

CURRICULUM VITAE

FOR



Professor Abubakar Sani Sambo, OON, NPOM
B.Eng(ABU), D.Phil(Sussex), Regd. Engr. (COREN)
FAS, FAEng, FNSE, FSESN, FNIMechE, FNAEE, FRAESON, FEI (UK)

December, 2014

SUMMARY OF PROF A S SAMBO'S CURRICULUM VITAE

PERSONAL DATA

Name: Professor Abubakar Sani Sambo
Date/Place of Birth: 31st July, 1955/ Zaria, Kaduna State
Marital Status: Married with four children
Contact Tel. Numbers: 0803 311 1631 and 0809 965 1311
E-mail Addresses: assambo@gmail.com and assambo@yahoo.com
Website: www.prof.assambo.org

EDUCATION

Government College, Kaduna (1969-1973)
School of Basic Studies, A.B.U., Zaria (1974-1975)
Ahmadu Bello University, Zaria (1976-1979)
University of Sussex, United Kingdom (1980-1983)

QUALIFICATIONS

West African School Certificate with Division One Distinction - 1973
I.J .M.B. Certificate with grades of A in Mathematics, Physics and Chemistry -1975
Bachelor of Engineering (B.Eng.) in Mechanical Engineering with First Class Honours -1979
Doctor of Philosophy (D.Phil) in Mechanical Engineering - 1983

AFFILIATIONS

Registered Engineer with Council for the Regulation of Engineering in Nigeria (R. 2479) – 1984
Member International Solar Energy Society – 1986
Member International Energy Foundation – 1990
Member World Renewable Energy Network – 1992
Member Nigerian Institute of Management - 1999
Fellow Nigerian Society of Engineers – 1994
Fellow Solar Energy Society of Nigeria – 1997
Fellow Nigerian Academy of Engineering - 2001
Fellow Nigerian Academy of Science - 2002
Fellow Nigerian Association of Energy Economists - 2009
Fellow Nigerian Institution of Mechanical Engineers - 2010
Fellow Renewable and Alternative Energy Society of Nigeria – 2014
Fellow Energy Institute (United Kingdom) - 2014

ACADEMIC PROGRESSION AND YEARS OF EXPERIENCE

Rose from Graduate Assistant to Senior Lecturer at Bayero University, Kano (1980–1987)
Associate Professor of Energy Studies, Usmanu Danfodiyo Univ., Sokoto (1989–1991)
Professor of Energy Studies, Usmanu Danfodiyo University, Sokoto (October 1991
Teaching and Research Experience from 1979 – 2004 totalling 25 years
Supervision of Energy Commission of Nigeria and its university based research centres from 2005 – 2012 totalling 8 years

ADMINISTRATIVE APPOINTMENTS

Head of Mechanical Engineering Department, Bayero University Kano (1988 and 1989)- 2 years
Director, Sokoto Energy Research Centre, Usmanu D. University, Sokoto (1989-1994) - 5 years
Deputy Vice-Chancellor (Academic), Usmanu D. University, Sokoto (1990–1994) - 4 years
Vice-Chancellor, Abubakar Tafawa Balewa University, Bauchi (April 1995 – April 2004) - 9 years
Vice-Chancellor, Kaduna State University (August – December, 2004) – 5 months
Named Special Adviser to the President on Energy in July 2011
Vice Chairman for Africa of the World Energy Council (November 2007 –October 2013) – 6 years
Director-General, Energy Commission of Nigeria (Jan 2005 – Dec 2012) – 8 years

MAJOR ACADEMIC ATTAINMENTS AND RESEARCH GRANTS ATTRACTION

Over the years I have written more than 200 articles in journals, conference proceedings & technical reports. I supervised, to successful completion, 14 Ph.D and 10 masters degrees. While serving as the VC of ATBU I secured a research grant of about five hundred thousand naira (#500,000) from the Raw Materials Research and Development Council (RMRDC) in 1995 for the Development of a Briquetting Machine. The project earned the ATBU the RMRDC Merit Award in 1997.

Also while at ATBU I secured the approval of the then Federal Ministry of Environment for the establishment of the ATBU/FMEnv ZERI Linkage Centre in 1996 with an average annual budget of about two million Naira (#2,000,000.00) for promoting the concept of Zero Emissions Research Initiative.

At the Energy Commission of Nigeria I secured the approval of the Federal Government in 2009 to establish new Energy Research Centres which are located at the Federal Government owned universities at Bauchi, Benin City, Ilorin and Lagos. As at December 2012 when I left the Commission the average annual budgets of each of the Centres was about eighty million Naira (#80,000,000.00)

Still at the Energy Commission of Nigeria I secured the counterpart funding support of the London-based World Energy Council on 4 different occasions for mounting four Workshops in Abuja as follows: A. National Workshop on Cleaner Fossil Fuel Technology in Africa held in April 2009 (WEC's support was seven million Naira (#7,000,000.00)); B. National Workshop on Performance of Generating Plants held in April 2008. (WEC's support was six million Naira (#6,000,000.00)); C. Forum on Energy Policy Scenarios Study to 2050 held in April 2008 (WEC's support was two million Naira (#2,000,000.00)) and D. National Workshop on Energy Efficiency in January 2007 (WEC's support was about six million Naira (#6,000,000.00)).

NATIONAL HONOURS

National Productivity Order of Merit (NPOM) - December, 1997
Officer of the Order of the Niger (OON) - November 2000

A. PERSONAL DATA

1. **Name:** Abubakar Sani Sambo
2. **Date of Birth:** 31st July, 1955
3. **Place of Birth:** Zaria City, Kaduna State.
4. **Registered Domicile:** House 128 Anguwar Juma, Zaria City.
5. **Permanent Postal Add:** No. 13 Sani Sambo Avenue (formerly Kalapanzin Avenue) P.O. Box 1398, Kaduna.

6. **Marital Status:** Married with 4 Children
7. **Date of Appointment as Professor:** 1st October, 1991.
8. **Contact Telephone Nos.:** 0803 311 1631; 0809 965 1311
9. **E-mail Addresses:** assambo@gmail.com and assambo@yahoo.com
10. **Website:** www.prof.assambo.org

B. EDUCATIONAL INSTITUTIONS ATTENDED

1. Government College, Kaduna (1969 - 1973)
2. School of Basic Studies, Ahmadu Bello University, Zaria (1974 - 1975)
3. Ahmadu Bello University, Zaria (1976 - 1979)
4. University of Sussex, United Kingdom (1980 - 1983)

C. ACADEMIC QUALIFICATIONS

1. West African School Certificate with Division one Distinction in 1973
2. Interim Joint Matriculation Board (IJMB) Certificate with Grades of 'A' in each of Mathematics, Physics and Chemistry (1975).
3. Bachelor of Engineering (B.Eng.) in Mechanical Engineering with First Class Honours in 1979.
4. Doctor of Philosophy (D.Phil) in Mechanical Engineering in 1983.

D. PROFESSIONAL QUALIFICATIONS AND MEMBERSHIP OF PROFESSIONAL BODIES

Bodies in Nigeria

1. Registered Engineer with Council for the Regulation of Engineering in Nigeria (COREN) with registration No. R. 2479 (1984).
2. Fellow, Institute of Administrative Management of Nigeria (FIAMN) (1993).
3. Fellow, Nigerian Society of Engineers (FNSE) (1994).
4. Fellow, Solar Energy Society of Nigeria (FSESN) (1997).
5. Member, Nigerian Institute of Management (MNIM) (1999)
6. Fellow, Institute of Corporate Administration of Nigeria (FICA) (2000)
7. Fellow, Nigerian Academy of Engineering (FAEng) (2001)
8. Fellow, Nigerian Academy of Science (FAS) (2002)
9. Fellow, Nigerian Association of Energy Economists (FNAEE) (2009)
10. Fellow, Nigerian Institution of Mechanical Engineers (FNIMEchE) (2010)

11. Fellow, Renewable and Alternative Energy Society of Nigeria (FRAESON) (2014)

International Bodies

1. Member, International Solar Energy Society (MISES) (1986)
2. Member, International Energy Foundation (MIEF) (1990)
3. Member, World Renewable Energy Network (MWREN) (1992)
4. Fellow, Energy Institute of United Kingdom (FEI) (2014)

E ACADEMIC PRIZES AND AWARDS

In Nigeria

1. P.Z. Group Prize for the Best Mechanical Engineering Part II student in Theory of Machines in 1978 at the Department of Mechanical Engineering of A. B. U. Zaria.
2. Nigerian Breweries Ltd. Prize for the Best Part II Mechanical Engineering student in 1978
3. International Computers (Ltd) Prize for the Best Result in Mathematics by an Engineering student in the Faculty of Engineering in 1979
4. Lever Brothers Prize for the Best Final Year Mechanical Engineering Investigation Project in 1979.
5. Shell-BP Prize for the Best Final Year Mechanical Engineering student in 1979.
6. Elf (Nig.) Ltd. Prize for the Best Overall Performance over three years by a Mechanical Engineering student in the subject of Fluid Mechanics in 1979.
7. Nigerian Breweries Ltd. Prize for the Best Final Year Mechanical Engineering student's overall performance over three years in 1979.

At International Level

1. Overseas Research Scheme Award by the Committee of Vice-Chancellors and Principals of United Kingdom Universities covering 1980 - 1983.

F. COMMUNITY HONOURS AND RECOGNITIONS

In Nigeria

1. Certificate of Merit from the National Association of Biochemistry students of Usmanu Danfodiyo University, Sokoto for the 1991/92 academic session.
2. Certificate of Recognition by the Bauchi Branch of the Nigerian Society of Engineers, 1995.
3. Certificate of Honour as Grand Fellow from the N.Y.S.C. Road Safety Club zone RS 6, Bauchi, 1996.
4. Hero of Educational Development Award of the Bauchi Educational Youth & Cultural Organisation (BEYCO), 1997.
5. Certificate of Merit of Sokoto Branch of the Nigerian Society of Engineers, 1997.
6. Certificate of Honour of the Kaduna Branch of Nigerian Institute of Management, 1998.
7. Certificate of Honour from Comradeship of Abubakar Tafawa Balewa University, Corps Members, (1998/99).
8. Pillar of University Education Merit Award from Media gate, 1999.
9. Certificate of Honour from the National Union of Bauchi State Students (NUBASS), 1999
10. Certificate of Merit Award from the Bauchi State Council of the Nigeria Labour Congress, 2000.
11. Year 2000 Nigerian Society of Engineers Merit Award for outstanding performance in the Development of Engineering and Membership Drive, 2000.
12. Certificate of Merit by the Students Association of the ATBU, Bauchi Jos Outreach, 2000.
13. Certificate of Merit/Honour from the National Association of Quantity Surveying Students of ATBU, Bauchi, 2000.
14. Fellow of the Chemical Society of Nigeria, 2001.

15. Humanitarian Award & Excellence from the ATBU chapter of the Nigerian Association of University Women, 2001.
16. Honorary Life Membership Award of the Science Teachers Association of Nigeria, 2002.
17. Certificate of Honour from the Bauchi State Council of the Non-Academic Staff Union (NASU), 2003.
18. Certificate of Honour from the Industrial Design Students Association of ATBU, 2003.

At International Level

1. Mentioned in the Association of Commonwealth Universities WHO'S WHO in all the editions from 1996 - 2003.
2. Honorary Appointment to the Research Board of the American Biographical Institute, 2001.
3. Appointed Honorary member of the International Biographical Centre Advisory Council, 2001.
4. Mentioned in the 18th Edition of the Marquis Who's Who, 2001.
5. Nominated as International Scientist of the year by the International Biographical Centre, 2003.
6. Elected Vice-Chairman for Africa of the World Energy Council for three years as from November, 2007. Re- appointed in 2010.
7. Elected Member First Council of International Renewable Energy Agency (IRENA)

G. NATIONAL HONOURS

1. "National Productivity Order Merit (NPOM)" for 1997 was conferred on me by the Head of State, General Abdulsalami Abubakar (Rtd) in December, 1998.
2. "Officer of the Order of the Niger (OON)" was conferred on me by President Olusegun Obasanjo in November 2000.

