Project of the Italian National Agency for New Technologies, Energy and Sustainable Economic Development, 2005 (**Team Member as Visiting Research Fellow**). The project was funded by the European Union.
6. Characterization of Coal Types Available in Enugu State, 2007 (**Principal Investigator**). The project was funded by the National Centre for Energy Research and Development, University of Nigeria.

12. SERVICE ON NATIONAL COMMITTEES

2013- Date: Member, National Technical Committee for development of Test Standards for wood stoves in Nigeria.

2008-2009 Member, National Committee for development of Biofuels Standards in Nigeria.

2009-2010 Member, National Committee for development of Biofuels Training Manual.

13. RESEARCH OUTPUTS / PUBLICATIONS

1. C. N. Ibeto, J. A. Ayodele, C. N. **Anyanwu**. Evaluation of Pollution Potentials and Fuel Properties of Nigerian Sub-Bituminous Coal and its blends with Biomass, *Journal of Material and Environ. Sci.* 7 (8) (2016) 2929-2937.
2. C. N. Ibeto, M. C. Anisha and C. N. **Anyanwu** Evaluation of the Fuel Properties and Pollution Potentials of Lignite Coal and Pellets of its Blends with Different Biowastes. *American Chemical Science Journal* 14(1): 1-12, 2016.

3. **C. N. Anyanwu, C. N. Ibeto, S. L. Ezeoha, and N. J. Ogbuagu.** Sustainability of Cassava (*Manihot Esculenta Crantz*) as Industrial Feedstock, Energy and Food Crop in Nigeria. *Elsevier Journal of Renewable Energy Vol. 81 (2015): 745-752, DOI: 10.1016/j.renene.2015.03.075.*
4. L. C. Ugwuowo, A. G. Ezekwe, A. O. Ani, S. I. Eze, **C. N. Anyanwu, A. C. Ofomatah.** The Efficacy of Palm Oil Sludge in Reducing Ruminant Methanogenesis using Rumen Simulation Technique. *African Journal of Biotechnology Vol. 14 (42) 2015: 22937-2942*
5. N. J. Ogbuagu, **C. N. Anyanwu** and K. C. Ugwu. Development of Charcoal Stove with In-Built Fan. *Journal of Ren. and Alt. Energy Techn., Vol. 1 (2015):109-114.*
6. K. Ullah, M. Ahmad, V. K. Sharma, P. L, A. Harvey, M. Zafar, S. Sultana and **C.N. Anyanwu.** Algal biomass as a global source of transport fuels: Overview and development perspectives. *Progress in Natural Science: Materials International, Elsevier; Vol. 24 (4), 2014: 329-339.*
7. E. U. O. Uzodinma, I. F. Okafor and **C. N. Anyanwu.** Biogas Production from *Jatropha Curcas* Leaf and its Blends with other Wastes under Changing Meteorological Parameters. *Nig. J. Solar Energy Vol. 25, 2014: 73-79*
8. **C. N. Anyanwu,** E. U. Uzodinma, C. S. Onwuchekwa and E. Ugwuoke. Biogas Production and Characterization of Biofertilizer Derived from Blended Biowastes. *Nig. J. Solar Energy Vol. 25, 2014: 98-103.*
9. A. U. Ofoefule, U. C. Okoro, O. D. Onukwuli and **C. N. Anyanwu.** Biogas Production from Waste By-products of Ethanol Production: 3. Modeling of Gas Yield with Time. *Physical Review & Research International Vol. 3 (1) 2013: 18-27.*
10. **C. N. Anyanwu,** C. C. Mbajiorgu, C. N. Ibeto and P. M. Ejikeme. Effect of Reaction Temperature and Time on Neem Methyl Ester Yield in a Batch Reactor. *Elsevier Journal of Energy Conversion and Management Vol. 74, 2013: 81-87.*
11. **C. N. Anyanwu,** C. N. Ibeto, I. S. Eze and S. L. Ezeoha. Present and Prospective Energy Use Potentials of some Agricultural Waste in Nigeria. *AIP Journal of Renewable and Sustainable Energy Vol. 5 (3) 032703, 2013:1-13.*
12. **C. N. Anyanwu,** O. U. Oparaku, S. O. Onyegegbu, U. Egwuatu, N. I. Edem, K. Egbuka, P. N. Nwosu and V. K. Sharma. Experimental Investigation of a

