



ICEESR

INTERNATIONAL CENTRE FOR ENERGY AND
ENVIRONMENTAL SUSTAINABILITY RESEARCH

UNIVERSITY OF UYO



ICEESR



Main Research Building



Technology Incubation Building



Startup Research Building



Multipurpose Office Building



Current State

ABOUT ICEESR

In support of Nigeria's aspiration to be an innovation hub in Africa and to promote the startup of green small and medium businesses, the International Centre for Energy and Environmental Sustainability Research was conceived. The aim of the Centre is to deliver collaborative research and development partnerships with businesses to support the development of new products, processes and services for the global marketplace. By virtue of their use, manufacture, raw materials, reuse or disposal, these innovations will deliver positive environmental impacts. The Centre will leverage on the research and innovation opportunities in the Niger Delta region - home to Nigeria's oil and gas resources.

Our key objectives are to:

- Carry out industry driven innovative research and manpower development in Science and Technology dedicated to promoting environmental sustainability
- Provide world class accredited laboratories for solution development, incubation of ideas for the market, and validation of solution offering
- Support the investing community with research, innovation and technology outcomes for commercialization
- Contribute to the revenue stream of the University of Uyo, Akwa Ibom state, and Nigeria in general.

The Centre is an initiative led by Dr. Edu Inam, a United Nation's University Scholar, currently of the Department of Chemistry, University of Uyo, Uyo, and Mr. Julius Akinyemi, a diaspora Nigerian currently an entrepreneur-in-residence, Massachusetts Institute of Technology, Boston, USA and the founder/CEO UWINCORP. The centre was supported to commence activity by Mr. Udom Inoyo, Executive Vice Chairman, ExxonMobil, University of Uyo community, and other prominent Nigerians.

OUR PARTNERS AND COLLABORATORS



THE CHALLENGES

Local Challenges

Nigeria faces significant challenges in accelerating growth, reducing poverty, meeting the Sustainable Development Goals, and using knowledge more effectively for greater economic, environmental and social development. The political and economic transformation taking place in Nigeria today provides an opportunity for growth and development. But adequate research, development and unfettered human capacity for innovation must be present to unleash the potential for growth.

Global Challenges: In Sub-Saharan Africa

Energy

600 million people (about 60.7% of the population) are without electricity, 50% of businesses view a lack of reliable access to electricity as a major constraint to doing business



Water

30% of Nigerians, 10.7% of Ghanians and 36% of Kenyans have no access to clean and safe water. 45000 children die annually from diarrhea in Nigeria alone



Waste

Waste production in Africa will exceed 160 million tons by the year 2025. Yet, Less than 10% of waste generated everyday in Africa is collected for recycling or reuse



Poverty

The region now accounts for more than half the world's extreme poor. Forecasts indicate that by 2030, nearly 9 in 10 extremely poor people will live in Sub-Saharan Africa





Solar heating system prototype

Energy

We are creating a living energy laboratory for alternative energy research and technology. Our focus is on developing and deploying sustainable and renewable energy technologies as well as providing technical support for businesses in this sector.

Some of our activities in this area include:

- Production of fuel from waste biomass like agricultural residues
- Scaling up and deployment of solar energy technologies for lighting up of rural communities;
- Adaptation and deployment of micro hydro-powered and biogas technologies

Related Prototype

Solar water heating system with sun tracking system

Application:

Solar water heater for water purification



Water treatment system prototype

Water

Our goal is to set-up a water quality reference laboratory accredited by United States Environmental Protection Agency and the Standards Organization of Nigeria to support the National and State Actions Plan on WATER, SANITATION AND HYGIENE (WASH)

Some of our activities in this area include:

- Water quality mapping of Akwa Ibom State and Nigeria including water quality computer applications; and
- Development and deployment of eco-nanocomposite water filtration systems and industrial waste water treatment technologies

Related Prototype

Large scale low-cost water treatment system using gravity driven membrane (GDM), this cost effective water treatment system has diverse application.

OUR SOLUTION

Waste

Our goal is to create wealth from waste through timely and appropriate technologies and research interventions.