H. WORKING EXPERIENCE

(a) Academic Positions Held

1. Graduate Assistant (on NYSC) with Mechanical Engineering Department of A.B.U., Zaria (Sept. 1979 - July 1980).
2. Conducted laboratory experiments, supervised engineering drawing classes and conducted tutorial classes at School of Engineering and Applied Sciences, University of Sussex, U.K. (Oct.1980 – Jun. 1983).
3. Rose from Graduate Assistant to Senior Lecturer in the Department of Mechanical Engineering of Bayero University, Kano, from July 1980 to August 1989.
4. Reader in Energy Studies at Sokoto Energy Research Centre of Usmanu Danfodiyo University, Sokoto (Aug. 1989 - Oct. 1991).
5. Professor of Energy Studies (Mechanical Engineering) at Sokoto Energy Research Centre of Usmanu Danfodiyo University, Sokoto (Oct. 1991).
6. Visiting Professor at Mechanical Engineering Department, A.B.U., Zaria (September 2014).

(b) Administrative Positions Held (see Appendix LI for details)

1. Sub-Dean, Faculty of Technology, Bayero University, Kano (1984 - 1988).
2. Deputy-Dean, Faculty of Technology, Bayero University, Kano (1988 and 1989).
3. Head of Mechanical Engineering Department, Bayero University, Kano (1988 and 1989).

4. Director, Sokoto Energy Research Centre, Usmanu Danfodiyo University, Sokoto. (1989 - 1994).
5. Deputy Vice-Chancellor (Academic), Usmanu Danfodiyo University, Sokoto (1990 - 1994).
6. Executive Director/Chief Executive of Kaduna State Education Development Project in the Office of the Military Administrator (on leave from Usmanu Danfodiyo University) (Dec. 1994 - April 1995).
7. Vice-Chancellor, Abubakar Tafawa Balewa University, Bauchi (From 26th April, 1995 - 25th April, 1999 and also from 26th April 1999 - 25th April, 2004).
8. Vice-Chancellor, Kaduna State University (August - December, 2004).
9. Director-General, Energy Commission of Nigeria (1st January, 2005 - 31st December, 2012).
10. Chairman, Nigerian National Committee of the World Energy Council (1996-Date).
11. Vice Chairman for Africa of the World Energy Council, November 2007 - October 2013
12. Named Special Adviser to the President on Energy in July 2011.

(c) Teaching/Postgraduate Supervision Experience

1. Conducted laboratory experiments for B.Eng. degree students in the subjects of Strength of Materials, Thermodynamics, Fluid Mechanics and Mechanics of Machines at A.B.U. Zaria (Nov. 1979 - June 1980).
2. Taught the subjects of Engineering Drawing, Fluid Mechanics, Thermodynamics, Mechanical Power Plant, Heat and Mass Transfer and Alternative Energy Sources to Various levels of the B.Eng. Degree programme at Bayero University, Kano (Oct. 1983 - Aug.1989).
3. As the Director of the Sokoto Energy Research Centre, I functioned as the Chief Research/Administrative Officer of the Centre (August 1989 - December 1994).
4. Part-time lecturer at the Mechanical Engineering Department of Bayero University, Kano in Thermodynamics, Heat transfer as well as Final Year Projects (Oct. 1989 - Sep. 1992), I travelled to B.U.K. from Sokoto once in 3 weeks.
5. Supervision of Masters and Doctorate research projects in various aspects of renewable energy for students in Mechanical Engineering, Electrical Engineering and Physics Programmes of Abubakar Tafawa Balewa University, Bauchi from 1995 - Date.

Postgraduate Theses Supervised to Successful Completion

i. Doctorate Degrees

- a. "Studies on Properties of Used Engine Oils", Ph.D Thesis of D. B. Yahya, Mechanical Engineering Department of Bayero University, Kano, September, 1995
- b. "Studies on the Chemical Composition of Biogas and Kinetics of its Production at varying temperatures" Ph.D Thesis of B. Garba, Sokoto Energy Research Centre, Usmanu Danfodiyo University, Sokoto, July 1997
- c. "A Software Package using Finite Elements for the Solution of Fluid Flow Problems", Ph.D Thesis of H. Naroua, Mathematics Programme, Abubakar Tafawa Balewa University, Bauchi, September, 1997.
- d. "Development of Simulation Models for Solar-assisted Hot Water Systems" Ph.D Thesis of B. G. Danshehu, Mechanical Engineering Programme of Abubakar Tafawa Balewa University, Bauchi, January, 2000.

- e. "A Comparative Study of Physicochemical Parameters and Kinetics of Biogas Production from Camel, Cattle and Donkey Dungs", Ph.D Thesis of S. M. Dangoggo, Chemistry Department, Usmanu Danfodiyo University, Sokoto, September, 2000.
- f. "The Analysis of Diffuse and Global Solar Radiation for Bauchi, Nigeria", Ph.D Thesis of F. W. Burari, Physics Programme, Abubakar Tafawa Balewa University, Bauchi, January 2001.
- g. "Computer Aided Modeling and Simulation of a Wood Burning Stove", Ph.D Thesis of A. A. Bello, Mechanical Engineering Programme, A.T.B.U., Bauchi, November, 2003.
- h. "Analysis of Solar Radiation in Bauchi", Ph.D Thesis of B. Alfa, Mechanical Engineering Programme, A.T.B.U., Bauchi, February, 2004.
- i. "Development of Efficient Energy Strategies and Forecasting Models for Cement Industries", Ph.D Thesis of Engr. I. A. Gobir, Electrical Engineering Programme, A. T. B. U., Bauchi, March, 2004.
- j. "Exploitation and Adaptation of Biogas to Ceramic Kiln", Ph.D Thesis of Y. Sadiq, Industrial Design Programme, A. T. B. U., Bauchi, April, 2004.
- k. "Solar Concentrating Collectors for Power Generation", Ph.D Thesis of G. Egbo, Mech. Engr. Prog., ATBU, Bauchi. Sept. 2004.
- l. "Design and Management Strategies of Hybrid Electrical Power Supply for Critical Loads", Ph.D Thesis of M.S. Islam, Electrical Engineering Programme, A.T.B.U, Bauchi, May 2008.
- m. "Chemical Analysis of selected Nigerian Coals and Combustion Aerodynamic Efficiencies of Briquettes Using Designed and Fabricated Stoves", Ph.D Thesis of C. Etonihu, Chemistry Programme, A.T.B.U, Bauchi, 2010.
- n. "Characterization of Some Wood Charcoals and Development of Energy Equations for Simulation of Blacksmith Furnace", Ph.D Thesis of A. Tokan, Mechanical Engineering Programme, A.T.B.U, Bauchi, 2014.

ii. Masters Degrees

- a. "Production and Determination of Comprehensive Strength of Coal-char/ Cotton Stalk Briquettes", M.Sc Thesis of O. E. Otu, Chemistry Department, Usmanu Danfodiyo University, Sokoto, 1992.
- b. "Design, Fabrication and Determination of Coal Combination Characteristics in a Fluidized Bed", M.Sc Thesis of M. Khan, Chemistry Department, Usmanu Danfodiyo University, Sokoto, 1994.
- c. "Physicochemical Studies of Biogas Production", M.Sc Thesis of A. D. Tambuwal, Chemistry Department, Usmanu Danfodiyo University, Sokoto, May 1995.
- d. "Design and Development of an 85 litre Solar-Assisted Hot Water System", M.Eng Thesis of B. G. Danshehu, Mechanical Engineering Department, Bayero University, Kano, September, 1995.
- e. "Design and Construction of a Solar Still", M.Eng Thesis of M. T. Jimoh, Mechanical Engineering Department, Bayero University, Kano, September, 1995.
- f. "Design of a Solar Energy Powered Incubator" M.Eng Thesis of F. E. Monikang, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Bauchi, January, 1998.
- g. "Design and Implementation of a Self-Commutated Inverter for a Solar Photovoltaic Power System", M.Eng Thesis of G. A. Abubakar, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Bauchi, January, 1998.

- h. "Design and Construction of an Underground Biogas Digester, and Study of Biogas Production from Rice Straw", M.Sc Thesis of F. F. Yirankinyuki, Chemistry Programme, Abubakar Tafawa Balewa University, Bauchi, October, 2001.
- i. "Characterisation of Bitumen from Ode-Irele Oil Sands and Heavy Crude", M.Sc Thesis of B.S. Faga, Chemistry Programme, Abubakar Tafawa Balewa University, October, 2001.
- j. "Grid-Connected-PV Power Plant", A. Amao, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Bauchi, November, 2003.

(d) Research Activities and Experiences (See Appendix L2 for Publications, Conference Papers and Technical Reports)

1. Conducted research at the University of Sussex's Thermofluid Mechanics Research Centre on gas turbine disc sealing with the shrouded cavities I designed. The research involved the use of analytical and numerical computations, laser-Doppler anemometry, pressure measurements, flow visualisation and the use of thermal paints for estimating the heat transfer characteristics in the cavities (Oct.1980 - July 1983).
2. Designed, constructed and tested solar thermal collectors and water heaters (1985-1987).
3. Participated in the design, construction and testing of solar stills (1985).
4. Participated in the study of air conditioning needs of large industries (1986).
5. Currently undertaking the analysis of Solar and Wind Energy utilisations principally for electricity generation as well as for water pumping.
6. Also conducting studies on appropriate technology for self-reliance. The preparation and assessment of feasibility studies on various technologies is also an area of activity.
7. Studies on the development and utilization of biogas digesters and stoves saw dust cooking stoves as well as improved wood-burning stoves are also being undertaken.

I. COMMUNITY SERVICE

(a) Service to Professional Communities

1. Vice-Chairman of the Kano Branch of the Nigerian Society of Engineers (1986 - 1987).
2. Technical Secretary of the Kano Branch of the Nigerian Society of Engineers (1987 - 1988).
3. Secretary-General of the Solar Energy Society of Nigeria (1986 - 1988).
4. Associate Editor and member of the Editorial Board of the Solar Energy Society of Nigeria (1986 - Date).
5. Member of the National Technical Committee of the Nigerian Society of Engineers (1986 - 1989).
6. Member of the Prizes and Awards Committee of the Nigerian Society of Engineers (1988).
7. Technical Secretary of the Solar Energy Society of Nigeria, Chairman of Editorial Board and Editor-in-Chief of the Nigerian Journal of Solar Energy (1988 - 1990).
8. Editor, Nigerian Journal of Renewable Energy (1990 - 1994).
9. Member, National Energy Committee of the Nigerian Society of Engineers (March 1990 - 1994).
10. Member, Students and Faculties Liaison Committee of the Nigerian Society of Engineers (March 1990 - 1992).
11. Vice-Chairman, Nigerian Society of Engineers, Sokoto Branch (March 1990 - December 1994).
12. 1st Vice-President of the Solar Energy Society of Nigeria (June 1990 - September, 1992).

13. President of Solar Energy Society of Nigeria (September, 1992 - August, 1997).

(b) Service to State and Federal Government Ministries and Parastatals.

