

FOCUS NANOTECHNOLOGY AFRICA INC (FONAI) BRIEF REPORT 2009

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FONAI BRIEF REPORT 2009

Introduction

Focus Nanotechnology Africa Inc.(FONAI) was set-up in March 2006 and was accepted to be a 501c3 organization as a public charity in 2006 for scientific and educational purposes with these major aims as posted on the website since 2006:

Sensitize the whole of Africa and the Caribbean on nanotechnology by means of lectures, seminars, workshops and publications.

Draft proposals that will involve a grand alliance of academia, government agency and industry.

Set-up Nanotech Research Centers of Excellence around specific themes like nanomaterial synthesis, nanoscale fabrication of devices, nanoscale studies of phenomena and processes, nanomanufacturing, etc.

Sensitization or nanoeducation:

- Since then we have formed a formidable global network especially in the US, Africa and the Caribbean. Initially through FONAI website; we have published latest development in nanoscience and nanotechnology especially in the area of nanoenergy. This continued on weekly bases until 2008 before the Journal Nanotechnology Progress International (JONPI) was established recently.
- Through this network, I was made a member of the Advisory Board of World Bank \$180 million project in Nigeria for capacity building in Nigeria. Through this process I reviewed proposal for project to be executed.
- I am a member of the steering committee of the EU-FP7 project connected to a major EU nano project that will spend about \$4.415 billion until 2010.
- As early as 2005 in pre-startup period, we contacted the government of Nigeria through then Minister for Science and Technology Prof. Ishoun about the need for a Nigerian National Nanotechnology Program. Money was voted through FONAI effort and we can at least see a Nigerian National Program that is growing very fast. The initial budget for this project or group of projects was \$1.2 billion; this has been guaranteed; let me quote the update from the major funder last month:

“It is a little premature for the kind of update all of you are wanting, so this will lack any specific time frames. Things tend to change almost daily. Progress toward the goal of creating funding for projects, homes, cars, ICC, KFG, etc., has been significant. I can't give you any details or quote time frames, but I am very pleased with our progress. I can assure you that funding from this process will happen as soon as possible. I have been working 24/7 to make this a reality”. This has been awaited but we have been persistent and waiting for it”.

- Recently to improve our network to enable more global participation to create a better platform to help Africa and the Caribbean, the US-EU-Africa-Asia-Pacific and Caribbean Nanotechnology Initiative (USEACANI) covering 158 countries was formed. We have co-ordinators in Africa and the Caribbean. We have networks or contacts to 110 nano-experts or people with nano-interest distributed in all the 53 countries of Africa: Let me paste a summary report sent to ICPC-FP7 EU project:

TABLE 1.

Main nanoscience centers and their specializations in Africa

FACILITY	COUNTRY	SPECIALIZATION
iThemba LABS	South Africa	Metal Nanoparticles; Nanocomposites; nonlinear optical devices; optical spectroscopy; Laser Ablation; Matter Waves
School of Informatics and Engineering, REGENT University College	Ghana	Nanopolymeric Materials for Drug Delivery, Nanomedicine
Department of Physics, University of Laser and Fiber Optic Centre (LAFOC)	Ghana	Agricultural and environmental science, light scattering and interferometry, Nanomaterials
Advanced Technologies Development Centre	Algerie	solid state laser, gaseous laser, atomic and molecular laser, spectroscopy, laser material processing research
National Institute of Laser	University of Cairo El-Giza, Egypt	For the co-operation of all the laser scientists in

Enhanced Science (NILES)		the surrounding countries. Medical and Biological Applications of Lasers
National Laser Center, CSIR	South Africa	Mathematical optics <u>Biophotonics</u> , Laser Materials Processing
Department of Physics, University of Zimbabwe	Zimbabwe	Plasma and laser physics, optics, spectroscopy
Ecole Supérieure des Communications de Tunis, Tunisia	Tunisia	Fourier optics, optoelectronics, optical communication and systems, and radiofrequencies systems
Department of Physics, University of Kwazulu-Natal	South Africa	Plasma Spectroscopy and Atomic Processes in Fusion Plasmas, laser propulsion
Department of Physics, University of Zambia	Zambia	Laser-based research, space science
National University of Lesotho	Lesotho	Optics, Laser Physics
1. Centre for Energy Research & Development, OAU Obafemi Awolowo University		Nuclear Physics/Theoretical Physics
2. Nigeria Nsukka	Nigeria	Nanomedicine
3. Benue Polytechnic, Ugbokolo		Nanoagriculture
4. University of Jos		Nanoenergy
5. Federal		

