Expanding Energy Access And Responding To Climate Change

THE NEXT 20 YEARS

ICEED Anniversary Colloquium on the future of energy access and climate change response in Nigeria
Venue: Wells Carlton Hotel & Apartment, 8 Gado Nasko Close, off Jose Martí Street Asokoro, Abuja
Date: October 30, 2019
ICEED - 20 Years and Beyond

The International Centre for Energy, Environment and Development was established in October 1999. It seeks to bring prosperity to Nigeria's poor through energy and climate change ideas and action. ICEED has become a leading source of information and analysis on sustainable development in Nigeria. It has built some of the most influential partnerships for expanding access to pro-poor energy services and responding to the climate crisis.

ICEED has helped to raise and sustain the momentum for energy access in Nigeria. Together with the World Bank, ICEED worked on the first ever rural electrification strategy for Nigeria in 2001, and since provided technical assistance for the establishment of the Rural Electrification Agency and the Rural Electrification Fund. We supported the Energy Commission of Nigeria in the development of the Renewable Energy Master Plan – an investment framework for expanding the renewable energy industry. With funding from DFID, ICEED consultants designed the award-winning Solar Nigeria project. ICEED formed and launched the Nigerian Alliance for Clean Cookstoves. Today over five million stoves have been distributed by partners.

ICEED has influenced Nigeria's response to the challenges of climate change. Together with agencies of the Federal Government, international agencies, the private sector and other non-state actors, ICEED formed and launched the Nigeria Climate Action Network under the chairmanship of former Governor of Cross River State, Donald Duke. Over the years, we provided the research that underpinned Nigeria's positions on climate change negotiations and trained the country's negotiators. Together with partners, we have helped broaden the participation of non-state actors in Nigeria's response to climate change, and brought behaviour change communication to the Nigerian public.

From policy to practice, ICEED has led the way in piloting innovative clean energy technologies around Nigeria. In partnership with the Federal Ministry of Power, we piloted solar mini-grids in communities in Cross River and Ogun States in 2008. Through international partnership, ICEED has designed highly efficient biomass cookstoves and trained today's successful entrepreneurs. We established the first Nigerian ISO accredited stove testing laboratory, and have project footprints in more than half of all the states in the federation. Today we have active ICEED offices in Abuja, Afikpo, Maiduquri, Kano and Katsina.

ICEED has responded to the humanitarian challenge posed by Boko Haram terrorism in the North East. Ensuring safe and sustainable access to energy is important for crisis-affected populations. Together with FAO and other partners, the centre initiated and launched the Safe Access to Fuels and Energy (SAFE) Working Group. The SAFE Nigeria partnership aims to deliver clean cooking and lighting solutions to one million people in Northeast Nigeria by 2020.

As we take stock of our work in the past 20 years, we also take aim of the next 20 years. How can our stewardship of energy resources help us meet the Sustainable Development Goals and beyond? What new visions do we see in the horizon; and what should ICEED's priorities be?

The ICEED Anniversary colloquium brings our friends, colleagues and partners together to identify new opportunities for shaping a sustainable future for our country and its people in the next 20 years.
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Major achievements of the last 20 years

- ICEED has produced some of the most influential policy research on climate change and renewable energy in Nigeria – including the first Renewable Energy Master Plan (2005) and Nigeria’s Positions on International Climate Change Negotiations (2007-2011).
- ICEED contributed to the production of the first ever Rural Electrification Strategy and provided technical assistance for the establishment of the Rural Electrification Agency (REA).
- ICEED has built some of the most important partnerships on climate change and renewable energy – including the Nigeria Climate Action Network and the Nigerian Alliance for Clean Cookstoves.
- ICEED led the advocacy for establishment of stronger climate change policy response institutions, including the Bill to Establish the National Climate Change Commission.
- ICEED led the successful development and approval of the National Standards for Biomass Stoves by the Standards Organisation of Nigeria.
- Through ICEED research, partnership and policy advocacy over five million clean cookstoves have been delivered by ICEED partners.
- ICEED led the successful integration of Safe Access to Fuels and Energy (SAFE) as part of the Northeast humanitarian response.
- ICEED provides free renewable energy vocational training for technical secondary schools as part of our commitment to the communities where we work.
Agenda

09.00 - 09.30  Registration of participants

09.30 - 10.00  Agenda setting
- Welcome, Ewah Otu Eleri, Executive Director, International Centre for Energy, Environment & Development

Goodwill messages
- Senator Mohammed Hassan Gusau, Senate Committee Chairman, Ecology & Climate Change
- Hon. Ibrahim Bukar, House Committee Chairman, Climate Change
- Professor E.J. Bala, Director General Energy Commission of Nigeria

Keynote speech
- Dr. Sam Amadi, former Chairman, Nigeria Electricity Regulatory Commission

10.00 - 11.30 Nigeria and Climate Change - the Next 20 Years

Panelists
- Prof Felix Dayo, CEO, Triple E Systems
- Nnanna Ude, Nigerian Economic Summit Group
- Prof Emmanuel Oladipo, Professor of Geography, University of Lagos
- Sean Melbourne, Head of Climate Change and Energy, West Africa, British High Commission
- Prof Chinedum Nwajiuba, Vice Chancellor, Alex Ekwueme Federal University, Ndufu-Alike, Ikwo

Moderator
- Huzzi Mshelia, Chairman Board of Directors, ICEED
Introduction

According to the Nigerian Meteorological Agency (NIMET), over the observed period 1911 - 2007, Nigeria recorded significant decreases in rainfall. Other observations include the spread of late onset of the rainy season to several parts of the country; early cessation of rains; shorter length of the rainy seasons, shorter growing periods available to farming; and the spread of desertification conditions, among other trends. Likewise, over the same time scale, mean temperature over Nigeria has shown an increasing trend. This has resulted to increased heat waves/stress and increased areas affected by drought. Predicted global temperature increases will exacerbate these local trends.