Some of our activities in this area include:

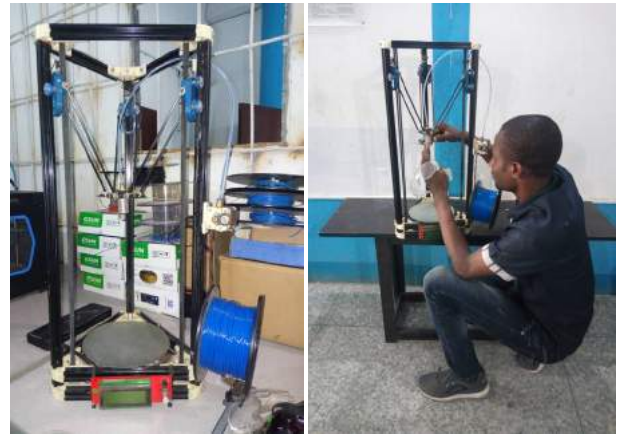
- Development of appropriate materials for remediation from waste
- Conversion technologies for plastic waste, and resource recovery from waste

Related Prototypes

Filament Extruder: a machine that takes in shredded plastic waste and converts it into filaments of the right size for 3D printing

Filament Spooler: a machine attached to and synchronized with the Filament Extruder to wind up and spool the 3D printer filament

3D Printer: a low-cost 3D printing machine we have developed that has broad business application and scope



3D Printer; Filament Extruder; and Filament Spooler prototypes

Poverty Reduction



Our goal is to catalyse the creation of 5 small and medium businesses per year with capacities to employ ten to fifty people in their value chain. Our prototypes can create more than 500 jobs.

Prototypes produced by the centre has the capability to provide about 500 jobs each year, thereby reducing unemployment and poverty.

Some of our activities in this area include:

- Retraining in renewable energy technologies
- Provision of support and technical services to startups via co-location and access to practical scientific information
- Promoting and advocating green businesses for social and environmental sustainability.

VALUE ADDITION & BENEFITS

Businesses

- Firsthand access to commercialisable inventions and prototypes
- Co-location including office space, hot-desk space and laboratory space
- Co-designing, co-development and co-delivery of new products and services
- Involvement in students' projects and internships, campus culture, collaboration with other resident companies, access to world class researchers and innovators, and access to international markets
- Opportunities to partner with our international collaborators to deliver training, and opportunity to work with our international business development team
- Access to continuous professional development towards certification in core areas
- Access to a broad mix of expertise, so that disciplines can be combined to provide innovative solutions
- Opportunity to join our global network

Government

- Opportunity to increase revenue from new businesses created through our innovations
- Access to scientific data to support policies and programmes
- Retraining and continuous professional development of government staff to enhance regulatory functions in a digital and disruptive technology age
- Access to our inventions and prototypes to support industrialization and job creation

Academia

- Increase in revenue through attraction of international students
- Higher ranking and visibility
- Global competitiveness of staff and students
- Increase in research grants and endowments
- Opportunities for joint curriculum development that meets industry needs
- Internships, funded students projects, exchanges, industry, government and academia collaborations
- Student and staff exchange program/ opportunities

CAPACITY BUILDING EXAMPLES

So far we have facilitated the scientific and technical training of 25 people from universities and parastatals in 9 African countries by our affiliate institution.

Nigeria (9), Cameroon (3), Ethiopia (2), Ghana (3), Kenya(1), Malawi (2), Sudan (1), Tanzania (3), and Zimbabwe (1)