University Technology Akure. Abia State University NASNI University of Science and Technology, Department of Pharmaceutics	Ghana	Pharmaceutical Nanotechnology, Nanomedicine
Tunis el Manar University, Tunis, Tunisia	Tunisia	Plant and environmental science and molecular spectroscopy
Centre for Atomic Molecular Physics and Quantum Optics (CEPAMQ), University of Douala	Cameroon	Physics of matter and radiation, Optics and Applications, Spectroscopy
Dept of Physics, Faculty of Science, University of Yaounde	Cameroon	Laser Plasma Applications in Materials Science, Nanosciences, Modeling & computation
Advanced Technologies Development Centre (CDTA)	Algeria	Laser spectroscopy and surface studies
Groupe de Physique des Solides et Science des Materiaux, University of Cheikh Anta Diop	Senegal	Atomic and molecular physics, laser spectroscopy and processing
Jomo Kenyatta University of Agriculture and Technology	Kenya	Laser Physics, Theoretical Physics, Applied Nuclear and

Radiation Physics

School of
Physics,
University of the
Witwatersrand
Department of
Physics,
University of
Stellenbosch

South Africa

South Africa

Nanoelectronics,
Nanomaterial synthesis

Theoretical Physics,
Laser Physics, Nuclear
Physics

Nanoscience and nanotechnology contacts in Africa

1. Dr. T Hillie

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2. Professor D. Knoesen

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Centre for Energy Research and Development, Obafemi Awolowo University, Ile-Ife, Nigeria

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102. Professor F.I. Ezema

Faculty of Pharmacy, University of Nigeria Nsukka

103. Professor Igbekele Ajibefun

Federal University of Technology, Akure

104. Professor Anthony Atama

University of Nigeria Nsukka, Nigeria

104. Professor Charles O. Esimone
University of Nigeria Nsukka, Nigeria

105 Professor Benjamin Ezekoye
University of Nigeria Nsukka, Nigeria

106. Professor Benedict Gbaruko
Abia State University, Uturu, Abia State, Nigeria

107 Obinna Ofeogbu
Scientist: National Research Institute For Chemical Technology, Zaria Nigeria

108. Dr. Paul Odumu,
University of Jos, Nigeria

109. Professor Jeff-Agboola, Y.A.
University of Technology, Akure Nigeria

110. Professor Onyanobi Anyebe
Benue Polytechnic, Ugbokolo, Nigeria

- Further, in the Caribbean, we have these contacts of nano-personnels:

1. Ing. Alejandro Cruz Molina (Costa Rica)

2. Prof. Ishenkumba Kahwa (Jamaica)

3. Prof. Jean Louis Mansot (Guadeloupe)

4. Prof. Winston Lewis (Trinidad and Tobago)

5. Prof. Harinder Pal Singh Missan (Trinidad and Tobago)

6. Prof. Avril R. William (Barbados)

7. Prof. Sujit Bag (Barbados)

8. Prof. Helen Asemota (Jamaica)

9. Prof. Andrew Wheatley (Jamaica)

10. Prof. Upindranath Singh (Barbados)

11. Prof. José Vega Baudrit (Costa Rica)

12. Prof. Mauricio Terrones (Mexico)

- There is a workshop planned for Trinidad on June 21-26, 2009. About 30 people globally are presenting especially from Africa, US and the Caribbean. The deadline was closed if not more people should have submitted papers. The workshop will discuss nanomedicine, nanoenergy, nanofiltration, nanoagriculture, nanosensors, nanoeducation and nanoscience policy and strategies. The proceeding will be published in the maiden edition of Journal Nanotechnology Progress International (JONPI) to come out soon
- The next objective is nanoresearch
6 working groups have been formed. Proposals were drafted and submitted to many agencies for funding but due to the broad nature of the project, it was only accepted for funding by a major funding agency for the total of \$1.2 billion for a group of FONAI and other projects. I have already given the latest update from March 2009 from the funder. That funding is expected ASAP from the update. The economic melt-down affected a lot of things. We have gone ahead to package all the plans including equipments (from all potential contributors) for the nano institute in Ithaca. All this will be executed when the anticipated funding comes.