In many ways, Nigeria is at the epicentre of the current climate crisis. Changes in the global climate are compounding pre-existing development challenges. Already, Nigeria has the largest absolute number of people living in extreme poverty in the world, having recently overtaken India. As environmental assets such as land and water remain the primary capital of the poor, the erosion of these assets put pressure on the coping capacity of poor people. The reinforcing impact of climatic change and degrading human development conditions is already playing out in Northern Nigeria, especially around the Lake Chad Basin. Today, climate change and poverty are already inducing the herders and farmers conflicts and has become one of the underlying factors sustaining the current terrorism in the Northeast.

According to a DFID Nigeria study, climate change could result to a loss in GDP of between 6% and 30% by 2050, representing an estimated USD100 billion - USD460 billion. If no adaptation measures are taken, this could result to up to 11% loss of GDP. Moreover, by 2050 - or much earlier, petroleum - the current lifeblood of the Nigerian economy would have been meaninglessly as a global energy form. The global expansion of the renewable energy industry and growth in the use of electric vehicles underscore the trend.

In many ways therefore, climate change represents a clear and present danger to the future of Nigeria’s development. The country’s response to it regrettably is inadequate. How can Nigeria develop and own a new green economy vision? How can climate resilience be part of mainstream development planning; and how can a new leadership emerge to implement this vision?

This session brings together research, policy and practice on climate resilience and green economy. It seeks to identify relevant strands of research and influencing pathways to shape Nigeria’s response to climate change.

2 Impacts of climate change on Nigeria’s economy, Final Report, December 2018. Produced for DFID by ERM.
Introduction

According to the World Bank, about 80 million Nigerians lack access to electricity services. Nigeria has therefore the largest absolute number of people without electricity access in Africa, and only second to India in the world. Today the national overall electricity access rate is 55%. Twenty years ago, according to Federal Ministry of Power, about 65% of all Nigerian households were connected to the national grid.

Not only is Nigeria experiencing declining overall access coverage, it is faced with the challenge of inclusiveness and sustainability. Access to electricity is unevenly spread among the states of the federation. Southern Nigerian states have higher electricity access coverage while Northern States are below the national average. While evidence show that women-headed households are more likely to be connected to the grid, little is known about the availability of power for productive use for women-led enterprises.

Nigeria’s NDC commits the country to reducing its emissions of greenhouse gases by 2030. It has identified the power sector as one of five priority areas of intervention. With about 25% transmission and distribution losses, and existing bottlenecks to renewable energy investments, meeting the country’s greenhouse gas emission reduction commitments face formidable bottlenecks.

Today, Nigeria produces about one million new households annually. At the current rate of electrification, the country will not reach universal access before the middle of the century. To close the access gap, new electrification programmes must therefore deliver at least one million new connections annually. New programmes must also be inclusive and climate compatible.

What are the key drivers for electricity access expansion? What interests, influence, institutions and choice opportunities exist in shaping Nigeria's response to the energy access challenge? What can we learn from other countries; and what scope of research will support an influencing agenda?

This session will review the state of research on the political economy of electricity access expansion and will identify existing evidence base, and scope international best practice. It will review the current framework for access expansion in Nigeria as well as existing constraints to growth. Panelists and participants will discuss opportunities for expanding grid, mini-grid and stand-alone renewable energy options.
14.30 - 16.00 Expanding Clean Cooking Access - the Next 20 Years

Panelists
- Prof Ed Brown, Loughborough University, Leicestershire, UK
- Dr Temilade Sesan, University of Ibadan
- Dayo Adeshina, Senior Special Assistant, Office of the Vice President
- Suraj Wahab Ologburo, CEO, Toyola Energy Limited

Moderator
- Graham Gass, Group Head, Africa Extreme Poverty Team, DFID

Introduction

Seven in ten households in Nigeria use wood in traditional three stone or metal tripod stoves. The country has the largest number of households without access to clean cooking in Africa. According to WHO, smoke from the kitchen result to about 93,000 deaths in Nigeria annually. After malaria and HIV/Aids, this is the third highest killer of mostly women and children in Nigeria.

Nigeria is a major world exporter of LPG - cooking gas. However, less than 5% of all households in the country have access to LPG. The current government has set up a programme for expanding access to the use of LPG. Despite recent improvements in regulation, poor infrastructure, high cost of cylinders, affordability of gas, and low level of awareness continue to stymie efforts.

Unlike other Sub-Sahara African countries, there is little progress towards expanding the use of efficient solid biomass clean cookstoves. In Nigeria, market failure is compounded by policy failure. There are no clear and coherent policy frameworks supporting clean cooking in the country. To make matters worse, issues of clean cooking are in an institutional wilderness. No ministries or agencies of government have primary responsibilities for expanding the use of clean cooking in the country.

