

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

National Centre for Nano-Structured Materials, Council for Scientific and Industrial Research, PO Box 395, Pretoria 0001, South Africa.

2. Professor D. Knoesen

Department of Chemistry, University of the Free State (Qwaqwa Campus), Private Bag X13, Phuthaditjhaha 9866, South Africa

3. Professor SE Iyuke

School of Chemical and Metallurgical Engineering, Faculty of Engineering and the Built Environment, University of the Witwatersrand, P/Bag X3 Wits 2050 Johannesburg, South Africa.

4. Professor E. Iwuoha

University of the Western Cape, Sensor Research Laboratory, Department of Chemistry, Cape Town, South Africa.

5. Professor V Pillay

University of the Witwatersrand, Faculty of Health Sciences, Department of Pharmacy and Pharmacology, Parktown, 2193, South Africa.

6. Professor MS Scurell

Molecular Sciences Institute, School of Chemistry, University of the Witwatersrand, Private Bag 3, WITS, 2050, South Africa.

7. Dr Mohamed Eisa

Sudan University of Science & Technology, Department of Physics, Khartoum, Sudan.

8. Professor F. Kavishe

Centre de Development des Techniques Avancees, Algiers, Algeria

9. Dr. G Egharevba

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

10. Dr G. Tessema

Faculty of Science, Department of Physics, Addis Ababa University, P.O. Box 1176, Addis Ababa, Ethiopia

11. Dr N.I. Manyala

Department of Physics and Electronics National University of Lesotho P.O. Roma 180 Maseru 100, LESOTHO

12. Professor Allen Rodgers

University of Cape Town, Department of Chemistry, Cape Town

13. Professor D. Britton

Department of Physics, University of Cape Town, Private Bag, Rondebosch 7700 South Africa

14. Professor Aneli Fourie

UNESCO Associated Centre for Macromolecules & Materials, University of Stellenbosch, Chemistry & Polymer Science Division, Private Bag, Stellenbosch 7600 South Africa

15. Professor KK Muller-Nedebock

Department of Physics, University of Stellenbosch, Private Bag X1, Stellenbosch 7600 South AfricaTel

17. Prof DS Mclachlan

Department of Chemistry & Polymer Science, University of Stellenbosch, Private Bag X1, Stellenbosch 7600 South Africa

18. Professor S.O. Olabanji

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

19. Professor WJ Perold

19. Department of Electrical and Electronic Engineering, University of Stellenbosch, Private Bag X1, Stellenbosch 7600 South Africa

20. Professor RD Sanderson

Chemistry & Polymer Science Department, University of Stellenbosch, Private Bag X1, Stellenbosch 7600 South Africa.

21. Professor PS Steyn

Department of Research & Development, University of Stellenbosch, Private Bag X1, Stellenbosch 7600 South Africa

22. Dr C Theron

Materials Research Group, iThemba Labs, PO Box 72, Somerset West 7120 South Africa

23. Professor R. Knutsen

University of Cape Town, Center for Materials Engineering, Cape Town

24. Professor N. Torto

University of Botswana, Faculty of Science, Department of Chemistry, Private Bag UB 00704, Gaborone, Botswana.

25. Dr I. Adraoui

University of Mohammedia, Department of Chemistry, Laboratoire d'Electrochimie et de chimie physique. Faculté des Sciences et Techniques de Mohammedia, Maroc.

26. Dr Sossé Ndiaye

Université Cheikh Anta DIOP de Dakar, Département Physique/Faculté Sciences & Techniques, Senegal.

27. Professor L. Lorenzen

University of Stellenbosch, Department of Process Engineering, Private Bag X1, Matieland 7602, South Africa

28. Professor Yunus Ballim

Professor of Civil Engineering, University of the Witwatersrand, Private Bag 3, WITS 2050, South Africa

29. Dr George Owusu Essegbey

Senior Scientific Secretary of the Science and Technology Policy Research Institute (STEPRI) of the Council for Scientific and Industrial Research (C.S.I.R.). Accra, Ghana.

30. Dr. Spirit TLALI

National University of Lesotho, Department of Physics and Electronics. P.O. Roma 180 Lesotho.

31. Professor Joe Tesha

University of Dar es Salaam, Department of Mechanical Engineering, P.O. Box 35131, Dar es Salaam, Tanzania.

32. Professor Ahmadou Wague

Department of Physics, Faculty of Science and Techniques, University Cheikh Anta Diop, Dakar, Senegal

33. Dr. Rafat Mohamed Ibrahim

University of Khartoum, Laser Laboratory, Department of Physics, Khartoum, Sudan.

34. Dr. K. Anane-Fenin

Laser and Fiber Optic Center (LAFOC), Department of Physics, University of Cape Coast, Ghana.