Photovoltaic-Powered Solar Cassava Dryer. *Taylor Francis Journal of Drying Technology Vol. 30, 2012: 398-403*

13. **C. N. Anyanwu**, C. C. Mbajiorgu, O. U. Oparaku, E. U. Odigboh and U. N. Emmanuel. A Design Algorithm for Batch Stirred Tank Biodiesel Reactors. *Elsevier Journal of Energy Conversion and Management Vol. 62, 2012:40-46*
14. **C. N. Anyanwu**, C. C. Mbajiorgu, and E. Anoliefo. Design and Implementation of a Water Level Controller. *Nig. J. Technology Vol. 31 (1) 2012: 89-92.*
15. G.U. Akubue; **C.N. Anyanwu** & F.C. Odo. *Renewable Energy for Environmental Sustainability in Nigeria. Nig. Journal of Solar Energy, Vol. 23(2012):132 - 139.*
16. **C. N. Anyanwu**, I. S. Eze, O. U. Oparaku, G. Braccio and V. K. Sharma. Characterization of Locally Grown Oil Crops for Biodiesel Production in Nigeria. *Journal of the Chemical Society of Nigeria, Vol. 36 (1) 2011: 165-169.*
17. C. N. Ibeto, **C. N. Anyanwu**, C. G. Okpara, I. S. Eze and G.O. Unachukwu. Distribution of Heavy Metals in Sub-bituminous Coals from Nigeria. *J. Chem. Soc. Nigeria vol. 36 (2) 2011: 95-101.*
18. C.N. Ibeto, **C.N. Anyanwu**, C.G.Okpara, I.S. Eze, and G.O. Unachukwu. (2011). Assessment of Heavy Metals Concentration of Petrol Samples utilized in Nigeria. Proceedings of the 34th Annual International Conference of the Chem. Soc. of Nig. (Kwara 2011). Main Auditorium Univ. of Ilorin Nig. 19th- 23rd Sept., 2011.
19. V.K. Sharma, D. Marano, **C. N. Anyanwu**, G. I. Okonkwo, C. N. Ibeto and I. S. Eze. Solar Cooling: A Potential Option for Energy Saving and Abatement of Greenhouse Gas Emissions in Africa. *Singapore J. Sci. Research Vol. 1 (1) 2011: 1-12.*
20. A.U. Ofoefule, E.U. Uzodimma and **C.N. Anyanwu**. Studies on the Effect of Anaerobic Digestion on the Microbial Flora of Animal Wastes 2: Digestion and Modelling of Process Parameters. *Trends in Appl. Sci. Research 5 (1), 2010: 39-47.*
21. G. O. Unachukwu and **C. N. Anyanwu**. Small Scale Incinerator for Domestic Hot Water Generation from Municipal Solid Wastes. *European Journal of Scientific Research, Vol. 39 (3) 2010: 430-439.*