Lack of access to clean cooking affect men, women and children disproportionately. Women are primarily responsible for cooking in most Nigerian households and therefore bear higher burden of diseases and morbidity. In several states in Northern Nigeria, over 90% of households cook with traditional three stone fire. This exerts significant pressure on family health as well as the local environment.

If current trends in bridging the clean cooking gap are allowed to continue, Nigeria will not reach universal access to clean cooking by the middle of the century. The time has therefore come to interrogate the political economy of the cooking energy sector. Why do issues of access to clean cooking command little political attention? What are the gender dynamics of the politics of clean cooking? What techno-economic and governance frameworks should be in place? What can we learn from other countries?
16.00 - 17.00  Towards the Next 20 Years

Panelists
- Engr Mrs J.O. Maduka, Founder, Friends of the Environment
- Dr Newton Jibunoh, Founder, Fight Against Desert Encroachment Africa
- Emeritus Professor David Okali, Chairman, Nigerian Environmental Study/Action Team
- Professor Abubakar Sani Sambo, Former Director General, Energy Commission of Nigeria

Moderator
- Hamzat Lawal, CEO, Connected Development

Introduction
The challenges of clean energy access and effective response to climate change in the next twenty years will be daunting. It requires a clear vision, innovative approaches and leadership. How can we generate bright new ideas that link climate change to a new era of prosperity for Nigerians, especially the youth? How can we pass on the touch of environmental science and activism to a new generation?

This panel features some of Nigeria’s foremost environmental thinkers, scientists, professionals and activists. It seeks to tap into the wealth of ideas of an influential generation and how these can shape the search for solutions of the future.

17.00 - 17.10  Highlights
- Prof Emmanuel Nzegbule, Michael Okpara University of Agriculture, Umudike

17.10 - 17.20  Vote of thanks
- Okechukwu Ugwu, Technical Advisor, International Centre for Energy, Environment & Development
RECEPTION

Agenda

- Opening remarks by Huzi Mshelia, Chairman, Board of Directors, International Centre for Energy, Environment & Development
- Musical entertainment
- Refreshments
- Address by Sean Melborne, Head of Climate Change and Energy, West Africa, British High Commission
- Presentation of awards
  - Professor Abubakar Sani Sambo, Former, Director General, Energy Commission of Nigeria
  - Engr. Mrs. Joanna Olu Maduka, Founder, Friends of the Environment
  - Dr. Newton Jibunoh, Founder, Fight Against Desert Encroachment Africa
  - David Nwachukwu, Founding Board Member, International Centre for Energy, Environment & Development
  - Professor David Okali, Chairman, Nigerian Environmental Study/Action Team
- Some words from Amarachi Okafor, Orie Studio for the Arts
- Address by Folake Salawu, representative of ICEED staff
- Address by David Nwachukwu, Member Board of Director, ICEED
- Cutting of cake
- Closing
Awardees Profile

Professor David U. U. Okali

An Emeritus Professor of Forest Ecology, University of Ibadan, Professor Okali was born in Abiriba, Abia State, in 1936. He schooled at Government College Umuahia as an Owerri Provincial Scholar (1949 – 1955). He graduated as a College Scholar from the University College, Ibadan (UCI), in 1960, with a B.Sc. Special Honours, Second Class (Upper Division) degree in Botany. With a post-graduate scholarship from the University College, Ibadan, he proceeded to Sheffield University, United Kingdom, where he gained the degree of Ph.D. in Plant Ecology in 1964; and subsequently with an FAO fellowship, he read forestry at Oxford University. Thereafter, he worked as a lecturer mostly at the University of Ibadan until his retirement in 2001. He was a visiting professor at Yale University in 1983 and 1987 and a Yamani Fellow at the University College of North Wales, Bangor in 1988. He is a Fellow and past president (2006 – 2009) of the Nigerian Academy of Science (FAS), Fellow of The World Academy of Sciences for the Developing World (FTWAS), Fellow of the Forestry Association of Nigeria (FFAN), past president of the Nigerian Field Society (2005 - 2010) and since 1998 Chairman of the Nigerian Environmental StudyAction Team (NEST) at Ibadan. He was Vice-President of the Network of African Academies of Science (NASAC) (2007 – 2009), and for 23 years (1978 – 2001) Chairman of the National Committee of Unesco's Man and the Biosphere (MAB) Programme in Nigeria, where his interest in combining natural science with social science approaches in dealing with natural resources management was stimulated and honed. His current main interest is in environment, society and sustainable development.

For over fifty years, Professor Okali has worked to increase the human resources capacity and knowledge base for effective natural resources management and conservation. He has provided uplifted leadership in guiding society towards sustainable interaction with the environment, working with government and non-governmental institutions. He has been instrumental to providing the critical baseline data for establishing important conservation assets in the country – rain forest in Cross River National Park and wetlands in the Hadjeja-Nguru Ramsar site. His latest contributions in the area of climate change have sought to influence policy on the problem, through the development of instruments for action at the national level, such as the National Adaptation Strategy and Plan of Action on Climate Change for Nigeria, NASPA-CCN, developed in 2011 in collaboration with the Federal Ministry of Environment and civil society organizations, including ICEED; or at the sectoral level, such as the National Agricultural Resilience Framework (NARF), developed in 2014 by the Advisory Committee for Agricultural Resilience in Nigeria (ACARN) under the Federal Ministry of Agriculture and Rural Development.