35. Professor P. Buah-Bassuah

Laser and Fibre Optics Centre (LAFOC), Department of Physics, University of Cape Coast Cape Coast, Ghana.

36. Dr. K Ofori-Kwakye

Department of Pharmaceutics, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

37. Professor P. Ngoepe

University of the North, Director of Materials Modelling, South Africa.

38. Professor Yosr Ezz El-Din

National Institute of Laser Enhanced Science (NILES), University of Cairo, El-Giza, Egypt.

39. Professor Malik Maaza

Senior Scientist, National Research Foundation, Leader of the Nano Laboratories of Materials Research, iThemba LABS, Cape Town, South Africa.

40. Professor Jimmy Volmink

Vice Dean, Research, Faculty of Health Sciences, Stellenbosch University, Tygerberg, Cape Town, South Africa.

41. Professor Ben Marais

Department of Pediatrics and Health, Faculty of Health Sciences, Stellenbosch University, Tygerberg, Cape Town, South Africa.

42. Professor Ahmadou Wague

Université C.A.D., Departement de Physique, Dakar, Senegal

43. Professor Ashok V. Gholap

Adis Ababa University, Dept. of Physics, Science Faculty (Arat Killo Campus), Adis Ababa, Ethiopia.

44. Dr. F. I. Habbani

Department of Physics, Faculty of Science, 249-11-780-539. University of Khartoum, P.O. Box 321, Khartoum, Sudan

45. Professor Aboubaker Beye

Universite Cheikh Anta Diop de Dakar, Groupe de Laboratoires de Physique des Solides et, Science des Materiaux et des Techniques Avancees, GLPSSMTA/BP 5376/Dakar-Fann/SENEGAL

46. Professor Djibril Diop

Department of Physics , Faculty of Sciences and Techniques , University Cheikh Anta Diop , Dakar , SENEGAL

47. Professor Mahouton Norbert Hounkonnou

International Chair in Mathematical Physics and Applications (ICMPA-UNESCO Chair) 072 BP 50 Cotonou , Republic of Benin

48. Professor Mourad Telmini

Tunisian Physical Society (STP), Department of Physics, Faculty of Sciences of Tunis, 2092 Tunis Tunisia

49. Dr. Ndukong Tata Gerard (Cameroon)

50. Professor Osman Mai Eltag Mohamed

University of Khartoum, Khartoum, Sudan

51. Professor Zohra Ben Lakhdar

University of Tunisia, Department of Physics, Tunis, Tunisia

52. Dr. Sekai Shambira

Medical Physics Department, Johannesburg Hospital

53. Professor Jean Marie Ndjaka

University of Yaounde, Faculty of Science, Department of Physics, Yaounde, Cameroon,

54. Professor I Zorkani

Faculté des sciences Dhar Mehraz, Département de physique, BP 1796-Fès (Atlas)-Morocco

55. Professor Tom Oti

Department of Physics Makerere University P.O. Box 7062. Kampala, Uganda

56. Professor Fawzy Hussein Hammad

Chairman, National Committee for New and Advanced Materials Academy of Scientific Research and Technology. Professor Emeritus, Atomic Energy Authority 3 Ahmed El Zomor Street 8 th District Naser City, Cairo, Egypt

57. Professor Justin Irina

Professor of Chemistry, Secretary, Commission for Higher Education Development House, Nairobi. P.O. Box 54999 Nairobi, Kenya.

58. Professor Oumar Sakho

Assistant Professor of Physics, Faculté des Sciences et Techniques UCAD, Dakar, Senegal

59. Professor Elifas T.N. Bisanda

University of Namibia Private Bag 13301 Windhoek, Namibia

60. Dr. Joseph O. Gogo

STEPRI, CSIR Ghana

61. Professor Sherif Hussein Kandil

Professor of Materials Science, Institute of Graduate Studies and Research, Alexandria University 163 Horreya Avenue (21526), POB 832,, Shatby, Alexandria, Egypt

62. Professor G. Katumba

Professor of Physics University of Zimbabwe P.O. Box MP 167 Mount Pleasant Harare, Zimbabwe

63. Yadon M. Kohi

Director General, Tanzania Commission for Science and Technology (COSTEC) Ali Hassan Mwinyi Road P.O. Box 4302, Dar es Salaam Tanzania, East Africa

64. Professor Spirit B. Tlali

Head of Physics Department National University of Lesotho PO Roma 180 Lesotho

65. Edwin P.D. Barnes

Chief Director, Ministry of Education Science and Technology (MEST), Ghana.