1. Member of the Board of Directors of Kaduna State Water Board (April 1987 - May 1989; Sept. 1991 - Jan. 1992; and also Nov. 1992 - 1994).
2. Member of the Motor Vehicles and Miscellaneous Task Force of the Raw Materials Research and Development Council (September 1987 - May 1989).
3. Member of the Kano and Katsina States Zonal Electrical Contractors Licensing Panel of the Federal Ministry of Mines, Power and Steel (1989).
4. Member of the National Committee on Engineering Infrastructure (and of the Engineering Materials Sub-Committee) (June 1990 - February, 1991).
5. Member of the Governing Council of Federal College of Education (Technical), Bichi, (August 1990-August 1993).
6. Member, Ad-hoc Panel of National Board for Technical Education for Assessing Research Proposals of Polytechnics (August, 1990).
7. Member, Science and Technology Committee of Assessors of the Nigerian National Merit Award Committee, 1997 - 2000.
8. Chairman of the Review Panel Exercise and Site Visit for the Environmental Impact Assessment (E.I.A.) of Capital Dredging of Approach Channel by Mobil Producing Nigeria Unlimited at Offshore Bonny, Hotel Presidential, Port Harcourt, 12th June, 1997 (Appointed by the Federal Environmental Protection Agency).
9. Member, Bauchi State Committee on Vision 2010, December, 1997 - 1999.
10. Chairman, Task Force on the Update of Report on Audit of Indigenous and Emerging Technologies for Processing Raw Materials in Nigeria, (Raw Materials Research and Development Council), May 1998.
11. Chairman of the Review Panel Exercise and Site Visit on the Environmental Impact Assessment (E.I.A.) of the Chevron Nigeria Limited Proposed Gbokoda and Dibi Oil Field Development Projects; Excel Hotel, Warri, 7th July, 1998 (Appointed by the Federal Environmental Protection Agency).
12. Chairman of the Review Panel Exercise and Site Visit on the Environmental Impact Assessment (E.I.A.) of the Proposed Kolmani-Ax Well Drilling Project by SNEPCO; Awalah Hotel, Bauchi, March, 1999 (Appointed by the Federal Environmental Protection Agency).
13. Chairman of the Second Productivity Day Lecture delivered by Prof. J. O. Irukwu, Rockwell Hotel, Abuja, 14th October, 1999 (Appointed by the National Productivity Centre).
14. Chairman of the Review Panel Exercise and Site Visit on the Environmental Impact Assessment (E.I.A.) of the Proposed Otumera Field Development Project by SPDC - West; Warri, August, 2000 (Appointed by the Federal Ministry of Environment).
15. Member, Governing Board of Nigerian National Merit Award, October, 2000 - 2006.
16. Chairman of the Visitation Panel to University of Science and Technology, Wudil, 2005. (Appointed by Kano State Government in March 2005).
17. Chairman of the Review Panel Exercise of the E.I.A. of the Proposed 100 MW Solar Power Plant for Ganjuwa, Bauchi State, March 2014 (appointed by the Federal Ministry of Environment).
18. Chairman of the Review Panel Exercise of the E.I.A. of the Proposed 50 MW CSolar Power Plant for Yabo, Sokoto State, March 2014 (appointed by the Federal Ministry of Environment).

(c) Service to Educational Institutions (External Examinations and Others)

1. External Examiner for the Mechanical Engineering Department of the School of Technology, Kano (1986 - 1988).

2. External Examiner for the Mechanical Engineering Department of Kaduna Polytechnic (1988 - 1990).
3. External Examiner for the M.Sc. in Energy Conversion Systems of the Mechanical Engineering Department of Ahmadu Bello University, Zaria. (1988 - 1990).
4. Examiner of the Graduateship Examinations of the Nigerian Society of Engineers (1988 - 1993).
5. External Examiner for the B.Sc. Mechanical Engineering degree programme of the University of Ibadan (1989/90 and 1991/92) academic years.
6. External Examiner for the B.Eng. Mechanical Engineering degree Programme of Federal University of Technology, Minna (1991 - 1994).
7. External Examiner for the B. Eng. Mechanical Engineering degree programme of Ahmadu Bello University, Zaria, (1994 -1997).
8. External Assessor for 12 candidates interviewed for the newly created post of Director, College of Engineering Kaduna Polytechnic, Kaduna, (June, 1990).
9. External Examiner for a Ph.D candidate of Mechanical Engineering Department of University of Nigeria, Nsukka (Appointed in October, 1994).
10. External Examiner for a Ph.D candidate of the Electrical Engineering Department of Bayero University, Kano. (Appointed in December 1994).
11. External Examiner for the B.Eng. Mechanical Engineering degree Programme of Bayero University, Kano (1994 - 1996).
12. External Examiner for the M.Eng of the Energy Studies Programme of the Bayero University, Kano (1997).
13. Chairman, Committee of Vice-Chancellors of Nigerian Universities for Year 2000.
14. External Examiner for a Ph.D Candidate in Physics Department of University of Jos (Appointed in July, 2000).
15. External Examiner for a Ph.D Candidate in the Department of Pure and Industrial Chemistry, Nnamdi Azikiwe University, Awka. (Appointed in December 2004).
16. External Examiner for a Ph.D Candidate in the Mechanical Engineering Department of A.B.U., Zaria. (Appointed in June 2011).
17. External Examiner for a Ph.D Candidate and an M.Eng Candidate in Mechanical Engineering Department of Bayero University, Kano (January 2014).
18. External Assessor for candidates for promotion or appointment to the ranks of Reader and or Professor in Mechanical Engineering or Electrical Engineering or Energy Studies for Abubakar Tafawa Balewa University, Bauchi; Bayero University, Kano; Federal University of Technology, Minna; Nigeria Defence Academy, Kaduna; University of Agriculture, Makurdi and the University of Lagos. (From 1994 to Date).

J. MAJOR CONFERENCES WORKSHOPS AND COURSES ATTENDED

1. Laser Optics Conference, Brighton, April, 1982.
2. International Gas Turbine Conference, London, May, 1982.
3. Course entitled 'NUMERICAL METHODS IN HEAT AND FLUID FLOW' University of Manchester Inst. of Sci. & Tech., June, 1982.
4. Solar Energy Forum at ONERSOL in Niamey as a Lecturer in Heat Transfer, April, 1984.
5. Annual Conference of the Nigerian Society of Engineers, Kano, December 1994.
6. National Solar Energy Forum, Enugu, June, 1985.
7. Fourth International Conference on Laminar and Turbulent Flow, Swansea, U.K., 1985.

8. Workshop and Conference on the Physics of Non-Conventional Energy Sources and Materials Science for Energy, Trieste, Italy, September, 1985.
9. Annual Conference of the Nigerian Society of Engineers, Ilorin, December, 1985.
10. National Solar Energy Forum, Zaria, 1986.
11. Fire Seminar organised by the Nigerian Society of Engineers, Kano, July, 1986.
12. Direct Labour Training Workshop organised by the Kano Branch of Nigerian Society of Engineers, Kano, September, 1986.
13. Annual Conference of the Nigerian Society of Engineers, Warri, December, 1986.
14. Seminar on Rural Development for Self Sufficiency, Kano, June, 1987.
15. National Solar Energy Forum Lagos, April, 1987.
16. First International Conference on Large Scale Systems, University of Benin, August, 1987.
17. British Council visitor to the Open University, Cranfield Inst. of Technology, Brighton Polytechnic, Reading University, Sir Williams Halcrow & Partners at Swindon, Centre for Alternative Technology at Machynlleth, University College Cardiff and University of Birmingham all in the United Kingdom. The visit which occurred between 20th September and 7th October, 1987 was focused on the Energy Programmes of these institutions.
18. National Solar Energy Forum, Kaduna May, 1989.
19. DFFRI Conference and Exhibition on the Local Manufacture of Components for Rural Electrification, 16th-18th November, 1988 Durbar Hotel, Lagos.
20. National Solar Energy Forum, Nsukka, May 1989.
21. National Solar Energy Forum, Sokoto, June, 1990.
22. World Renewable Energy Congress, University of Reading, United Kingdom, 23-28 September, 1990.
23. International Workshop on Rural Energy Planning, Nigerian Institute for Oceanography and Marine Research, Lagos, 12th-16th November, 1990.
24. Environmental Management Workshop for Socio-Economic Development in Nigeria, Sheraton Hotel, Abuja, 15-17 May, 1991.
25. Nigerian National Committee of the World Energy Council's Conference on "Energy Issues in Nigeria - Today and Tomorrow", Nigerian Inst. of International Affairs, Lagos, 22-24, 1991.
26. National Solar Energy Forum, Zaria, 22-25 October, 1991.
27. National Solar Energy Forum, Sokoto, 9th-12th September, 1992.
28. Nigerian National Committee of the World Energy Council's Conference on "Energy Pricing and National Development", N.I.I.A., Lagos, 19th-21st May, 1993.
29. World Energy Council's Regional Energy Forum on "Energy, Innovation and Co-operation into the 21st Century", Hotel du Golf, Abidjan, Cote d'Ivoire, 27th June-1st July, 1993.
30. Annual Conference of the Nigerian Society of Engineers, Kaduna, 30th November, 1993.
31. National Solar Energy Forum, Bauchi, 1st-4th December, 1993.
32. United Nations Colloquium on Renewable Energies for Environment and Development: Post UNCED Capacity Building in Developing Countries, Castel Gandolfo, Italy, 6-8th December, 1993.
33. 3rd World Renewable Energy Congress, Reading United Kingdom, 11th - 16th September, 1994.
34. Visited Universities in Washington, Kentucky and Pennsylvania all in the U.S.A. under the sponsorship of NUC/USAID. The visit which was to show 9 newly appointed Vice-Chancellors and Directors of Language Centres modern ways of University management took place between 5th-18th May, 1996.
35. National Congressional Conference on "Economic and Development Issues in Nigeria", Organised by the Federal Government of Nigeria in Collaboration with the World Bank Group and the Development Policy Centre, Congress Hall, NICON Hilton Hotel,

- October 7-8, 1999.
36. Solar Energy Forum, Abuja, 2007.
 37. National Institute of Mechanical Engineers Conference, Kaduna, 2007.
 38. National Workshop on Jatropha for Sustainable Energy Development, Kano 2008.
 39. 2nd NAEI/IAEE Annual Conference in Abuja, Nigeria, 23 – 24 April, 2009.
 40. 3rd Annual NAEI/IAEE International Conference Abuja, Nigeria April 19-20, 2010.
 41. National Association of Illumination Professionals, (NAIP) Abuja, Nigeria, 2011.
 42. World Renewable Energy Congress, Denver, Colorado, USA, May 2012.
 43. World Engineering Forum, Ljubljana, Slovenia, September 2012.
 44. New Energy and Industrial Technology Development Forum on Renewable Energy at Grand Renewable Energy 2014, Tokyo, Japan, July 2014.
 45. World Renewable Energy Congress, Kingston, London, UK, August 2014.
 46. World Engineering Conference on Sustainable Infrastructure, Abuja, September 2014.

K. EXTRA-CURRICULAR ACTIVITIES AND INTERESTS

1. Playing Squash.
2. Automobile repairs.

APPENDIX LI-UNIVERSITY ADMINISTRATIVE EXPERIENCE

(a) Bayero University, Kano

1. Member of Bayero University Governing Council (1986-1989).
2. Member of Bayero University Senate (1984-1989).
3. Member of Bayero University Tenders Board (1986-1989).
4. Member of Bayero University Senate Business Committee (1984-1989).
5. Member of Bayero University Academic Development Committee (1984-1986).
6. Member of Bayero University Compensation Task Force (1984-1989).
7. Member of Bayero University Junior Staff Committee (1984-1986).
8. Member of Bayero University Orientation Committee (1984-1986).
9. Member of the Committee to look into the problems of Faculty of Science Workshop (Dec. 1986-Jan. 1987).
10. Chairman of the Task Force Committee for Town Centre Electrical Installation (Aug. 1987-Aug.1989).
11. Sub-Dean of the Faculty of Technology (1984-1988).
12. Acted as Head of Mechanical Engineering Department of Bayero University in August 1985, March/April, 1986, August/September, 1986, August September, 1987, December, 1987 and January, 1988.
13. Deputy-Dean of the Faculty of Technology (1988-1989).
14. Appointed Acting Head of Mechanical Engineering Department of Bayero University, August, 1988.
15. Chairman, Committee for the Re-Organization of the Bayero University, Estate Department (Aug. 1988-Aug.1989).

(b) Usmanu Danfodiyo University, Sokoto

1. Deputy Vice-Chancellor (Academic) (December, 1990-1994).
2. Chairman, Research and Publications Committee (December, 1990-1994)
3. Chairman, Academic Planning Committee (December, 1990-1994).
4. Chairman, Task Force on N10M Special Grant (December, 1990-1994)
5. Chairman, Space Allocation and Time-Table Committee (December, 1990 - June 1991).

