

NIGERIAN INTENSIVE BIOGAS COURSE

**October 12 –
October 16, 2015**



**Lagos Chamber of
Commerce, Ikejal,
Beside MKO Abiola
Garden, Lagos
Nigeria**



ALIL and German Academy for Renewable Energy and Environmental Technology are delighted to announce the first of its kind a 5 days long In-depth Biogas summer course for both operators and planners and other individual with or without any prior knowledge in biogas. The course will be delivered by speakers with many years of practical experience in the German biogas industry plus Nigerian experts who will bring this knowledge into the context of the Nigerian situation.

The Course Covers:

- Introduction to the summer school and biogas technology
- Introduction of small biogas systems for rural energy in the 1970ies
- Actual Situation in Africa
- State of the art in Europa, USA, Australia, East Asia
- Design
- Process calculations
- Safety and accident avoidances
- Finance & funding
- Permits and regulation
- Working Biogas plant in Nigeria
- Biogas production, purification and upgrading
- Biogas application and appliances
- Potential revenue from Biogas plant
- Building materials for biogas plant construction
- Different feed stock handling and biogas production
- Biogas process monitoring and practical plant operation

Who will benefit from the course?

- Anaerobic Digester (AD) plant developers
- Biogas plant operators and staff; farmers planning to operate AD
- Academic Institutions
- Central & Local Government officials engaged with AD
- Banks & investment houses, private investors

Co-organizer

German Academy for Renewable Energy & Env. Tchnology
100714, 10567 Berlin – Germany

Phone: +49 30-33778033 Fax: +49 30 63426227

E-mail: h.gamil@germanacademy.net

Website: www.germanacademy.net

Conditions of participation in the training Course

Registration is required in writing by e-mail. After receiving your complete registration, we will send you the confirmation and bill by e-mail. Written cancellations are possible until September 9th, 2015. Upon cancellation payments made up to that time will be refunded except for an administration charge of **₦26,000.00**. After September 9th, 2015 refunds are no longer possible. Late registrations which are cancelled are billed in full. In case of late cancellations we gladly accept a substitute participant. The number of participants is limited, therefore a timely registration and payment is required no later than September 9th, 2015.

The complete price for the training course is **₦280,000.00**.

Included are

- Extensive documentation
- Beverages during the course
- Lunch with beverages
- Excursion and entrance fees

Not included are

- Travel
- Accommodation
- Further meals and beverages

Registration form (Registration is legally binding)

Nigeria Biogas Training Course, October 12-October 16, 2015

Lagos Chamber of Commerce, Ikeja, Lagos, Nigeria.

Family name: _____ First Name: _____

Company/Institution: _____

Billing Address: _____

Phone: _____ Fax: _____

E-mail: _____ www. _____

Date: _____ Signature: _____

Organizer

Avenam Links International Ltd
15 Beco Estate Mangoro, Ikeja

Phone: +234 7030070291, 8174382159

Email: ani.n@avenamlinks.com

Website: www.avenamlinks.com

Programme:

Monday, 12th October 2015

- ❖ Introduction to the Summer school
- ❖ Time schedule (lectures, presentations of external experts, excursions)
- ❖ Biogas in the natural (swamps, sediments, ruminants) and artificial (rice fields, landfills) environment.
- ❖ Composition on Biogas (methane, Carbondioxide).
- ❖ Role of Methane as climate gas.
- ❖ Understanding “Natural gas” and methane by pyrolytic processes.
- ❖ Short history of Biogas
- ❖ Small scale digesters in India and China since 1950
- ❖ Introduction of small biogas systems for rural energy in the 1970ies
- ❖ Actual situation in Africa
- ❖ State of the art in Europa, USA, Australia, East Asia

Tuesday, 13th October 2015

- ❖ Biogas as a natural biological process
- ❖ The four phases of biogas-production.
- ❖ Temperature, pressure, feed composition
- ❖ Biogas production of wastes, sludges, agricultural residues
- ❖ Residue as fertilizer

Wednesday, 14st October 2015

- ❖ Biogas as energy source
- ❖ Characterization of Biogas (composition, heating value)
- ❖ Purification and Upgrading
- ❖ Burning of Biogas (domestic stoves, boilers)
- ❖ Combustion engines and biogas (mechanical energy and electricity)
- ❖ Cooling and Climatization with Biogas
- ❖ Biogas in local distribution grids.
- ❖ Upgrading of Biogas to Pipeline-Quality or as fuel for cars.
- ❖ Components for Upgrading, Storage and Distribution of Biogas/Methane

Thursday, 15th August 2015

- ❖ Proper Dimension of a Biogas-Plant
- ❖ Parameters affecting Size and Performance
- ❖ Analytic procedures for the characterization of the feedstock (Dry Matter, Ash)

- ❖ Analytic procedures for the control of the process (pH, FOS/TAC)
- ❖ Observation of gas composition (Test Tubes, Multimeters)

Friday, 16th October 2015

- ❖ This day will keep the overflow of topics. Visits to biogas plant in Lagos may need 1/2 day.
- ❖ End of the lecture. Final discussion and questions

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