As Chairman of Unesco's Man and the Biosphere (MAB) national committee, Professor Okali led the production of basic state of knowledge reports on the biomes, rain forest, savanna and wetlands that practically cover the whole country; as President of the Nigerian Academy of Science, he worked to re-position the Academy from being not only an honour
society, but also an organization with expanded membership for more substantial and effective engagement in national development; and during his leadership as President of the Nigerian Field Society, the idea of a Young Explorers Club was introduced to strengthen the recruitment base of Nigerians into the Society, which was originally formed and dominated by expatriates.

Professor Okali is married to Oduenyi Salve Okali and has five children.

**Prof. Abubakar S. Sambo**

Born on the 31st July, 1955 in Zaria, Kaduna State, Prof Abubakar Sani Sambo graduated from Ahmadu Bello University, Zaria with a First Class Honours in Mechanical Engineering in 1979. In 1983, he obtained his DPhil degree also in Mechanical Engineering from the University of Sussex, United Kingdom. Prof Sambo started his working career at Bayero University, Kano (BUK) as a Graduate Assistant in Mechanical Engineering Department in 1980 and rose to become a Senior Lecturer in 1987. In 1989 he joined Usman Danfodiyo University, Sokoto (UDUS) as Reader (Associate Professor) in Energy Studies and Director of the Sokoto Energy Research Centre (SERC) of that University. In 1991 he was appointed Professor of Energy Studies at Sokoto. From 1995 to 2004 Prof Sambo served as the Vice Chancellor of Abubakar Tafawa Balewa University (ATBU), Bauchi. He served briefly, that was between August to December 2004, as the pioneer Vice Chancellor of Kaduna State University before his appointment as the Director General of the Energy Commission of Nigeria (ECN) where he served for two terms of a total of eight years from 1st January 2005 to 31st December 2012.

While at the BUK, between 1980 and 1989, Prof Sambo taught courses in Applied Thermodynamics, Fluid Mechanics, Heat Transfer and Engineering Drawing. He conducted research and development in Solar Radiation Studies, Flat Plate Solar Collectors and Thermosyphon Solar Water Heaters. He also served as the Sub Dean and later Deputy Dean of the Faculty of Technology as well as Head of Mechanical Engineering Department all at BUK. At the SERC of UDUS Prof Sambo, as the Centre’s Director, coordinated the research groups to conduct pioneering R&D activities in Solar Radiation Studies, Solar Thermal Conversions, Biogas Digesters & Improved Wood Burning Stoves and Solar Photovoltaic Applications. He started the Nigerian Journal of Renewable Energy and produced the maiden edition of the Directory of Renewable R & D activities in Nigeria. While at UDUS, Prof Sambo also served as the Deputy Vice Chancellor (Academic) for two terms between 1990-1994. At ATBU Prof Sambo strengthened the academic programmes and ensured that all the engineering degree programmes were accredited by both the Council for the Regulation of Engineering in Nigeria (COREN) and by the National Universities Commission (NUC).

He established the departments of Chemical and Petroleum Engineering as well as three Schools (Faculties): Science Education, Management Technology and the Post Graduate School. For revenue generation, Prof Sambo established the University’s company, ATBU Trust and Investment Limited and for attracting external projects he established the
Directorate of Linkages while for staff welfare he established the institution’s Staff Secondary School. At the ECN, being the Government’s agency for energy planning, policy formulation as well as advocacy and promotion of sustainable energy practices, Prof Sambo saw to it that the overall National Energy Masterplan was produced and substantial work done on the National Energy Databank as well as the National Energy Manpower Plan. During Prof Sambo’s tenure at the ECN new energy research centres were setup at Bauchi, Benin City, Ilorin and Lagos and two new departments were established at the head office. The energy modelling activities were strengthened by using newly acquired computer modelling tools and the pilot projects of the Commission were also strengthened by securing more funds from the National Assembly. Prof Sambo established the Journal of Energy Planning Research and Development (JEPRD) and modernised the Commission’s News bulletin.

Prof Sambo has supervised 14 PhD and 10 Masters degree candidates to successful completion and has written more than 200 articles in books, journals, conference proceedings and seminars and workshops. He is registered by COREN to practice as a Mechanical Engineer and he is a FELLOW of the following 9 associations: 1. Nigerian Academy of Engineering; 2. Nigerian Academy of Science; 3. Nigerian Society of Engineers; 4. Solar Energy Society of Nigeria; 5. Nigerian Institution of Mechanical Engineers; 6. Nigerian Association of Energy Economists; 7. Renewable and Alternative Energy Society of Nigeria; 8. Nigerian Institute of Management and 9. Energy Institute of the United Kingdom. He has served as the Vice Chairman for Africa of the World Energy Council from November 2007 to October 2013. He was named the Special Adviser to the President on Energy in July 2011. He is the recipient of two national honours: the National Productivity Order of Merit (NPOM) in 1997 and the Officer of the Order of the Niger (OON) in year 2000. He is happily married and has four children.

**Dr. Newton Chukwukadibia Jibunoh**

Born 1st January, 1938, Dr. Newton Jibunoh popularly known as the Desert Warrior is a former Managing Director and Chief Executive Officer of Costain (West Africa) Plc, and later became the Chairman until he retired in 2006.