6. Chairman, Prizes and Awards Committee (Dec. 1990-June 1991).
7. Chairman, Academic Projects and Linkages Committee (Dec. 1990-1994).
8. Chairman, Library Committee (Dec. 1990-June 1991).
9. Chairman, Visitation Panel to Polytechnic of Sokoto State, Birnin Kebbi (Feb. 1990).
10. Chairman, Panel to investigate the non-presentation to Senate of the results of Ahmed Umar (Adm. No 8012 Faculty of Social Sciences and Administration) for 2 years running (August 1990).
11. Director, Sokoto Energy Research Centre (August 1989 - December 1994).
12. Member, Senior Staff Disciplinary Committee (Jan. 1990- Dec. 1990).
13. Member, Physical Planning Committee (Dec. 1990-1994).
14. Member, Tenders Board (Dec. 1990-1994).
15. Member, Senior Staff Establishment Committee (Feb.1990-1994)
16. Member, Governing Council (Feb. 1990-1994).
17. Member, Committee to advice on the setting-up of the University Endowment Fund (July 1990).
18. Member, Ad-hoc Committee on Staff abscondment - Faculty of Agriculture (Aug. 1990).
19. Member, Task Force on N20M Special Grant (March 1990-1994).

(c) Kaduna State Government (Dec. 1994 - April 1995)

1. As the Chief Executive of the Kaduna State Education Development Project, I led a team of Staff to convert 16 post-primary institutions to model science colleges. This involved the assessment and placement of students, teachers and Principals as well as upgrading teaching and other facilities in addition to the renovation of some buildings.

(d) Abubakar Tafawa Balewa University, Bauchi (April 1995 - April 2004)

1. As the Vice-Chancellor of the University, being the Chief Executive and Academic Officer of the University, I was charged with the responsibility of seeing to the orderly conduct of the University based on policies made by Council and Senate.

The National Universities Commission (NUC) released in 2001 the outcome of its 1999 and 2000 accreditation visits to 36 universities which showed, in summary, the performance of Abubakar Tafawa Balewa University as follows:

- Overall rank of 5 out of the 36 universities.
- Number 1 in engineering.

The University, from 1995 - 2004 achieved significant academic growth, physical expansion and reasonable funds have been generated.

2. While serving as the VC of ATBU I secured a research grant of about five hundred thousand naira (#500,000.00) from the Raw Materials Research and Development Council (RMRDC) in 1995 for the Development of a Briquetting Machine. The project earned the ATBU the RMRDC Merit Award in 1997.
3. Also while at the ATBU I secured the approval of the then Federal Ministry of Environment for the establishment of the ATBU/FMEnv ZERI Linkage Centre in 1996 with an average annual budget of about two million Naira (#2,000,000.00) for promoting the concept of Zero Emissions Research Initiative.

(e) Energy Commission of Nigeria

At the ECN, being the Government's agency for energy planning, policy formulation as well as advocacy and promotion of sustainable energy practices, the following key actions were taken from 2005-2012:

- a. The production of the overall National Energy Masterplan covering all energy sources.
- b. Substantial work was done on the National Energy Databank as well as the National Energy Manpowerplan.
- c. New energy research centres were setup at Bauchi, Benin City, Ilorin and Lagos.
- d. Two new departments were established at the head office.
- e. The energy modelling activities were strengthened by using newly acquired computer modelling tools.
- f. The pilot projects of the Commission were also strengthened by securing more funds from the National Assembly.
- g. The Journal of Energy Planning Research and Development (JEPRD) and the Commission's Newsbulletin was modernized.
- h. At the Energy Commission of Nigeria I secured the approval of the Federal Government in 2009 to establish new Energy Research Centres which are located at the Federal Government owned universities at Bauchi, Benin City, Ilorin and Lagos. As at December 2012 when I left the Commission the average annual budgets of each of the Centres was about eighty million Naira (#80,000,000)
- i. Still at the Energy Commission of Nigeria I secured the counterpart funding support of the London-based World Energy Council on 4 different occasions for mounting four Workshops in Abuja as follows: A. National Workshop on Cleaner Fossil Fuel Technology in Africa held in April 2009 (WEC's support was seven million Naira); B. National Workshop on Performance of Generating Plants held in April 2008. (WEC's support was six million Naira); C. Forum on Energy Policy Scenarios Study to 2050 held in April 2008 (WEC's support was two million Naira) and D. National Workshop on Energy Efficiency in January 2007 (WEC's support was about six million Naira).

L. APPENDIX LI-PUBLICATIONS, CONFERENCE PAPERS AND TECHNICAL REPORTS

(a) Books

1. "The Solar Energy Option" ISBN 978-31507-0-8, Published by Sokoto Energy Research Centre, Usmanu Danfodiyo University, Sokoto. (With B. Garba and A. N. Eboatu).
2. "Cement, Ceramic and Glass", ISBN 978-31507-0-9, Published by Abubakar Tafawa Balewa University, Bauchi. (With A. N. Eboatu and I. J. Dioha).

(b) Journal Articles

1. "Numerical solution of laminar flows in rotor-stator cavities" Num. Methods in Laminar & Turbulent Flows, series 4, Part 1 (eds.) Taylor, C.; Olson, M.D.; Gresho, P.M. and Habashi, W.G., Pineridge Press, pp.274-286 (1985).
2. "Solar radiation in Kano: A correlation with meteorological data", Nig. Journal of Solar Energy, Vol.4, pp.59-64(1985).
3. "An investigation of ingress into gas turbine rotor-stator cavities shrouded with mitred seals" Nig. Journal of Engineering, Vol.3, No.1 pp.69-81 (1986).
4. "Empirical models for the correlation of global solar radiation with meteorological data for Northern Nigeria", Solar & Wind Tech. Vol.3 No. 2, pp.89-93 (1986).
5. "Strategies for the utilization of solar and other renewable energy sources for rural development in Nigeria", Proc. of the 1986 Annual Conference of the Nig. Soc. of Engrs., Series 19, pp.61-69 (1986).
6. "Estimation of the global and diffuse components of solar radiation for some Nigerian cities" Nig. Journal of Solar Energy, Vol. 5, pp 16-24 (1986) (With M.D.C. Doyle).
7. "A semi-empirical analysis of laminar and turbulent flows in rotor-stator cavities", Nig. Journal of Engineering, Vol. 4 No. 1, pp 33-46 (1987).
8. "Feasibility study of photovoltaic solar powering of rural health centres" Proc. of the Seminar on Rural Development for self-sufficiency. Sharada Press Ltd., pp.122-132 (1987).
9. "Solar and Wind power for integrated rural development projects", Proc. of the Seminar on Rural Development for Self-Sufficiency, Sharada Press Ltd. pp.156 - 168 (1987).
10. "Wind energy assisted solar electricity generating schemes for the rural areas of Nigeria", Large Scale Systems in Dev. Countries, Vol. 1 (eds.) Ovuworie, G.C.; Onibere, E.A and Asalar, J.O., Joja Educ. Publishers Ltd., pp. 1-5 (1987).
11. "The measurement and prediction of global and diffuse components of solar radiation for Kano in Northern Nigeria", Solar and Wind-Tech., Vol.5, No. 1, pp. 1-5 (1988).
12. "Correlation of diffuse solar radiation with air mass" Solar & Wind Tech. Vol. 5, No. 1, pp. 99 102 (1988) (With M.D.C. Doyle).
13. "On the aerodynamics of gas turbine disc sealing with double mitred shrouds", The Nigerian Engineer, Vol.23 No.1, pp.45-47 (1988).
14. "The correlation of global and diffuse components of solar radiation with meteorological data for Zaria", Nig. Journal of Solar Energy, pp.16-27 (1988) (With M.D.C. Doyle).
15. "Materials fabrication routes for solar cells an update" Nig. Journal of Solar energy, Vol. 8, pp 221 225 (1989) (With A.A.B. Ogwu).
16. "Study of a photovoltaic solar water pumping system in various climatic conditions", Nig. Journal of Solar Energy, Vol. 8 pp.345 - 354 (1989) (With A. G. Aliyu).
17. "Saving fuelwood with improved wood-burning stoves", Energy and the Environment, Vol. 3 (Ed.) Sayigh, A.A.M. Pergamon Press, pp.1923 - 1927 (1990) (With S.M. Maishanu and B.G. Danshehu).
18. "Biogas technology: Developments at the Sokoto Energy Research Centre", Nig. Journal of Solar Energy, Vol.9, pp.183 - 195, 1990 (With S.M. Maishanu and M. Musa).
19. "Comparative studies of some passive solar dryers", Nig. Journal of Solar Energy, vol.9, pp.174 - 182, 1990. (With M. M. Garba and A. T. Atiku).
20. "An experimental evaluation of collector units for thermosyphonic solar water heaters", Nig. J. of Renewable Energy, Vol. 1 pp. 11~20 (1990). (With M. B. Bello).
21. "Experimental studies with a mains-connected solar water heater", Nig. Journal of Solar Energy, Vol. 9, pp 68-77 1990 (With M.B. Bello and B.G. Danshehu).
22. "Experimental characterisation of photovoltaic solar cells", Nig. Journal of Solar Energy, Vol. 9, pp.68-77, 1990. (With A.T. Atiku).

23. "Characterisation of a solar-powered refrigerator", Nig. Journal of Solar Energy, Vol. 9. pp 98-108, 1990 (With A.T. Atiku).
24. "The effect of baffles and chimney height on the performance of improved wood-burning stoves", Nig. Journal Solar Energy, Vol. 9, pp. 61-67, 1990. (With B.G. Danshehu and L. Sahabi).
25. "Renewable Energy sources for rural electrification", Nig. J. of Renewable Energy, Vol. 1, pp. 37 - 45 (1990). (With P. F. U. Taylor).
26. "The use of phase-change coatings for estimating the heat transfer characteristics in a rotating disc system", International Journal of Energy Research, Vol. 15, No. 6, pp. 425-429 (1991).
27. "Fuelwood consumption pattern in Fakai district: A lesson for rural energy planning and policy in Nigeria", Nig. J. of Renewable Energy, Vol. 2. No. 1, pp. 54-59 (1991). (With A.U. Sanda and A. S. Mikailu).
28. "Effect of dust on the performance of photovoltaic module in Sokoto" Nig. J. of Renewable Energy, Vol. 2, No 1 36-42 (1991). (With H.N. Yahya).
29. "Case study of various turbidity parameters for aerosols of tropical origin", Nig. J. of Renewable Energy, Vol. 2, No. 1, pp. 18-24 (1991).(With T.O. Aro and G. Idemudia).
30. "The effect of chemical coatings on the performance of solar collector plates", Renewable Energy - An International Journal Vol.1, No.5/6, PP.661 - 667 (1991) (with Garba and M.M. Mosugu).
31. "Experimental study of velocity profiles in rotor-stator cavities using laser-Doppler anemometry", Journal of Engineering Research, vol. 3, No. 1, 1991.
32. "Studies on series and shunt resistances of some crystalline solar cells", Nig. J. of Solar Energy, Vol. 10, pp. 70-76, (1991) (With A. G. Aliyu).
33. "Effect of some design parameters on the performance of improved wood-burning stoves", Nig. J. of Solar Energy, Vol. 10, pp.85-94 (1991) (With B.G. Danshehu and B. Garba)
34. "Biogas generation from leaf-litter: A preliminary investigation", Nig. J. of Solar Energy, Vol. 10, pp. 138-144 (1991) (With S.M. Maishanu).
35. "Design, construction and performance test of a concentrator cooker".Nig. J. of Solar Energy, Vol. 10, pp.19-25 (1991). (With U. Musa and E.J. Bala).
36. "Simulation studies on pipe spacing for a collector and tank sizes for a solar water heater", Energy Conversion and Management, Vol. 33, No. 3, pp.215-223 (1992). (With M.B. Bello).
37. "The effect of pre-heating on the performance of insulated solar still", Proc. of 2nd World Renewable Energy Congress Vol. 2 (Ed.) Sayigh, A.A.M., pp.1154-1161 (1992). (with M. Aliyu).
38. "Comparative performance studies of woods in improved woodburning stoves", Proc. of 2nd World Renewable Energy Congress, Vol. 2 (Ed.) Sayyigh, A.A.M., pp. 1106-1110 (1992). (With B. Garba).
39. "Design, construction and performance tests of two parabolic concentrator cookers", Proc. of 2nd World Renewable Energy Congress, vol. 2 (Ed.) Sayyigh, A.A.M. pp.1111-1117 (1992). (With U. Musa).
40. "Renewable Energy Resources in Nigeria", In 'Energy Issues in Nigeria: Today and Tomorrow', (Ed.) Seriki, O. A. and Adegbulugbe, A. O., pp.36-42 (1992).
41. "The role of chimney on the performance of improved wood-burning stoves", Nig. J. Solar Energy, Vol.12, PP.1 - 5 (1993). (with B.G. Danshehu).
42. "Comparative performance studies of two metallic fuelwood stoves", Nig. J. Solar Energy, Vol, PP.19 - 27 (1993). (with B. Garba).
43. "Development and performance of a flexible reflector box type Solar Cooker" Nig. J. Solar Energy, Vol.12, PP. 40 - 50 (1993). (with M. Musa and Danshehu).