S/N	NAME	NATIONALITY	AFFILIATION
1	Joseph Peter Essien	Nigeria	Department Of Microbiology, University Of Uyo, Uyo, Nigeria
2	Esther Unyime Etim	Nigeria	Department Of Chemistry, University Of Uyo, Uyo, Nigeria
3	Itoero Esiet Udo	Nigeria	Department Of Chemistry, University Of Uyo, Uyo, Nigeria
4	Christiana Ime Udosen	Nigeria	Department Of Microbiology, University Of Uyo, Uyo, Nigeria
5	Saviour Peter Udo	Nigeria	Akwa Ibom State Rural Water Supply And Sanitation Agency, Nigeria
6	Idongesit Sunday Ambrose	Nigeria	Ministry Of Environment & Mineral Resources, Uyo, Nigeria
7	Kate Otobong Akpabio	Nigeria	Akwa Ibom Water Company Limited, Uyo, Nigeria
8	Sanda Idiat Modupe	Nigeria	Federal Ministry Of Environment, Abuja, Nigeria
9	Lawrence T. Nanganoa	Cameroon	Institute Of Agricultural Research For Development (Irad)/Ministry Of Scientific Research And Innovation, Cameroon
10	Colbert Manene Mukete	Cameroon	Cameroon Development Corporation, Cameroon
11	Aguh Akeh Nug	Cameroon	The Environmental And Rural Development Foundation, Cameroon
12	Wilford Zungkat Jwalshik	Nigeria	Fct Water Board, Abuja, Nigeria
13	Charlotte Akwaah Adjei	Ghana	Tema Metropolitan Assembly, Ghana
14	Leticia Aryeetey	Ghana	Tema Oil Refinery, Ghana
15	Charles Mario Boateng	Ghana	University Of Ghana
16	Benjamin Kamanga Malaw	Malawi	Government, Ministry Of Environment And Climate Change Management, Environmental Affairs Department , Malawi
17	Abdelazim M. Ahmed	Sudan	National Center For Research - Environment And Natural Resources Research Institute, Sudan
18	Emmy Solomon Lema	Tanzania	Dept. Of Phisical Sciences, Sokoine University Of Agriculture, Tanzania
19	Jacob Kihila Mabula	Tanzania	Ardhi University, Tanzania
20	Nyirabu Zablou Musira	Tanzania	Energy And Water Utilities Regulatory Authority (Ewura), Tanzania
21	Charles Nzavi Lange	Kenya	National Museums Of Kenya
22	Mtisunge Mngoli	Malawi	Lilongwe University Of Agriculture And Natural Resources, Malawi
23	Frehiwot Bayou Abeje	Ethiopia	Addis Ababa Water And Swerage Authority, Ethiopia
24	Samson Girma Gabre	Ethiopia	Ethiopian Public Health Institute, National Drinking Water Microbiology Laboratory, Ethiopia
25	Andrew Chinyepe	Zimbabwe	Scientific And Industrial Research And Development Centre (Sirdc), Zimbabwe

CAPACITY BUILDING EXAMPLES



Internship

Internship at Gwangju Institute of Science and Technology, South Korea



Workshop

UNIUYO & GIST Joint Programme Workshop on the theme: "Waste Management and Land Contamination"



Fellowship

Commonwealth Professional Fellowship Programme hosted by Lancaster Environment Centre, Lancaster University, United Kingdom



Professional Training

Science and Technical Training for Water Quality Monitoring and Management of Sustainable Water Resources



Workshop

British Council Researcher Links Workshop on the topic "Future Proofing Agricultural Production against Environmental Change"



In house Professional Training

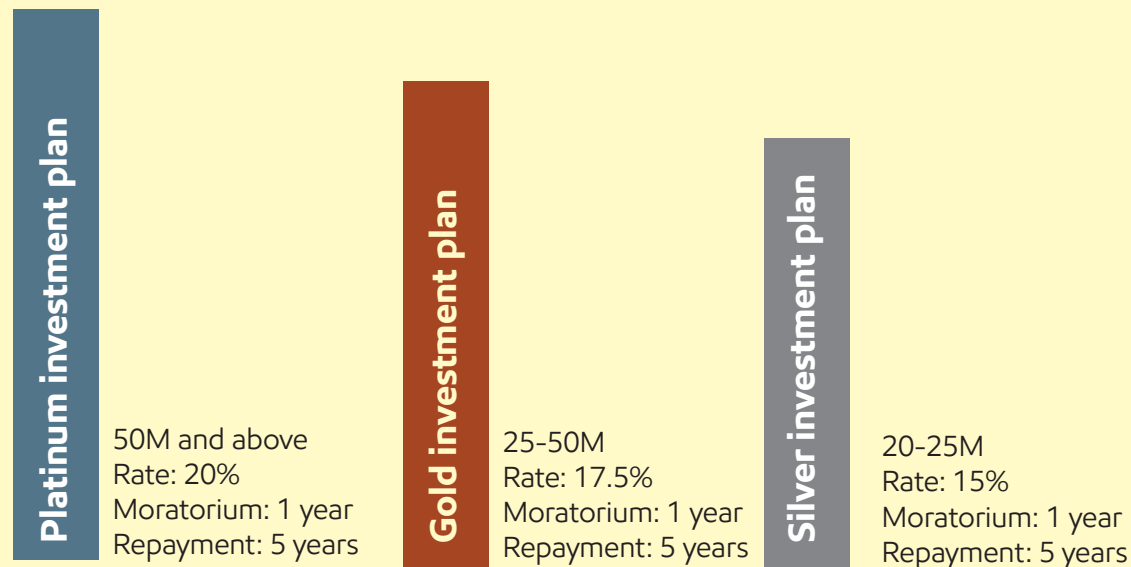
In house training on technical skills and expertise on the use of selected scientific equipment