His moniker as a Desert warrior came as a result of his numerous desert exploration. Dr Jibunoh has crossed the Sahara Desert (driving from London to Lagos, and Lagos to London) three times. He embarked upon two solo expeditions in 1966 and 2000. The third expedition in 2008 was in the company of five other desert warriors. In 2011, Dr, Jibunoh partnered with the Lagos State Government to establish the first ever Green Reality TV Show called, “Dr. Newton Jibunoh’s Desert Warriors Reality Show”. The reality show which held in Agadez region of Niger was a desert boot camp environmental protection reality show designed to teach 15 young men and women about processes in the management of desert lands and resources, advocacy and community outreach.

He is the Founder of Nigeria’s foremost environmental non-governmental organization, accredited to UNEP and UNCCD, Fight Against Desert Encroachment (FADE) which is focused on combating desertification and its fall-outs such
as climate change, poverty, migration and conflict. FADE was founded in the year 2000 on the heels of his solo expedition across the Sahara, driving from Lagos to London.

Dr. Jibunoh is specifically trained in the Science of Desertification from the Ben-Gurion University at the Negev, Israel, the CAREERI Institute in China studying the Gobi Desert, and the American Desert Commission in Nevada studying the Arizona and Nevada desert. He is an internationally acclaimed speaker and has represented Nigeria in a number of Climate Change summits and conferences such as Bangkok, Copenhagen, and Cancun. A lover of Arts, Dr. Jibunoh is the Founder of DIDI Museum, Nigeria’s first private museum established May 13, 1983.

This man of many talents has authored many books and publications amongst which are “Me, My Desert and I”, an account of his sojourn and near-death experiences while crossing the Sahara Desert the second time. He has also authored a publication titled “Bridging the Sahara Desert: A Different Perspective” which is a proposed solution to open up the Sahara Desert by the construction of a Trans-Saharan Highway which will also tackle the issue of desertification. He also launched an auto-biography titled “Hunger for Power” on his 80th birthday which was on the 1st of January 2018.

More recently, he writes weekly as a columnist for the Sun Newspaper where he focuses on issues affecting the nation and the environment. Two things he loves dearly.

Some of his honors and accreditation include;
1. Fellow of the Nigerian Institute of Builders (FNIOB).
   A biennial lecture of the Institute holds in the name of: Dr. Newton C. Jibunoh’s Lecture
2. National Honor of “Officer of the Order of the Niger (OON)
3. Ambassador Emeritus for Environment of Lagos State for his outstanding contribution to the greening of Lagos State
4. Green Award presented by the US Embassy in Abuja for outstanding achievements towards environmental preservation
5. 2006 Doctor of Science, (Honoris causa) of Nnamdi Azikwe University, Awka, Nigeria
6. 2008 This Day Lifetime Achievement Award
7. 2008 Doctor of Science (Honoris causa) of University of Benin, Nigeria.
   8.2013 Lifetime Achievement Award by Silverbird Television

Engr. Mrs. Joanna Olutunmbi Maduka
Born on May 6, 1941, in Ilesha, Osun State, Engr. Mrs. Maduka attended Queens School, Ede for her secondary school education from 1955 to 1959, and the Nigerian College of Arts, Science and Technology for her Advanced Level Studies.

She graduated in Applied Physics with B.Sc. (Hons) 2nd Class Upper Division in 1965 from the University of IFE, now Obafemi Awolowo University. Subsequently, she passed the
Graduateship Examination of the Institution of Electrical Engineers (UK) in 1966 and earned an M.Sc. (Engineering) degree from Trinity College, Dublin in 1969.

Engr Maduka founded the Association of Professional Women Engineers of Nigeria, APWEN, (1982) to promote sorority among women engineers and encourage girls into the study of Mathematics and Science at secondary school level, so as to study engineering at tertiary level. APWEN has different activities to encourage young girls in the study of science. Engineering was perceived as a male profession.

She founded Friends of the Environment (FOTE) in 1993 with objectives in the areas of renewable energy, waste management and empowerment of women. FOTE is the Nigerian focal point of ENERGIA, an international network of women in sustainable energy based in the Netherlands. FOTE has carried out different activities and research relating to mainstreaming gender in energy issues.

Engr Mrs. Maduka became the first female COREN Registered Engineer in 1974; first Nigerian female Fellow of the Institution of Electrical Engineers (FIEE) (UK) in 1984; first female, Fellow of the Nigerian Society of Engineers FNSE; 1985, Honorary Fellow, Yaba College of Technology in 1998, Fellow, the Nigerian Academy of Engineering, 2002. She was the Chairperson, Technical Committee, Better Life Program for Rural Women, an initiative of the First Lady, Mrs Maryam Babangida, for urban and rural women empowerment, 1987 to 1992.

Engr. Mrs. Maduka has over the years served on several National and International Boards, Governing Councils of tertiary institutions and Committees including but not limited to: Federal Polytechnic, Idah; Nigerian National Petroleum Corporation, NNPC; Ladoke Akintola University of Technology, Ogbomosho; United Nations Advisory Committee on Science and Technology for Development; International Network of Women in Science, Engineering and Technology (INWES); Nigerian National Merit Award Governing Council, Nigerian Extractive Industries Initiative, NEITI.

She is the Immediate Past President, Nigerian Academy of Engineering and Immediate Past Chairman, Osun State Polytechnic. She is a Life Vice President, Lagos Chamber of Commerce and Industry, LCCI. In 2008, she was conferred with the national honour, Member of the Federal Republic, MFR.