44. "Comparative performance studies of glass, PVC and perspex covered Solar dryers", Nig. J. Solar Energy, Vol. 12, PP. 61 - 65 (1993). (with M. Aliyu).
45. "A comparative study of air and water cooled photovoltaic modules" Nig. J. Solar Energy, Vol.12, PP.87 - 92 (1993) (with H.N.Yahya).
46. "Changing patterns of energy consumption among the Fakai district of Zuru Local Government Area of Sokoto State", Nig. J. Solar Energy, Vol.12, PP 122 - 129 (1993) (with A. U. Sanda and A. S. Mikailu).
47. "An analytical study of fuelwood consumption patterns in Illela Local Government Area of Sokoto State", Nig. J. Solar Energy, Vol. 12, PP. 130-136 (1993). (with S. A. Bayero and A. S. Mikailu).
48. "Temperature effects on biogas production from fresh water weeds", Nig. J. Solar Energy, Vol.12, PP.145 - 255 (1993). (With S. M. Maishanu and M. Z. Abdullahi).
49. "Design and installation of Solar photovoltaic powered water pumping system at Usmanu Danfodiyo University, Sokoto", Renewable Energy, Vol.6, No.3, PP.311 - 312 (1995). (with H. N. Yahya).
50. "Solar photovoltaic - powered village electrification at Kwalkwalawa in Sokoto State", Renewable Energy, Vol.6, No.3, PP.307 - 309 (1995). (With H. N. Yahya).
51. "Effect of some operating parameters on biogas production rate", Renewable Energy, Vol.6, No, PP.343 - 344 (1995)' (with B. Garba and B.G. DanShehu).
52. "Status of energy development in Nigeria and the role Photovoltaics could play in meeting rural energy needs" in `sun and small energy needs' (Ed) S.S.R. Prasad, Oxford and IBH Publishing Co. PVT Ltd (New Delhi) 1995, pp. 167-174 (with H. N. Yahya).
53. "Renewable energy technology in Nigeria: Resource availability and potential for application to agriculture", Journal of Agricultural Technology, Vol. 3, No. 1, pp. 1-25, 1995.
54. "Effects of some meteorological parameters on the performance of basin-type solar still for distilled water production in a tropical area", Nigerian Journal of Renewable Energy, Vol.4, No. 1, pp. 30-36 (1996). (With B. Garba, A. T. Atiku and U. A. Ali).
55. "Design and development of photovoltaic powered portable lighting post", Nigerian Journal of Renewable Energy, Vol.4, No. 1, pp. 69-71 (1996). (With H. N. Yahya and G. Saidu).
56. "Comparative analysis on unsteady MHD free convection flow with radiative heat transfer in a rotating fluid", Journal of Magnetohydrodynamics and Plasma Research, Vol.6, No. 2/3, pp. 85-100 (1996) (With H. Naroua, P. C. Ram and H. S. Takhar).
57. "Finite difference analysis of stokes problem with free convection and radiation", Journal of Magnetohydrodynamics and Plasma Research, Vol. 6, No. 2/3, pp. 101-110 (1996) (With M. L. Ahmed, P. C. Ram and H. S. Takhar).
58. "Finite element analysis of unsteady MHD free convection flow with radiative heat transfer in a rotating fluid", Journal of Magnetohydrodynamics and Plasma Research, Vol. 6, No. 2/3, pp. 111-130 (1996) (With H. Naroua, P. C. Ram and H. S. Takhar).
59. "Finite difference analysis of stokes problem for a free convective vertical plate flow through a porous median in the presence of a transverse magnetic field", Journal of Magnetohydrodynamics and Plasma Research, Vol. 6, No. 4, pp. 203-214 (1996) (With M. L. Ahmed, P. C. Ram and H. S. Takhar).
60. "Preliminary experimental study on the performance of a multi-booster solar dryer", Proc. of World Renewable Energy Congress (WREC `96), (Ed) A.A.M. Sayigh, Pergamon, Vol. III, pp. 1671-1675 (1996) (With B. Garba and A. T. Atiku).
61. "Effect of slurry concentration on biogas production from cattle dung", Nigerian Journal of Renewable Energy, Vol. 4, No. 2, pp. 38-43 (1996). (With B. Garba and A. A. Zuru).

62. "Some design and fabrication features of solar water heaters for low and higher temperature requirements", Nigerian Journal of Renewable Energy (Vol. 4, No. 2, pp. 51-55 (1996). (With B. G. Danshehu and A. T. Atiku).
63. "Energy management through efficient combustions of coal-water-crude oil slurries in a fluidized bed", Nigerian Journal of Renewable Energy, Vol. 4, No. 2, pp. 56-60 (1996) (With M. Khan and I. O. Akpabio).
64. "Energy options for sustainable national development: Resources, issues, and the position of renewable energy technologies", University Inaugural Lecture delivered on 17th January 1996, Published as Inaugural Lecture Series No. 1, Abubakar Tafawa Balewa University Ceremonies Committee, 1997.
65. "Comparative studies on the performance of two passive solar dryers in a tropical area", Nigerian Journal of Renewable Energy, Vol. 5, Nos. 1&2, pp. 112-118 (1997). (With B. G. Danshehu and A. T. Atiku).
66. "Finite-Element analysis of natural convection flow in a rotating fluid with radiative heat transfer", Journal of Magnetohydrodynamics and Plasma Research, Vol. 7, No. 4, Pp. 257-274 (1998) (With H. Narou, P. C. Ram and H. S. Takhar).
67. "Modelling and control of solar powered incubator", Nigerian Journal of Renewable Energy, Vol. 6, Nos. 1&2, Pp. 87-93 (1998). (With F. A. Monikang and M. I. Onogu).
68. "Strategic Planning and University Autonomy: Factors Essential for Consolidation and Growth of University Education", Proc. of 17th CVC Annual Seminar, I. I. Gabriel and E. U. Egwu (Eds.), Pp. 67-85 (1998).
69. "Position Control of Photovoltaic Power System", Nigerian Journal of Renewable Energy, Vol. 7, Nos. 1&2, Pp. 41-45 (1999). (With M. I. Onogu and Y. I. Garba).
70. "Enhancing solar power supply for satellite communication in Africa", Nigerian Journal of Renewable Energy, Vol. 7, Nos. 1&2, Pp. 62-66 (1999). (With T. M. Bamalli and M. I. Onogu).
71. "Design and production of a solar lantern" Bulletin of Science Association of Nigeria, Vol. 22, Pp. 93-97 (1999). (With M. I. Onogu and H. A. Guda).
72. "Towards enabling environment for technological development" Bulletin of Science Association of Nigeria, Vol. 22, Pp. 19-22 (1999). (With M. I. Onogu and J. S. Jatau).
73. "Alternative model for the determination of Angstrom coefficients for Bauchi", Nig. Journal of Renewable Energy, Vol. 8, Nos. 1&2, Pp. 66-68 (2000). (With F. W. Burari).
74. "Industrial and academic linkages for capacity building", Journal of Engineering Technology & Industrial Applications, Vol. 1, Pp. 121-123 (2000). (With M. I. Onogu and J. S. Jatau).
75. "Models for the prediction of global solar radiation for Bauchi using meteorological data", Nig. Journal of Renewable Energy, Vol. 9, Nos. 1&2, Pp. 30-33 (2001).
76. "Estimation of global solar radiation in Bauchi", Nig. Journal of Renewable Energy, Vol. 9 Nos. 1&2, Pp. 34-36 (2001) (With F. W. Burari and E. D. Mshelia).
77. "Prediction of hourly solar radiation using neural network", Nig. Journal of Renewable Energy, Vol. 9, Nos. 1&2, Pp. 42-46 (2001). (With B. Alfa, J. D. Jiya and A. A. Asere).
78. "Managing cow dung with a low tech, cheap plastic digester", Proceeding of 29th WEDC International Conference Towards the Millennium Development Goals, Pp. 486-489 (2003) (With K. A. Yongabi, P.L. Harris and M. O. Agho).
79. "Performance of a compound parabolic solar cooker", Nig. Journal of Engineering Research and Development, Vol. 2, No. 1, Pp. 30-37 (2003) (With A. A. Asere and D. Habou).
80. "Comparative study of various designs of solar cookers in the North-Eastern Part of Nigeria", Nigerian Journal of Solar Energy, Vol. 14, Pp. 29-35 (2003) (With S. A. T. Suleiman and A. A. Asere).

81. "Renewable Energy Technologies for National Development: Resources, Status and Policy Directions", Quarterly Public Lecture, Published by the Nigerian Academy of Science (2003).
82. "Comparative Study of Various Designs of Solar Cookers in the North-Eastern Part of Nigeria", Nig Journal of Solar Energy, Vol. 4, Pp. 29-35 (2003). (With S A T Sulaiman and A A Asere).
83. "Kinetic Study of Methane and Biogas Production from Cow Dung", Nig Journal of Solar Energy, Vol. 14, Pp. 100-110 (2003). (With B Garba, A A Zuru and U A B/Yauri).
84. "Hourly Diffuse Fraction and Clearness Index Correlations in Bauchi, Nigeria", African Journal of Natural Sciences, Vol. 7, Pp 45-49(2004) (with B. Alfa and A A Asare)
85. "Renewable Energy for Rural Development: The Nigerian Perspective" ISESCO Science and Technology Vision, Vol. 1, Pp 12-22 (2005)
86. "Application of solar Energy in oil palmwine pasteurization", Nigeria Journal of solar Energy vol.15, 2005, pp. 67-72 (2005) (with Dioha,I.J, Agho, M.O)
87. "Evaluative comparative studies of oil palmwine and palmwine analogue", Nigeria Journal of Chemical Research vol.6, A.B.U, Zaria. (2005)(with Dioha, I. J., Agho, M.O)
88. "Investigations of effect of temperature on biogas production from poultry droppings and neem tree leaves" Nigeria Journal of Solar Energy Vol.16, pp. 19 – 24 (2006) (with Dioha, I.J., Eboatu, A. N. Okoye, P.A.C., Birnin Kebbi,A.M. and Tunga, U.S).
89. "Development of Community-Based Solar Water Heating Systems", Nig Journal of Solar Energy, Vol. 16, Pp106-113 (2006). (With B G Danshehu and A A Asere).
90. "Overview of Biogas Energy programme for sustainable rural development" Nigerian Journal of Solar Energy Vol. 18, pp.1-7,(2007), (with Dioha, I.J., Bala, E. J. and Ekpeyong)
91. "Assessment of Diesel Generator and Solar PV for use in the Global System Mobile (GSM) phone industry in Nigeria", Nigerian Journal of Solar Energy , Vol. 19 (2008)(with Bala, E. J., Dioha., and Zarma, I. H)
92. "Investigations of the Effects of Temperature on Biogas Production from Poultry Droppings and Neem Tree Leaves" Nigerian Journal of Solar Energy, Vol. 16, Pp 19-24 (2006) (with I J Dioha, A. N Eboatu, A m Birnin Kebbi, U S Tung and P A C Okoye).
93. "Matching Electricity Supply with Demand in Nigeria" IAEE Energy Forum, Fourth Quarter (2008).
94. "Strategic Developments in Renewable Energy in Nigeria", International Association for Energy Economics, IAEE Energy Forum, Third Quarter (2009).
95. "A Comparative Analysis of Computational Solutions of Thermal Radiation of an Optically Thick Gray Gas in the Presence of Indirect Natural Convection", Nig Journal of Solar Energy, Vol. 20, Pp. 39-47 (2010). (With H Naroua).
96. "Efficient Lighting of a Household With CFL: A Case Study of a 4 Bedroom Duplex at Federal Works and Housing, Gwarinpa, Abuja", Vol. 20, Pp. 33-38 (2010). (With I J Dioha, B Garba, E J Bala and B G Tella).
97. "Nigeria's Long Term Energy Demand outlook to 2030", ECN- Journal of Energy Policy, Research and Development VoI. No1. PP1-17 March, 2011
98. "Electricity Generation and the Present Challenges in the Nigerian Power Sector", Journal of Energy and Power Engineering 6 (2012).
99. "Penetration of Solar Photovoltaics into Nigeria's Energy Supply Mix", Proceedings of World Renewable Energy Congress 2012. (With E J Bala).
100. "Estimation of Energy Demand in the Building and Construction sector of the Nigerian Economy", Proceedings of the World Engineering Forum 2012. (With J S Olayande and B F I Sulu).