FINANCIAL MODEL

Investment Options

Take advantage of ICEESR's offer of negotiable workable repayment plans for investors.

These investment plans are available in 3 options:



OTHER FUNDING OPTIONS

Equity - shares and joint ownership

Corporate Social Responsibility

Social investment - name immortalisation

Charitable donations

**For more information please call our finance office on +2348064740389, +2347034112890 or email contact@iceesr.org.ng*

KEY PARTNERS

1. Gwangju Institute of Science and Technology (GIST), South Korea
2. International Sustainable Chemistry Collaborative Centre, Germany
3. Lancaster Environment Centre, Lancaster University, United Kingdom
4. New England Biolabs, USA
5. Science and Technology Policy Institute, South Korea
6. China University of Petroleum, Huadong
7. King Fahd University of Petroleum & Minerals, Saudi Arabia
8. Akwa Ibom State Ministry of Science and Technology
9. Akwa Ibom State Ministry of Environment
10. Federal Ministry of Environment, Abuja, Nigeria
11. Greenwell Technology Limited, USA
12. Ibom Power Company, Akwa Ibom State

KEY ACTIVITIES

1. Research and development of new products and services using sustainable chemistry concept
2. Training and capacity building
3. Provision of accredited laboratory services for testing and measurements
4. Co-designing, co-development and co-delivery of new products and services
5. Research and Development facilities to support new start-ups in green businesses
6. Scaling up innovations from universities to markets
7. Technology transfer and technology adaptation

KEY RESOURCES

1. World class researchers and experts
2. Accredited laboratory facilities
3. Standard training facilities
4. Uninterrupted electricity and internet facilities
5. 24 hrs services operation
6. Linkages to global centres of excellence

CUSTOMER RELATIONSHIPS

1. We work with a network of SMEs and NGOs in our area of focus
2. We engage with businesses in organised fora
3. we reach our researchers, faculty members and students through their tertiary institutions.
4. We organize master's classes, workshops and conferences to showcase our researches, products and services

REVENUE STREAMS

1. Contract researches
2. Equipment usage fees
3. Consultancy services fees
4. Facility rental fees
5. Intellectual property licensing and commercialization
6. Capacity development fees
7. Subscription to databank and apps fees
8. Grants and endowments

COST STRUCTURE:

ICEESR is structured as a public-private partnership, where the public partner is University of Uyo, Nigeria. The main funding is expected to be from the private sector in form of social capital, equity and debt.

VALUE PROPOSITION

1. First public-private partnership model for developing and delivering sustainable research solutions in Nigeria.
2. One-stop facility for research and development, product incubation and laboratory services to meet the needs of industry and researchers
3. Broad mix of expertise from industry, government and academia working to provide holistic and innovative solutions
4. Located in the Oil and Gas rich region of Nigeria

CUSTOMER SEGMENTS

1. All business entities and NGOs, SMEs inclusive, operating in industrial chemicals, agrochemicals, water, extractive industry and renewable energy sectors
2. Researchers (students and faculty members) in over 20 tertiary institutions in the southern part of Nigeria
3. International and National oil companies operating in the Niger Delta region of Nigeria
4. Government departments responsible for managing health, environment, science and Technology, SMEs and energy
5. New start-ups in pursuit of Circular Economy

DISTRIBUTION CHANNELS

- Emails newsletters
- Posters and flyers
- Social Media
- Electronic & Print Media



International Centre for Energy & Environmental Sustainability Research

University of Uyo, Uyo, Nigeria

Suite 152, Faculty of Science Building,
Main Campus, Nwaniba Road, Uyo

Website: www.iceesr.org.ng

Email: contact@iceesr.org.ng

Tel: +234(0)7062404480