Mr. David Obasi Nwachukwu

Mr Nwachukwu is the Managing Director/CEO of Mezzanine Consulting Associates. He retired in 2004 as the Managing Director/CEO of LECON Financial Services Limited, a subsidiary of the Bank of Industry. He served as Managing Director/CEO of Midas Bank PLC, Executive Director of Savannah Bank of Nigeria PLC and Executive Director of Equatorial Trust Bank. Mr Nwachukwu has senior management footprints in Diamond Bank, Metropolitan Merchant Bank and First Bank. He has altogether over 30 years of varied financial services and consulting industry experience.
Beyond the financial sector, Mr Nwachukwu has strong interests in public finance and economic development. As a consultant to the National Planning Commission, he contributed to the development of the National Economic Empowerment and Development Strategy (NEEDS) document. In partnership with several donors, he has helped states develop their Poverty Reduction Strategies. With funding from USAID, Mr Nwachukwu supported ICEED to carry out capacity building for financial institutions - to improve access to finance for renewable energy SMEs.

Mr Nwachukwu has served the country and his state in several important assignments. He has served as Chairman, Economic Advisory Committee, Ebonyi State, Chairman, Board of Directors, Ebonyi State Investment & Property Company Limited and a current Member, Governing Council of Ebonyi State University, Abakaliki. The Central Bank of Nigeria appointed him into the Board of Directors of Citizens International Bank Plc. He has served in numerous state and federal, councils, committees and task forces.

Mr Nwachukwu holds an M.Sc. in Economics from the University of Lagos. He is a Member of the Order of the Niger (MON). The story of ICEED will not be complete without mentioning the role of Mr Nwachukwu. The first corporate office address of ICEED in 1999 was Mr Nwachukwu’s Ogudu residence in Lagos. He also generously provided shelter and means of transportation for the founder of ICEED. He believed in the vision of ICEED and provided advice, encouragement and made his vast network available to the young organisation. Today, he is ICEED’s longest serving board member.
### Key projects over the years