101. "Renewable Energy Development in Africa: Issues, Challenges and Prospects", Proceedings of World Renewable energy Congress 2014.

(c) Conference Papers

1. "Prospects of solar energy for the rural areas of Nigeria", Paper presented at the monthly meeting of the Kano Branch of the Nigerian Soc. of Engineers, 27th Sept., 1984.
2. "Preparing for practicals, seminars and tutorial sessions for engineering degree programmes", Paper for Workshop on Pedagogic Training of Academic Staff presented at the Faculty of Technology, Bayero University, Kano, 27th April, 1989.
3. "Renewable energy systems for cooking", Paper presented at the 1st 1990 S.E.R.C. Seminar series, Usmanu Danfodiyo University, Sokoto, 15th February, 1990.
4. "The effect of number of holes on the performance of improved wood-burning stoves", Paper presented at the National Energy Forum NASEF '90, Sokoto, 27th -30th June 1990. (With B.G. Danshehu).
5. "Design considerations for a 0.75kW wind electricity conversion system (WECS) demonstration unit at the Sokoto Energy Research Centre", Paper presented at NASEF'90 (With H.N.Yahya and J.R. Lawal).
6. "Physics and the maintenance culture: Research instruments case study", Paper presented at the 13th Annual Conference of Nigerian Inst. of Physics held at Obafemi Awolowo Univ. 2nd-5th May, 1990. (With M.M. Mosugu).
7. "Numerical prediction of the flows in closed rotor-stator cavities", Paper presented as part of the Seminar Series of Faculty of Science, Usmanu Danfodiyo University, Sokoto, 3rd April, 1991.
8. "Post-sizing of a photovoltaic water pumping system in Sokoto Environment", Paper presented at the 14th Annual Conference of Nigerian Inst. of Physics held at Bayero University, Kano 8th - 11th May, 1991. (With A.G.Aliyu).
9. "Management of energy issues: The role of energy in the preservation of the natural environment", Paper presented at the Environmental Management Workshop for Socio-Economic Development in Nigeria, Abuja, Sheraton Hotel & Towers, 15-17 May, 1991.
10. "A study of the performance of a solar-powered refrigerator under loaded condition", Paper presented at NASEF '91 (With H. N. Yahya).
11. "Performance evaluation of the Global Solar Cooker", Paper presented at NASEF '91. (With U. Musa and W.A. Hassan).
12. "Development of a model for computing total component of solar radiation in Sokoto", Paper presented at NASEF '91 (With A.G. Aliyu).
13. "Performance assessment of 4.5 kWp photovoltaic power supply for a laboratory block", Paper presented at NASEF '91 (With H.N. Yahya and U.O. Aliyu).
14. "Development, operation and performance of sawdust stoves", Paper presented at NASEF'91. (With M. Musa).
15. "Energy resources for sustainable national development", Paper presented as a Guest Lecture at the 35th Annual Conference of the Nigerian Geographical Association, Usmanu Danfodiyo University, Sokoto, 7th April, 1992.
16. "Effect of operating parameters on biogas production rate" Paper presented at the 1992 National Solar Energy Forum (NASEF '92), Giginya Hotel, Sokoto, 9th-12th September, 1992 (With B. Garba).
17. "Studies of the photoconductivity and photovoltaic effect of copper doped cadmium sulphide", Paper presented at NASEF-92. (With M. Momoh).
18. "Comparative performance studies of glass and polythene covered solar dryers", Paper presented at NASEF '92 (With M. Aliyu).

19. "Comparative performance of saw-dust and wood-burning stoves". Paper presented at NASEF '92. (with B.G. Danshehu)
20. "Effect of damper opening on the performance of improved wood-burning stoves", Paper presented at the Int. Conf.on the Imp. of Ren. and Alt. Energy Technologies (CRAET-92), Univ. of Nig., Nsukka, 13th-15th October, 1992. (With B.G. Danshehu and S. M. Maishanu).
21. "Comparative analysis of food cooking tests with box-type solar cookers" Paper presented at CRAET-92. (With M. Musa and S. M. Maishanu).
22. "Performance studies of some flat-plate collectors for water heating", paper presented at the 1993 National Solar Energy Forum (NASEF '93) Abubakar Tatari Ali Polytechnic, Bauchi, 1-4th December, 1993. (With B.G. Danshehu).
23. "Solar photovoltaic technology for stand-alone systems: The effort of Sokoto Energy Research Centre", Paper presented at the Workshop on Economic Implications of Solar Energy Systems, Friedrich Ebert Foundation, University of Lagos, 18-19 February, 1993.
24. "Application of Physics in renewable energy sources: Resources and implementation strategy", Paper presented at the Symposium on "The Role of Physics in the Development of Local Technology", Organised by the Nigerian Institute of Physics, State House, Kaduna, 11th April, 1995.
25. "Towards a new Nigerian graduate technocrat", Paper presented to a 2-day Workshop on: Vision 2010 and the Vision of the Federal Universities of Technology, Federal University Technology, Owerri, 25-26 August, 1997.
26. "Renewable energy technologies for national development: Status, Prospects and Policy Directions", Paper presented at the National Workshop on Technology Policies: Appropriate Energy Mix for Nigeria, Organised by the Nigerian Academy of Engineering, Lagos Chamber of Commerce, Victoria Island, Lagos, 22nd March 2001.
27. "Renewable energy in rural development - The Nigerian Perspective", Paper presented at the D-8 Energy Experts Meeting, Nicon Noga Hotel, Abuja, 4th April, 2001.
28. "Science policy and technological in the northern states of Nigeria" Paper presented at the Workshop on Science and Technological Education in the Northern States, Arewa House, Kaduna, 23rd - 25th April, 2001.
29. "Educational policy and technological development in Nigeria", Paper Presented at the 1st Education Technology Fair with the Theme "'Evaluating Nigeria's Educational Development, Within the Context of Current Technological Advancement', Kaduna International Trade and Investment Centre, Kaduna, 14th September, 2001.
30. "Technological orientation in Nigeria - The way forward", A Brief on the presentation made during a discussion on 'Issues our national must address for Its future', Organised by the Federal Ministry of Commerce as part of Nigeria's 40th Independence Celebrations, Abuja, 28th September, 2001.
31. "Necessary technological policies for national development and greatness", Paper presented to the 1st National Development Management seminar of the Institute of Development Management of Nigeria, Federal Palace Hotel, V. I., Lagos, 20th November, 2001.
32. "Abubakar Tafawa Balewa University: The past, present and future", Paper presented at the Retreat for Principal Officers, Deans, Directors and Programme Coordinators, Yankari National Park, 12th January, 2002.
33. "Issues of relevance and delivery of curriculum in Nigerian Universities", Lead paper on 'Issues of Relevance and Delivery of Curriculum in Nigerian Universities', National Summit on Higher Education, ECOWAS Secretariat, Abuja, 10th - 15th March, 2002.

34. "Challenges of commercialization of R&D, results for national development: Researcher's perspectives", Paper presented at the National Technology Seminar and Techmart, Hotel Presidential, Port-Harcourt, 9th - 10th May, 2002.
35. Sustainable Strategy Developments in the Energy Sector in Nigeria A Country Paper Presented at the D8 Energy Experts Working Group Meeting Tehran, Iran 30th -31st January, 2005
36. Energy Commission Of Nigeria: Achievements So Far And The Way Forward Brief Presentation Made to the Committee on Social Infrastructure, National Political Reform Conference on the Energy Commission of Nigeria Nicon Hilton, Abuja, 6th April 2005,
37. Energy Development in Nigeria: National Energy Policy Directions for Oil & Gas Development -A Paper Presented at the 1st Annual Meeting of the Officials of Oil R & D Institutions in OPEC Member Countries Qatar 2nd - 3rd May, 2005
38. The Impact of Information Technology on the Nigerian University System 20th Associations of Vice-Chancellors of Nigerian Universities (AVCNU) Seminar, University of Agriculture, Abeokuta, 24th May, 2005
39. Brief Overview of The National Energy Policy- Presentation at the Opening Ceremony of the Public Presentation and National Workshop on the Energy Policy , Merit House, Abuja, 5th July, 2005
40. Achievement So Far and the Way Forward 1st Energy Lecture Series Energy Commission of Nigeria, Conference Room, Abuja, 12th July, 2005
41. Alternative Energy Sources for Rapid Development: The Role of Solar Energy. Presentation at the 1st All Northern Nigerian Education Summit, Arewa Suites, Abuja. 8th September, 2005.
42. Expanding Rural Access: New Policies And Initiatives RESPONSE MEASURES AGAINST THE EFFECTS OF CLIMATE CHANGE: IMPLICATIONS FOR THE ENERGY SECTOR-Lead Speaker's Presentation at the Conference on "Climate Change: Global Warming, Local Warning" organized by the Senate Committee on Environment and Ecology, NICON-HILTON Hotel, Abuja, 13th -15th September, 2005
43. The Role of Science and Technology Institutions in Socio-economic Development First African Regional Conference of the Vice-Chancellors, Provosts and Dean of Science, Engineering and Technology, Accra, Ghana 15th - 17th November, 2005
44. Renewable Energy And Environmental Management - Lead Speaker's Presentation at the Annual Conference of the School of Science and Science Education, Federal University of Technology, University of Technology, Minna, 20th -23rd November, 2005
45. Deploying Renewable Energy Technologies as mitigations measure against Climate Change Presentation at the Annual Conference of the Solar Society of Nigeria, December 2005
46. Sustainable Energy Policy: The Path to Meaningful Economic Development 3rd Engineer Mohammed Urwatu Armiya'u Memorial Lecture Kaduna, 2005
47. Creating Enabling Environment For Energy Efficiency and Conservation (EE & C) Programmes in Nigeria. Paper Presented at the WEC-African Forum on Energy Efficiency Organized by the WEC-Nigeria National Committee in Collaboration with the ADEME Held at Transcorp Hilton Hotel, Abuja. 8th - 10th January, 2006.
48. "Energy Modeling Experience in Nigeria", Presentation at the African Forum on Energy Efficiency Organized by the WEC-Nigeria National Committee, Transcorp Hilton Hotel, Abuja. 8th - 10th January, 2006.
49. Nigeria's Experience On The Application Of IAEA's Energy Models (MAED And WASF) For National Energy Planning Paper Presented During The Training Meeting / Workshop On Exchange Of Experience In Using IAEA's Energy Models And Assessment Of Further Training Needs.