Research working groups

1. Nanoenergy

Paula Hammond (MIT), Harry Atwater (CALTECH), Sossina Haile (CALTECH), Ejembi Onah (FONAI), David Hui (UNO), Malik Maaza (Ithemba Lab), Samy El-Shall (VCU), Mostapher El-Sayed (Georgia Tech), Fabian Ezema (UNN), Mauricio Terrone (AMLM), Ishenkumba Kahwa (UWI), Missan Harinder (UWI), Vicki Colvin (RU), Onyanobi Anyebe (BenPoly)

2. Nanomedicine

Michael Adikwu (UNN), Ejembi Onah (FONAI), Paul Odumu (UniJos), Stanley Moffatt (Reagent University), David Wilson (Cornell), Charles Esimone (UNN), Benjamin Ezekoye (UNN), Mansoori (UIC), Anthony Attama (UNN), Nelson Ochekepe (UNIJOS)

3. Nanoagriculture

Helen Asemota (UWI), Ejembi Onah (FONAI), Igbekere Ajobefun (FUTA),

4. Nanoeducation

Aldrin Sweeney, Ejembi Onah

5. Nanofiltration

Samuel Ugbohue (UMASSD), Ejembi Onah (FONAI), Yong Lak Jo (Cornell), Margaret Frey (Cornell),

6. Nanosensor

Omowunmi Sadik (UB), Ejembi Onah (FONAI)

The expansion is continuing.

- Steering Committee and Advisory Board

Dr. Ejembi John Onah

Founder and Chair, USEACANI Steering Committee

Other members of the Steering Committee are:

1. Dr. Samuel Ugbohue, Professor, University of Massachusetts Dartmouth
2. Dr. Stanley Moffatt, Professor, Reagent University of Science and Technology, Accra-Co-Chair
3. Dr. David Hui, Professor, University of New Orleans
4. Dr. Mauricio Terrones, Professor, Advance Material Lab, Mexico
5. Dr. Vicki Colvin, Professor, Rice University
6. Dr. Helen Asemota, Professor, University of West Indies, Jamaica-Co-Chair
7. Dr. Michael Adikwu, Professor, University of Nigeria Nsukka-Co-Chair
8. Onyanobi Anyebe, Professor, Benue State Polytechnic, Ugbokolo
9. Dr. Charles Esimone, Professor, University of Nigeria, Nsukka
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11. Dr. Harinder Missan, Professor, University of West Indies, Trinidad
12. Dr. Paul Odumu, MD, University of Jos
13. Dr. Nelson Ochekepe, Professor, University of Jos

Advisory Board Members-USEACANI

Dr. AC Beye Professor, (University of Cheikh Anta De Dakar, Senegal-Africa), Dr. Michael Adikwu, Professor UNN (Step B Project-Africa), Dr. Malik Maaza, Professor (Ithemba Lab-Africa) (Co-Chair), Dr. Araya Asfaw, Professor (Adisa-baba University-

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Budget

The total budget for the whole project for the next ten years is \$10 billion. To get to this, advisory board and steering committees are being formed as above. A well thought through strategy is being planned to draft an error free document for bill passage by congress and other parties.

Total budget for the next ten years \$10 billion

Source:

United States (US), African Union (AU), European Union (EU), Caribbean and Pacific countries (ACP), Group of 8 Industrialized Nations (G8) and Caribbean Community (CARICOM)

US \$4 billion

Notable Foundations \$1 billion: Bill and Melinda, Rockefeller, Ford, William and Flora Hewlett, MacArthur, Mellon, Carnegie, etc

EU \$0.5 billion

World bank \$0.5 Billion

NATO \$0.5 billion

G8 \$ 2.625 billion divided by 6 (France \$438 million, UK \$438 million, Russia \$438 million, Germany \$438 million, Japan \$438 million, Italy \$438 million, Canada \$438 million)

Africa, Caribbean and Pacific countries (ACP) \$0.25 billion

CARICOM \$0.125 billion

African Union \$0.5 billion

Total: \$10 billion

Use of funds:

- 1.Nanoeducation: Seminars, lectures, workshop, scientific literature search engines, etc = \$1 billion
- 2.Individual investigators seed money = \$1 billion
- 3.Setting up of USEACANI- International Nanoscience and Nanotechnology Institutes and universities-Nanocorps = \$4 billion
- 4.USEACANI-Nanotechnology and Nanoscience industrial development including seed money: \$2.5 billion
- 5.Overhead including administration and fringe benefits: \$1.5 billion

CONCLUSION

- Working hard together as a team

- Surely this is briefly what we have been able to accomplish and will continue to accomplish more with your co-operation
- We must realize that we are dealing with a lot of issues at once with many interests at stake. Satisfying all these interests is not trivial
- As you can see, we are on track following through all the objectives we started with and have not deviated. We will continue to deliver. Our main objective is working together with everybody with a carefully thought through long term strategy
- Hang in there with us as we seek your continued support
- We thank all of you and especially those who have never lost faith in us to succeed even for a second. I cannot mention them but they know themselves

Dr. Ejembi Onah
Founding President, FONAI
Founding Chair, USEACANI