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<td><strong>MAIDA Response, Recovery and Resilience in Borno State</strong></td>
<td>European Union</td>
<td>2017 - 2020</td>
<td>This is implemented in partnership with Mercy Corps. It seeks to support the recovery of up to 200,000 men, women, adolescent boys and girls who are returnees, IDPs and host community members affected by the insurgency in Borno State. The goal of the project is to increase social cohesion, recovery and resilience to economic, social and climate related shocks for conflict affected communities in Borno State.</td>
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<td><strong>Farmer Managed Renewable Energy Production in Katsina State</strong></td>
<td>European Union</td>
<td>2014-2020</td>
<td>This is being co-implemented in partnership with Oxfam. ICEED is responsible for delivering the clean cookstoves component by developing and implementing the design and production of low cost locally-made 35,000 efficient wood stoves; developing a financing mechanism, building a corps of women entrepreneurs and developing and implementing behaviour change communications.</td>
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<td><strong>Solar Nigeria Programme</strong></td>
<td>European Union DFID-Nigeria Infrastructure Advisory Facility</td>
<td>2014 - 2018</td>
<td>Together with Adam Smith International, ICEED consultant designed, developed and manage the SolarNigeria Programme. The programme seeks to create a sustainable distributed solar market in Nigeria with increased electrification rates in urban and rural areas and improved welfare outcomes in health, education and domestic arena while contributing to emission reduction.</td>
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<td><strong>Increased energy access for IDPs, returnees and host communities in Borno State through improved energy technologies</strong></td>
<td>United Nations Food and Agriculture Organisation</td>
<td>2017 - 2019</td>
<td>ICEED is supporting the United Nations Food and Agriculture Organisation (FAO) in the implementation of a Safe Access to Fuels and Energy (SAFE) project in Borno State, Northeast Nigeria. The project is providing technical and business training to Internally Displaced Persons in the construction and marketing of efficient cooking solutions.</td>
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<td>Project</td>
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<td>Piloting Safe Access to Fuels and Energy for Internally Displaced Persons in Adamawa State</td>
<td>Australian Embassy</td>
<td>January - September 2016</td>
<td>The project facilitated an effective response to the cooking fuel and energy needs of internally Displaced Persons in Malkohi camp, Yola Adamawa State in a safe and sustainable manner without fear or risk to health, well-being and personal security.</td>
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<td>Expansion of access to clean cooking energy services in seven NEWMAP States</td>
<td>World Bank/Federal Ministry of Environment</td>
<td>2015-2016</td>
<td>This project expanded access to clean cookstoves to households and institutions in Abia, Anambra, Cross River, Ebonyi, Edo, Enugu and Imo States. Beneficiaries are households and institutions such as boarding schools and hospitals.</td>
</tr>
<tr>
<td>NESP Clean Cooking Intervention; Market development for clean cooking energy solutions for rice parboiling in Niger State</td>
<td>GIZ NESP</td>
<td>2015-2017</td>
<td>The project stimulated the launch of a viable commercial market for improved cooking energy solutions for the rice produce value chain. This was accomplished by strengthening the supply chain through appropriate stove design, production, stove performance testing, production and distribution training.</td>
</tr>
<tr>
<td>National Clean Cookstoves Market Development Programme</td>
<td>DFID - Nigeria Infrastructure Advisory Facility</td>
<td>2013 - 2014</td>
<td>ICEED developed the National Clean Cookstoves Market Development Programme with support from NIAF.</td>
</tr>
<tr>
<td>Project Title</td>
<td>组织实施方</td>
<td>时间</td>
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<tr>
<td>Geospatial Least Cost Electricity Rollout Plan and Investment Prospectus</td>
<td>DFID-Nigeria Infrastructure Advisory Facility (in collaboration with the World Bank)</td>
<td>August 2013 – September 2014</td>
<td>GIS mapping of energy assets in 11 states and data collection of household economic and social data. In collaboration with the Earth Institute in Colombia University, the project developed algorithm-based model for market segmentation and prioritization.</td>
</tr>
<tr>
<td>Energy Efficient Woodstoves Project in Nigeria</td>
<td>USAID</td>
<td>2012 - 2015</td>
<td>The project created a template for reducing greenhouse gas emissions and health risks among women by improving the efficiency of the use of firewood in households and institutions.</td>
</tr>
<tr>
<td>Clean Cookstoves Development and Testing Centre Project</td>
<td>Global Alliance for Clean Cookstoves</td>
<td>2012-2014</td>
<td>This project provided testing and certification services related to stove technical quality, indoor air pollution, and energy efficiency; assisted stove developers in improving stove design and construction methods; and carried out public awareness campaigns.</td>
</tr>
<tr>
<td>Financing Pro Poor Energy Access in Nigeria</td>
<td>Christian Aid</td>
<td>2012</td>
<td>This project campaigned for Nigeria to significantly expand the scale of funding for pro-poor, gender-sensitive low carbon energy access. It resulted to inclusion of clean cooking in annual national budgets.</td>
</tr>
<tr>
<td>Project Description</td>
<td>Implementer</td>
<td>Year</td>
<td>Description</td>
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<tr>
<td>Accelerating Nigeria's Economic Transformation - Climate Change Chapter</td>
<td>African Development Bank</td>
<td>2011</td>
<td>This is the African Development Bank's flagship study on the role of infrastructure in Nigeria's economic growth programme. The study provided analysis of the key infrastructure sectors such as power and energy, water resources, roads and transportation as well as cross-cutting issues such as finance and climate change. ICEED was responsible for writing the climate change chapter of the study.</td>
</tr>
<tr>
<td>Climate-based Insurance Reform Project</td>
<td>World Bank/DFID (Coalitions for Change Programme)</td>
<td>2010-2011</td>
<td>Through the Coalitions for Change Programme, DFID supported ICEED to build a partnership to develop the market for climate-based agricultural insurance scheme. The programme included baseline survey, market and policy research on agricultural insurance. The partnership included the National Insurance Commission, Central Bank of Nigeria, Nigeria Agricultural Insurance Corporation, representatives of the insurance industry and the Federal Ministry of Agriculture. This programme was further supported by additional research consultancy from the World Bank.</td>
</tr>
<tr>
<td>Low Carbon Industrial Strategy</td>
<td>Global Climate Network, London</td>
<td>2010-2011</td>
<td>This study provided an overview of key issues, and built a national partnership to develop a low carbon industrial strategy for Nigeria.</td>
</tr>
<tr>
<td>17.5KW solar PV mini-grid system in Esham Community, Ogoja L.G.A Cross River State</td>
<td>Federal Ministry of Power</td>
<td>2009 - 2012</td>
<td>This mini-grid project provided end-use lighting and power outlets to 91 households, public houses, street lights and water supply. It has 2 centrally located generating stations where the solar panels, controllers, batteries, inverters and other accessories are housed.</td>
</tr>
<tr>
<td>Project Title</td>
<td>Implementing Organization</td>
<td>Year</td>
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<tr>
<td>Copenhagen and Beyond: Copenhagen and Beyond</td>
<td>Foreign and Commonwealth Office, UK Government</td>
<td>2009-2011</td>
<td>This two-year policy research and advocacy project on climate negotiations and the development of Climate Change Legislation for Nigeria. The project conducted research on climate change mitigation, adaptation, financing, technology transfer and international negotiations. It established a body of researchers on these issues, trained Nigeria negotiators; provided support to the negotiating teams; and wrote the Bill and built a coalition to support the passage of the National Climate Change Commission.</td>
</tr>
<tr>
<td>Copenhagen and Beyond: Improving Nigeria’s Response to Climate Change</td>
<td>Coalitions for Change – a DFID Programme</td>
<td>2008-2011</td>
<td>The project coordinated and developed climate change policy frameworks, legislative advocacy for the establishment of the National Climate Change Commission and supported international negotiations.</td>
</tr>
<tr>
<td>15Kw solar PV mini-grid system in OGD Farm Estate, Ijebu Igbo, Cross Ogun State</td>
<td>Federal Ministry of Power</td>
<td>2008 - 2010</td>
<td>This mini-grid project is designed to provide end-use lighting and power outlets to 150 households and street lights in the farm. It has a centrally located generating station where the solar panels, controllers, batteries, inverters and other accessories are housed.</td>
</tr>
<tr>
<td>South-South Solar Electrification Project</td>
<td>Rural Electrification Agency</td>
<td>August 2007-2008</td>
<td>This consultancy provided identification, feasibility study and design of solar power projects for rural electrification in Akwa Ibom, Bayelsa, Cross River, Delta, Edo &amp; River States.</td>
</tr>
<tr>
<td>Woodfuel and household energy survey in Nigeria</td>
<td>Heinrich Boll Foundation</td>
<td>2007</td>
<td>The survey looked at Nigeria's woodfuel resource base, and woodfuel use in urban and semi-urban areas including Sokoto, Jos, Ibadan, Lafia, Kaduna, Abakaliki, Maidugri, Makurdi and the FCT.</td>
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<tr>
<td>Project</td>
<td>Description</td>
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<tr>
<td><strong>Renewable Electricity Action Program</strong></td>
<td>Federal Ministry of Power and Steel (Government of Nigeria) 2005 - 2007 ICEED provided the Project Manager's for the REAP and overall responsibility for the development of Renewable Electricity Policy and Regulation for Nigeria. This includes the development of a 10-year Renewable Electricity Action Program (REAP) and implementation of small hydro and solar pilot projects in Bauchi, Cross River, Edo, Katsina and Ogun States.</td>
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<tr>
<td><strong>Nigeria Rural-Renewable Energy Development</strong></td>
<td>World Bank May – August 2002 ICEED contributed to the World Bank-supported electricity access expansion study for Nigeria.</td>
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</table>

ICEED is also providing community education support in Afikpo. In 2018, ICEED signed an MOU with the Catholic Bishop of Abakaliki - proprietor of Ehugbo Technical College to train technical secondary school students in renewable energy technologies. Students of the college receive weekly training in solar energy design, installation and maintenance. They also receive instructions on thermal energy forms, including the design, construction and testing of efficient biomass stove technologies.
**Board Members**

**Ishaku Huzi Mshelia**
Huzi is one of Nigeria's leading environmental lawyers. He is the Executive Director of Clean Energy and Safe Environmental Initiative, and an advisor to national and regional bodies on climate change legal and financial issues. Huzi led the development and advocacy for the Bill to Establish the Climate Change Commission. He is the Chairman, Board of Directors of ICEED. He has an LLB (Hons) from Ahmadu Bello University and graduated from the Nigerian Law School in 1986.

**Subramoniayer Ananthakrishnan**
Krishnan has over 35 years working experience in cross cultural environments. He spent 14 of those years working with UNEP and UN-HABITAT. He spearheaded resource mobilisation for activities related to the establishment of One Stop Resource Centres for Children and Youth during Rio+20 (2012), WSSD 2002 (Rio+10), World Urban Forums in Barcelona, Vancouver, Nanjing and Rio. Until recently, Krishnan was a Senior Associate in ICEED. He led the development of the centre's humanitarian response to the challenges of the Northeast. Krishnan is a citizen of Norway and holds a Masters Degree in Social Analysis from the University of Bradford, United Kingdom.

**David Obasi Nwachukwu**
David is the Managing Director/CEO of Mezzanine Consulting Associates. He has over 30 years of varied financial services and consulting industry experience, including serving as the Managing Director of Midas Bank PLC. David has strong interests in economic development. He contributed to the drafting of the National Economic Empowerment and Development Strategy. In partnership with several donors, he has helped states develop their Poverty Reduction Strategies. David holds an M.Sc. in Economics from the University of Lagos. He is a founding member of the Board of Directors of ICEED.

**Ewah Otu Eleri**
Ewah is the Executive Director of ICEED. He has worked on energy and environment reform issues in several African countries. Ewah has specialised in economic and policy issues associated with expansion of energy access. He has over the past 25 years been consulting for the World Bank, European Union, USAID, DFID, the Governments of Canada, Norway, United States and the Federal Government of Nigeria.
He was the Lead Author of Nigeria's Renewable Energy Master Plan – the Federal Government’s 20-year Renewable Energy Investment Framework. Ewah has played central roles in Nigeria’s energy access reform processes, including leading DFID’s Nigeria Infrastructure Advisory Facility’s (NIAF) technical assistance to the Federal Government of Nigeria on electricity access expansion, rural electrification reforms and renewable energy market development. He holds an Mphil in Political Science from the University of Oslo.
Adeola Ijeoma Eleri
Adeola is a Bio Energy Expert with a focus on the environment, climate change and gender mainstreaming. She is interested in projects and programs that contribute to improved livelihoods of the poor. She believes that access to affordable and sustainable energy services can lead to the eradication of extreme poverty in Nigeria. Adeola works for the Energy Commission of Nigeria. She holds an MSc in Environmental Biology and is currently pursuing a PhD in Energy Policy at the University of Ibadan.

Graham Gass
Graham has worked in development for twenty five years. Before joining the Department for International Development (DFID), he was an environment/development researcher and consultant. Since joining DFID he has served as a social development adviser and senior manager in various countries, including 10 years in Nigeria and 17 years overall in Africa. He currently holds the position of Group Head in DFID’s Africa Regional Department. Graham has Masters Degrees in Political Science (University of Edinburgh) and Rural Development (UEA).
Our Partners and Funders

ICEED have had good partnership with corporate organizations, government agencies and international agencies. We are grateful for the seamless collaboration and wish to particularly acknowledge the following:
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Email: info@iceednigeria.org

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Kano Office
15/16 Post Office Road Behind Ten 05
Kano

Katsina Office
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Katsina State

Maiduguri Office
14, Galadima Mohammadu Kazaure Street
Off Damboa Road, Old GRA, Maiduguri
Borno State

Social Media Platforms
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- www.iceednigeria.org