50. Clean Energy Supply: The Role of Renewable Energy. Paper Presented at the Round Table Conference, Organized by Clean Energy and Safe Environment Initiative, ECOWAS Secretariat, Abuja. 1st August, 2006.
51. Energy Resources And Its Contribution To The National Economy A Paper Presented During The Week Lecture Of National Association Of Mechanical Engineering Students, Ahmadu Bello University Branch. Assembly Hall Of Ahmadu Bello University Zaria (Main Campus), 5th August 2006
52. The Place of Renewable Energy In The National Energy Policy And Master Plan International Renewable Energy Conference Sheraton Hotel. Abuja. 20th October 2006
53. The Potential of Solar PV in Enhancing Campus Networks and ICT. Paper Presented at the Technical Workshop and Meeting on "Electricity Powerlessness and Campust Networks" Organized by the Nigeria ICT Forum of Partnership Institutions. University of Port Harcourt, 22nd – 25th August, 2006.
54. Strategic Policies and Plans for the Energy Sector in Nigeria. Paper Presented at the International Conference of Engineering Research and Development: Impact on Industry. University of Benin. 5th – 7th September, 2006.
55. Energy Requirements For Achieving The MDGs And Sustainable Slum Upgrading In Urban Areas In Nigeria Paper Presented At The National Conference On Sustainable Slum Upgrading In Urban Areas The Challenges Of National Parliament. Abuja, 25th – 28th October, 2006
56. Electricity From Renewable Energy Resources For Remote Locations: A Case For Solar And Wind Energy- Keynote Address At The One-Day National Workshop On Solar And Wind Electricity For Remote Locations. Niger Delta Wetlands Centre, Yenagoa, Bayelsa State 31st October, 2006
57. Energy Access Needs For The Urban Poor Residing In Slums: The Nigerian Situation- A Paper Presented At The Un-Habitat Expert Group Meeting On Modern Energy Access For Poor Urban Slum Settlements. Nairobi, Kenya, 4th – 6th December, 2006
58. Renewable Energy Electricity in Nigeria: "The Way Forward". Paper Presented at the Renewable Electricity Policy Conference, held at Shehu Musa Yar'adua Centre, Abuja, 11th – 12th December, 2006
59. "Solar Energy Programme for Nigeria", Position Paper at Solar Energy Conference "Solar Nigeria 2007", Reiz Continental Hotel, Abuja. 7th – 8th February, 2007.
60. "Assessment of Diesel Generators and Solar PV in the Global System Mobil phone Industries in Nigeria" National Solar Energy Forum, Abuja, 2007.
61. "Small Hydro Power for Village Electrification: Load Survey", A case study of some villages in Bauchi and Abia States" Solar Energy Forum, Abuja, 2007.
62. "Hydro Power Resources in Nigeria" National Institute of Mechanical Engineers Conference, Kaduna, 2007.
63. Renewable Electricity For Remote Locations In Nigeria: The Way Forward Paper Presented At The One Day Workshop On Renewable Electricity Three Star Hotel, Dutse, Jigawa State, 12th March, 2007.
64. "Renewable energy masterplan for Nigeria", Paper presented to participants of Senior Executive Course No. 29, 2007 of the National Institute of Policy and Strategic Studies, Kuru, Jos on Monday, 16th April 2007
65. The Current Status Of, And Prospects For Distributed Electricity Generation in Nigeria, Being Lead Paper Presented at the International Conference and Exhibition on Power Systems, Held at the University of Lagos. 25th – 27th July, 2007.
66. An Overview Of Nigeria's Energy Sector International Conference On Engineering For Sustainable Energy In Developing Countries Rio De Janeiro, Brazil, July 2007

67. The Challenges of the Power Sector in Nigeria. Paper Presented to the Electrical Engineering Students Association, Ahmadu Bello University, Zaria. 2nd August, 2007
68. Electricity Demand And Supply Projections For Sustainable Development: The Case Of Nigeria International Conference On Engineering For Sustainable Energy In Developing Countries Rio De Janeiro, Brazil. August, 2007
69. Achieving the Millennium Development Goals (MDGs): The Implication For Energy Infrastructure In Nigeria Paper Presented At The 16th COREN Engineering Assembly, Abuja, 28th And 29th August 2007
70. Solar Energy utilization in the National Emergency Plan. Keynote Address Presented at NASEF 2007 and Awareness Programme on Solar Energy, Rockview Hotel, Abuja, 28th - 29th November, 2007.
71. Alternative Generation And Renewable Energy- Paper Presented At The 2nd Power Business Leaders Summit Ibom Gulf Resort, Akwa Ibom State 12th - 14th December 2007
72. The Place Of Coal In The Nigerian Electricity Generation Scheme A Keynote Address Presented At The Inauguration Of The New President Of The Nigerian Society Of Engineers, International Conference Centre, Abuja. 12th January, 2008.
73. Renewable Energy For Supplementing Energy Supply In Nigeria A Presentation To Sensitize State Governments Of The Federation 21st February 2008.
74. "Preliminary Study a Pilot Rural Electrification Project Using Biodiesel from Jatropha" National Workshop on Jatropha for Sustainable Energy Development, Kano 2008.
75. Renewable Electricity For Remote Locations In Nigeria: The Way Forward- Paper Presented At The One Day Workshop On Renewable Electricity, Three Star Hotel, Dutse, Jigawa State. 12th March, 2007.
76. The Role Of Energy In Achieving Millennium Development Goals (MDGs) Keynote Address At The National Engineering Technology Conference (NETEC 2008), Ahmadu Bello University, 1st April 2008.
77. Electricity Demand from Customers of INGA Hydropower Projects: The Case of Nigeria. Paper Presented at the WEC Workshop on Financing INGA Hydropower Projects, London, U.K. 21st - 22nd April, 2008.
78. The Draft National Energy Master plan For Nigeria Paper Presented At The 1st International Conference Of The Nigerian Association For Energy Economics, Transcorp Hilton Hotel, Abuja, Nigeria, 29 - 30 April, 2008.
79. Renewable Energy Options For The Environment And Sustainable Development In Nigeria Paper Presented At The National Workshop On Energy Investment And Private Sector Participation Petroleum Training Institute, Warri, 4th - 5th June 2008.
80. Energy Resources And The Potentials For Power Generation In The Northern States Of Nigeria Paper Presented At The Meeting Of The Technical Committee On Power Generation In The 19 Northern States. Asaa Pyramid Hotel, Lafia Road, Kaduna, 16th June 2008.
81. Renewable Energy Policy And Programmes In Nigeria: Opportunities And Challenges Paper For World Renewable Energy Congress X And Exhibition, Glasgow, U.K., 19th - 25th July 2008.
82. Potentials Of Electricity Generation From Renewable Energy Paper Presented At The National Workshop On The Electricity Challenges: Matching Demand With Supply, Abuja, 29th July 2008.
83. An Overview of Nigeria's Energy Sector Paper Presented to the Brazilian Energy Group Visitors, Abuja, August 2008.
Hydropower Development: Nigeria Country Paper Presented At The 4th International Hydropower For Today, Abuja, 16th - 18th September 2008.

84. Nigeria Country Paper Presented at the 4th International Hydropower For Today Forum. Abuja, Nigeria, 16th – 18th September 2008.
85. Nigerian Association for Educational Administration and Planning (NAEAP) Annual Conference. Lead Paper 1: Issues of Educational Planning and Management and the Development of Sustainable Energy in Developing Countries, Sheraton Hotels & Towers, Abuja. 23rd – 27th September, 2008
86. Renewable Energy Policy And Regulation In Nigeria Paper Presented At The International Renewable Energy Conference. Rockview Hotel, Abuja, 7th – 9th October, 2008.
87. Renewable Energy For Supplementing Energy Supply In Nigeria A Presentation To Sensitize State Governments Of The Federation 10th October, 2008.
88. Renewable Energy Policy And Master plan In Nigeria- Paper Presentation At The National Workshop On Creating Legislative Framework And Awareness For The Use Of Alternative Energy For Sustainable Development In Nigeria. Channel View Hotel, Calabar, Cross River State, 14th – 15th October 2008.
89. "Renewable Energy for Rural Applications", Presentation at the ECN-NYSC Renewable Energy Training Workshop on Fabrication of Renewable Energy Devices for Youth Corpers at Federal Universities of Technology, Minna, Niger State. 20th – 25th October, 2008.
90. Diversifying Energy Resources for Sustainable Development In Africa Paper Presented At The International Conference On Science, University Of Abuja, Abuja, 28th – 30th October 2008
91. Thermal Applications of Solar Energy Keynote Paper Presented At The NASEF' 2008 University Of Ibadan, Ibadan, 5th – 6th November 2008
92. Global Energy Crisis: The Need For Renewable Energy Programmes Paper Presented At The International Seminar On Raw Materials Research, Development And Utilization, Abuja, 10th February, 2009.
93. Sustainable Energy Development In Nigeria: Status, Issues And The Way Forward Paper Presented at the Pre-Convocation Lecture Delivered at the Ahmadu Bello University, Zaria, 20th March, 2009.
94. Sustainable Energy Development In Nigeria: Status, Issues And The Way Forward Paper Presented To The Nigerian Society Of Engineers Forum, Abuja Chapter, Shehu Yar'adua Centre, Abuja, 2nd April 2009.
95. The Challenges Of Sustainable Energy Development In Nigeria- Paper Presented To The "Nigerian Society Of Engineers Forum. Paper Presented To The "Nigerian Society Of Engineers Forum 2nd April, 2009.
96. Energy Commission Of Nigeria: Achievements So Far, Challenges And The Way Forward Presentation To The Honourable Minister Of Science And Technology, Federal Ministry Of Science And Technology, Abuja, 26th May, 2009.
97. Strategic Plan for Power Generation with Expanded Energy Mix, A Presentation to the Honourable Minister of Science and Technology. FMST, Abuja. June 2009
98. Mitigating the Impacts of Climate Change (CC) by the Use of Sustainable Alternative Energy. Invited Paper Presented at the National Dialogue on NEPAD Climate Change Initiative. Valencia Hotel, Abuja. 30th July, 2009
99. Biofuels Development in Nigeria, Presentation at the Technical Experts' Round table on the Development of Biofuels and Oloe-Chemical in Nigeria, SGF Conference Hall, Federal Secretariat, Abuja. 12th August, 2009.
100. Alternative Energy For Sustainable Environment in Nigeria. Lead Paper Presented at the 1st Annual National Conference on Sustainable Environment in Nigeria, ATBU, Bauchi. 19th - 21st August, 2009.

101. Bio-Resources in The Energy-Mix of Nigeria, Paper Presented at the 32nd Annual International Conference of the Chemical Society of Nigeria, Bauchi, 5th – 9th October, 2009
102. "Power Supply For Sustainable Development In Nigeria: Status, Challenges And The Way Forward", Lecture Delivered To Participants Of Exec. Intelligence Management Course 2, Institute For Security Studies, Abuja, 30th October, 2009.
103. Alternative Energy Application In Nigeria (Kuwait Society Of Engineers) A Keynote Paper Presented At The Engineering Congress Titled: Alternative Energy Applications: Option Or Necessity?" Kuwait, 2nd – 6th November 2009.
104. Sustainable Energy Future for Nigeria: The Engineers Role. Paper Presented at the 2009 Annual Dinner Induction Ceremony of Nigerian Society of Engineers, Kaduna Branch, Kaduna State. 21st November, 2009.
105. "Indicators for Sustainable Energy Development in Nigeria", Paper presented for at the 2nd NAEI/IAEE Annual Conference in Abuja, Nigeria, 23 – 24 April, 2009
106. Charting The Way To Vision 20:2020: The Challenges Of Energy And Power Paper Presented To The "Forum Of The Laureates Of The Nigerian National Order Of Merit, Merit House Complex, Abuja. 1st - 2nd December, 2009.
107. The Nigerian Energy Sector And The Role Of Renewable Energy For Sustainable Development In Nigeria Presentation Made At The National Science And Technology Week (NASTECH), December Abuja, 2009
108. Renewable Energy Masterplan for a Developing Nation: The Case of Nigeria. Paper Presented t the World Future Energy Summit, Abu Dhabi, United Arab Emirates. 18th – 21st January, 2010,
109. "The human resource challenge to sustainable energy supply in Africa", Paper presented at the INDABA Energy Conference, Sandston Convention Centre, Johannesburg, South Africa 24th-25th February, 2010
110. "Energy skills evolution for Africa", Paper presented at the INDABA Energy Conference, Sandston Convention Centre, Johannesburg, South Africa, 24th -25th February 2010
111. "Optimizing the exploitation of natural energy resources in Nigeria for accelerated socio-economic development: strategies and opportunities for investment", Paper Presented at 2010 Science and Technology Summit, Shehu Musa Yar'Adua Centre, Abuja, 9th-10th August, 2010
112. "Retooling Infrastructure for Peace and National Development: The Place of the Energy Sector ", A paper presented at the 2011 National Institute Distinguished Annual Lecture, NIPSS Kuru, 2011
- 113 overview of Nigeria's energy sector: Department of Energy (DOE), Washington, USA, October, 2011
114. "Energy sector and sustainable development in Nigeria: issues and prospects", Lecture Delivered at the College Auditorium, National Defence College of Nigeria, Abuja, 10th November 2011.
115. Africa Energy Perspectives, Challenges, Needs And Priorities: Paper presented at the WEC Africa –China Dialogue, 23rd November, 2011, Oran, Algeria
116. Global & Regional Perspectives – WEC 2011 Issues Survey: Presentation at the Africa Energy Indaba Conference, 21st -23rd February 2012, Johannesburg South Africa
117. "What is Nigeria's electricity demand: a review of electricity demand projections for Nigeria", Paper presented for at the 2nd NAEI/IAEE Annual Conference in Abuja, Nigeria, 23 – 24 April.

118. "Combating climate change in Nigeria with renewable energy sources", Paper presentation at the Low Carbon Energy for Development Conference, 4th -5th April 2012, Holywell Park, Loughborough, UK
119. "Renewable energy: current situation and future prospects in Nigeria", presentation at the German -African Energy Forum, Hamburg, Germany, 22nd -25th April 2012.
120. "Brief on energy commission of Nigeria", Presentation to the Permanent Secretary, FMST, , Conference Room of FMST, Federal Secretariat, Shehu Shagari Way, Abuja, 10th April, 2012.
121. "Rural energy needs and their supply", Presentation made at the Training Workshop on Renewable Energy for Gombe State Youth, held at FCE (Tech), Gombe, 16th July 2012.
122. "The role of renewable energy and energy efficiency in achieving sustainable development in Nigeria", a paper presented at the 3- Day National Training Workshop on Application of Renewable Energy Devices and Climate Change Mitigation for Rural Women, Farmers and Youth in Delta State, Asaba, Delta State, 9th - 11th July 2012.
123. "Rural energy needs and their supply", presentation made at the Training Workshop on Renewable Energy for Gombe State Youth, held at FCE (Tech), Gombe, 16th July 2012.

(d) Speeches and Guest Lectures

1. "Solar energy and its application in Nigeria", Paper presented at the Engineering Week organised by the Nigerian Universities Engineering Students Association (NUESA, Bayero University, Kano, Branch), 6th-8th March, 1987.
2. "Appropriate technology for Nigerian development", Paper presented at the Federal College of Education (Technical) Bichi as a Guest Lecture at the College's First Matriculation, 19th May, 1989.
3. "Science and technology for national development" Speech delivered at Speech and Prize Giving Day of Kaduna Capital School, Kaduna, 21st August, 1993.
4. "Role of chemistry in national development", Speech delivered at the launching of the book written by Bello Umaru Gusau, Giginya Hotel Sokoto, 21st June, 1994.
5. "Community participation in education - Challenges for community elite and government policy", Paper presented as a Guest Speech at the 3rd Annual General Meeting of ZEDA held at Kongo Conference Hotel, Zaria on 23rd December, 1995.
6. Welcome address to the visiting members of NIPSS Senior Executive Course 18 Research Participants, Council Chamber, Abubakar Tafawa Balewa University, Bauchi, 15th March, 1996.
7. Keynote address delivered at the opening ceremony of the maiden National Engineering Conference Organised by the School of Engineering Technology, The Federal Polytechnic, Bauchi, 17th April, 1996.
8. Keynote address delivered on the occasion of the 1996 Annual Copyright Commission in Bauchi on 25th November, 1996.
9. Book review on "Nigerian coal: A resource for energy and investments" edited by H. C. Okolo and M. C. Mkpadi. Review was presented at the launching of the book at the Raw Materials Research and Development Council, Abuja, 13th December, 1996.
10. Guest Speech at the launching of the book "The Man Abacha and the emergence of the Government of necessity" at the Multi-purpose sports hall, Bauchi, 3rd May, 1997.
11. "Raising the standard of education in the northern parts of Nigeria", Paper presented at the Annual General Meeting of Kaduna Old Boys Association, Arewa House, Kaduna, 20th December, 1997.

12. "Engineering Education in Nigeria - Expectations and Realities", Paper presented at the Annual Dinner of the Nigerian Society of Engineers, Sokoto Branch, Shukura Hotel Sokoto, 28th November, 1997.
13. "Status of, and prospects for market penetration of renewable energy technologies in Nigeria", Paper presented as a keynote address at the launching of the book "Potentials for Renewable Energy Applications in Nigeria" (Published by the Energy Commission of Nigeria), NIIA, Lagos, 17th February, 1998.
14. "Technological orientation in the developing countries - The Nigerian Case", Paper presented to the participants of the Senior Executive Course no. 20 of National Institute for Policy and Strategic Studies (NIPSS), Kuru, 14th July, 1998.
15. "Necessary orientations for the development of Nigeria in the current millennium", Paper presented to the Re-union Dinner of 1978 Civil Engineering Graduates of Ahmadu Bello University, Zaria, Sheraton Hotel and Towers, Abuja, 30th July, 2000.
16. "Human capital and technology development", Paper presented to the Nigerian Economic Support No. 7 Workshop on Breakthrough in Economic Growth: An Action Plan, Nicon Hotel, Abuja, October, 2000.
17. "The Role of Postgraduate research in technology development" An Address presented to the second National Workshop of the Committee of Deans of Postgraduate Schools in Nigerian Universities, University of Jos, November, 2000.
18. "Sourcing funds for research projects", Paper presented to the Retreat for Rectors of Federal Polytechnics, Yankari National Park, January 2001.
19. "The State of Education in Kaduna State - The Way Forward", Keynote Address at the Opening of Kaduna State Education Summit, Government College, Kaduna, 25th April, 2001.
20. "Moving the nation forward through an effective education system", Guest Speaker's Address at the Opening of the National Delegates Conference of the Nigeria Union of Teachers, Multi-Purpose Hall, Bauchi, 28th May, 2001.
21. "Infrastructural problems and the Nigerian economy", Keynote Address on the Concluding Seminars of the Participants of Course No. 23 of the National Institute for Policy and Strategic Studies, Kuru, 10th October, 2001.
22. Science Globalization and the Nigerian State. Guest Speaker at the 41st Annual Conference of the Science Association of Nigeria, Sokoto. 25th April, 2005.
23. "Goodwill Message", Delivered at the National Workshop on Capacity Building in Small Hydropower for the Provision of Rural Energy, Ogun-Osun River Basin Development Authority, Abeokuta. 9th – 12th May, 2005
24. Address of the Chairman of the Visitation Panel to Kano University of Technology at the Ceremony to Submit the Visitation Panel Reports of Six Tertiary Institutions of the State Government House, Kano. 18th August, 2005
25. Press Conference Address on the Occasion of the Conference in Preparation for the Public Presentation and Workshop on the National Energy Policy, Conference Hall, Energy Commission of Nigeria, Abuja. 2005
26. Keynote Address "The Place Of Coal In The Nigerian Electricity Generation Scheme" A Presented At The Inauguration Of The New President Of The Nigerian Society Of Engineers, International Conference Centre, Abuja. 12th January, 2008.
27. Welcome Address Presented at the International Workshop on Promoting Coal for Power Generation, Nike Lake Resort Hotel, Enugu, 27th – 28th April, 2009
28. Keynote Presentation "The Use of Indicators of Sustainable Energy Development (ISED) for Assessing the Millennium Development Goals (MDGs) in Africa", 2nd Regional Coordination Meeting on Strengthening Planning Capabilities for Sustainable Energy Development (AFRA VI-1-RAF/0/028), Cairo, Egypt, 9-11 June, 2009

29. Keynote Paper: "The Current State of Energy Supply and the Role of Renewable Energy for Sustainable Development in Nigeria", Presented at the Opening Ceremony of the International Conference on Renewable Energy, Organized by Covenant University, Ota, Ogun State. 14th July, 2009.
30. Opening Address. Presented at the "National Workshop on the Participation of State Governments in the Power Sector: Matching Supply with Demand". Ladi Kwali Hall, Sheraton Hotels & Towers, Abuja. 29th July, 2009
31. Keynote Address: "Energizing Nigeria's Power Sector Through Public Private Partnerships" Presented at the International Power Solutions Conference (PSC09). Ikoyi Hotel, Lagos. 14th – 18th September, 2009.
32. Keynote Address: "The Challenges of Energy Planning for Ensuring Enhanced National Energy Supply" Presented at the Opening Ceremony of the Zonal Workshop on Training Professional from States on Energy Demand and Supply Projections in Nigeria, Efficient Conference Centre, Kano, 5th – 8th October, 2009.
33. Keynote Paper: "Technological Development and Nation Building: The Role of Renewable Energy" Presented at Academic Staff Union of Polytechnics (ASUP) 1st Annual Conference, Waziri Umaru Polytechnic, Birnin Kebbi. 20th – 22nd October, 2009.
34. Welcome Address at the Opening Ceremony of the Workshop on Strengthening Advocacy for Use of Alternative Sources of Energy for Sustainable Development by Women in Leadership Positions. Shehu Musa Yar'adua Centre, Abuja. 27th October, 2009.
35. Keynote Paper "Alternative energy applications in Nigeria", Presented at the Engineering Congress -Alternative Energy Applications: Option or Necessity?" Kuwait Society of Engineers, Kuwait, 2nd – 6th November 2009
36. Keynote Address Energy and Environmental Interactions for Sustainable Economic Growth Of Nigeria, presented at the 3rd Annual NAEE/IAEE International Conference Energy, Environment, and Economic Growth, New Chelsea Hotel, Abuja, Nigeria April 19-20, 2010
37. Welcome Address: National Stakeholders Workshop on the Development of Strategies for Sustainable Energy Utilization in Nigeria
Hydro Hotel, Minna, Niger State 26th - 27th January, 2012

(e) Technical Reports/Edited Works

1. "An investigation of ingress for a shrouded rotor and stator incorporating mitred clearance seals, School of Engineering & Applied Sciences, University of Sussex, Rep. No.81/TFMRC/24 (1981). (With L.C. Daniels).
2. "A further investigation of ingress for a shrouded rotor and stator incorporating mitred clearance seals", School of Engineering and Applied Sciences University of Sussex, Rep. No. 82/TFMRC/42 (1982). (With L.C. Daniels).
3. "An investigation of ingress for rotor-stator cavity; both rotor and stator shrouded with 15o double mitred shrouds", University of Sussex, Rep. NO.82/TFMRC/4/8 (1982).
4. "Solar powering of rural development projects", Feasibility report conducted for Kano State Government, March, 1987. (With some members of the Executive Committee of Solar Energy Society of Nigeria).

5. "Report of the Committee on the Re-organization of the Estate Department", Bayero University, Kano, January, 1989. (With members of the Committee stated in G (a) 15 above).
6. "Report of the Multi-disciplinary Task Force on Motor Vehicles and Miscellaneous Sector of Raw Materials Res. & Dev. Council, February, 1989. (With Members of the Task Force stated in E (c) 29 above).
7. "Report of the Visitation Panel to the Polytechnic of Sokoto on the Technical Teacher's Certificate Programme", Aug. 1990. (With members of the Committee stated in G(b)9 above).
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M. REFEREES

1. *Professor I. H. Umar*

Former Director-General
Energy Commission of Nigeria
Abuja.
(And Former Vice-Chancellor, Bayero University, Kano)

2. *Professor Ango Abdullahi*

Former Vice-Chancellor,
Ahmadu Bello University,
Zaria.

3. *Professor Fola Lasisi*

Department of Agricultural & Environmental Engineering
Obafemi Awolowo University
Ile-Ife.
(Former Vice-Chancellor, University of Uyo).

Professor A. S. SAMBO

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