66. Professor Akwasi Ayensu

Deputy Director-General, Council for Scientific and Industrial Research (CSIR-GHANA) P.O. Box M32, Accra Ghana

67. Professor T. Stephen Sathiaraj

Professor of Physics University of Botswana. Private Bag 0022 Gaborone, Botswana

68. Dr. A.J. Varkey

Senior Lecturer in Physics and Electronic Engineering Private Bag 4 University of Swaziland Kwaluseri, Swaziland, Southern Africa

69. Professor Bantikassegn Workalemahu

Professor of Physics University of Addis Ababa P.O. Box 32762 Ethiopia

70. Professor Arthur Every

Professor of Physics University of the Witwatersrand Private Bag 3WITS 2050, South Africa

71. Professor David McLachlan

Professor of Physics. University of the Witwatersrand Private Bag 3WITS 2050 South Africa

72. Professor Chris Pistorius

Professor of Materials Science and Metallurgical Engineering University of Pretoria PRETORIA

73. Professor Ron Sanderson

Institute for Polymer Science University of Stellenbosch Private Bag X1106 MATIELAND 7602, South Africa

74. E.H. Amara

Laser Materials Processing Group. Centre de Developpement des Technologies Avancees (C.T.D.A), B.P. 17, Baba-Hassen, Algeria

75. T. Gasmi

Laboratoire de Lasers et Applications, C.T.D.A., B.P. 245, 128 rue Mouhamed Gacem, El Madania, Alger, ALGERIE,

76. C. M. Awanou

Laboratoire de Physique du rayonnement, Département de Physique, FAST, Université Nationale du Bénin, B.P. 526 Cotonou, Benin

77. T. Ndikumana

Faculté des Sciences, Université du Burundi, B.P. 2700, Bujumbura, Burundi

78. M. Kwato Njock

CEPAMOQ, Université de Douala, Cameroon,

79. Y. Idriss

Université de Ndjamenana, Département de Physique, Ndjamenana, Chad

80. Dr. Stanley Moffatt

Dean, School of Informatics and Engineering. Regent University College of Science and Technology. P.O. Box 1636, Dansoman, Accra, Ghana.

81. V. Krou-Adohi

UFR/SSMT, Physique Université de Cocodi 22 P.B. 582 Abidjan 22 Cote D'Ivoire

82. Y. E. Gamal

National Institute of Laser Enhanced Sciences (NILES) University of Cairo El-Giza, Egypt.

83. A Asfaw

Department of Physics Addis Ababa University P.O BOX 1176 Addis Ababa, Ethiopia

84. A. V. Otieno

Department of Electrical & Electronic Engineering University of Nairobi P.O. BOX 30197 Nairobi, Kenya

85. G. Ntchayi Mbourou

Université des Sciences et Techniques de Masuku B.P. 694 Franceville, Gabon.

86. K Kaduki

Department of Physics University of Nairobi P.O. BOX 30197 Nairobi, Kenya.

87. Suleiman Musa El Hamali

Tajoara Nuclear Resaerch Center (TNRC) Tripoli, Libya

88. M. Semlali

Faculté des Sciences, Département de Physique Rabat, Maroc.

89. M. Tandia

Faculté des Sciences et Techniques Université de Nouackchott Nouackchott, Mauritania.

90. S. SINGH

Physics Department University of Namibia Private Bag 13301 Windhoek, Namibia

91. K. Marembo

Department of Physics Faculty of Sciences, National University of Rwanda.
P.O. BOX 117 Butare, Rwanda

92. A. Niyibisi

Department of Physics Faculty of Sciences, National University of Rwanda. P.O. Box 117 Butare, Rwanda.

93. P. Mjwara

National Laser Center Pretoria, South Africa.

94. M. K. Edee

Département de Physique et Biophysique Université du Bénin B.P. 1515 Lomé, Togo.

95. G. K. Chinyama

Department of Physics School of Natural Sciences University of Zambia P.O. Box 32379 Lusaka, Zambia

96. Zohra Ben Lakhdar

Faculté des Sciences de Tunis Département de Physique, Campus Universitaire Tunis - 1060, Tunisia

97. R. A. Msuya

Tanzania commission for science and technology Ali Hassan Mwinyi road, P. O. BOX 4302 Dar es Salam, Tanzania

98. Y. Badr

National Institute of Laser Enhanced Sciences (NILES) University of Cairo El-Giza, Egypt.

99. J. Cawood

President of the South African Spectroscopic Society P. O. Box 443, Saldanha Bay 7395 South Africa.

100. G. Munyenne

Department of Physics University of Zambia P.O. Box 32379 Lusaka, Zambia.

101. Prof. Michael Adikwu

Faculty of Pharmacy, University of Nigeria Nsukka

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), Igbekele 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
10. Dr. Ishenkumba Kahwa, Professor, University of West Indies, