Multipurpose Office Building

Main Research Building

Technology Incubation Building

Startup Research Building

Multipurpose Office Building

Current State
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**

![Partner Logos]
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

OUR SOLUTION

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
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

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
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)

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

- **Platinum investment plan**
  - 50M and above
  - Rate: 20%
  - Moratorium: 1 year
  - Repayment: 5 years

- **Gold investment plan**
  - 25-50M
  - Rate: 17.5%
  - Moratorium: 1 year
  - Repayment: 5 years

- **Silver investment plan**
  - 20-25M
  - Rate: 15%
  - Moratorium: 1 year
  - Repayment: 5 years

**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@icesr.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

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

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

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

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.

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