22. **C. N. Anyanwu**, C. C. Anyadike, O. O. Nwoke and G. O. Chukwuma. Present and Prospective Roles of Irrigation in National Food Security in Nigeria. *Int'l J. Applied Agric. Research*, Vol. 5 (4) 2010 : 455-466
23. V. K. Sharma, **C. N. Anyanwu**, I. S. Eze. Solar Powered Seawater Desalination: A Potential Solution to Future Global Water Crisis. *Journal of the Chem. Soc. of Nigeria* Vol. 35 (1) 2010: 129-135.
24. C. N. Ibeto, C. O. B. Okoye and **C. N. Anyanwu**. Fossil Fuels and Heavy Metal Pollution of the Nigerian Environment. *J. Sci. and Ind. Policy* Vol. 2 (1), 2009: 9-20.
25. C. N. Ibeto, C. O. B. Okoye and **C. N. Anyanwu**. Improper Waste Management and Heavy Metal Environmental Pollution in Nigeria. *J. Env. Studies and Policy Analysis* Vol. 2 (1), 2009:1-6.
26. B. Garba, I.N.Itodo.....,**C.N. Anyanwu**.... Biofuels Training Manual. A Publication of the Energy Commission of Nigeria, Federal Ministry of Energy, 2009.
27. **C.N. Anyanwu**, I.S. Eze, V.K. Sharma, G. Braccio and L. Contuzzi. Biofuels: An Alternative Resource for Mitigating Primary Energy Shortfalls in Nigeria. *Int'l Energy Journal*, Vol. 9, Special Issue 2008: 61-66.
28. **C. N. Anyanwu**, J. I. Eze and C. O. Akubuo. Biodiesel Production from Palm Oil Sludge. *Nig. Journal of Solar Energy*, Vol. 19, 2008: 68-72.
29. I. S. Eze, **C.N. Anyanwu**, O. U. Oparaku and C. O. B. Okoye. Predicting the Higher Heating Values of Nigerian Biomass and Vegetable Oils (Preliminary Results). *Nig. J. Solar Energy*, Vol. 19, 2008: 31-37.
30. **C.N. Anyanwu** and W.I. Okonkwo. Experimental Determination of the Drying Rate of Chilly Yellow Pepper (*Capsicum Annum*). *Nig. Journal of Solar Energy*, Vol. 19 (1), 2008: 18-24
31. **C. N. Anyanwu**, J. I. Eze and C. O. Akubuo. Biodiesel Production from Palm Oil Sludge. *Nig. Journal of Solar Energy*, Vol. 19 (2), 2008: 68-72
32. E. C. Okoroigwe, **C. N. Anyanwu** and O.U. Oparaku. Maximizing the Utilization of Nigeria's Biomass Potential through Gasification Technology. *Nig. J. Solar Energy*, Vol. 19 (2), 2008: 16-19

33. I. S. Eze, **C.N. Anyanwu**, O. U. Oparaku and C. O. B. Okoye. Predicting Higher Heating Values of Nigerian Biomass and Vegetable Oils from Basic Data (Preliminary Results). *Nig. J. Solar Energy, Vol. 19 (2), 2008: 31-37.*
34. E. C. Okoroigwe, **C. N. Anyanwu** and O. U. Oparaku. Status of Biomass Gasification Technology in Nigeria. *Presented at the International Workshop on Renewable Energy for Sustainable Development in Africa, University of Nigeria Nsukka, July 29th - August 1st, 2007.*
35. I.S. Eze, **C.N. Anyanwu**, C. O. B. Okoye, V. K. Sharma and G. Braccio. Characterization of Variable Animal Manure in Nsukka, Nigeria for Biogas Production. In *Proc. R'07 World Congress on Recovery of Material and Energy for Resource Efficiency, September 3-5, 2007, Davos, Switzerland.*
36. **C.N. Anyanwu**, N. O. Nwoke, W. I. Okonkwo, I. S. Eze and O. U. Oparaku. Design, Construction and Performance Testing of an Active Solar Crop Dryer. In *Proc. 37th Annual Conference of the Nigerian Society of Chemical Engineers, Enugu 22-24th Nov. 2007.*
37. **C. N. Anyanwu**, V. K. Sharma and G. Braccio. Palm Oil for Biodiesel Production in Nigeria. In *Proc. 14th European Biomass Conf. and Exhibition, Palais de Congress, Paris 17-21 October, 2005*
38. **C. N. Anyanwu**, V. K. Sharma, G. Braccio, F. Nanna and C. O. Akubuo. Palm Oil (*Elaeis Guiniensis*) Plantations: A Potential Biomass Resource for Biodiesel Production in Nigeria. *Int'l Energy Journal, Vol. 6 (2), December, 2005:69-82.*
39. **C. N. Anyanwu** and G. Cholakov. Composition-Property Design and Simulation of Sulphide Doped Lubricating Oils. *Global Journal of Mechanical Engineering, Vol. 5 (1), 2004: 28-33.*

HOBBIES/INTERESTS

I enjoy travelling, watching and playing team sports, especially football.

LANGUAGES SPOKEN

I am proficient in Igbo, English and Bulgarian Languages. I am also fairly fluent in Italian and possess working knowledge of Russian language.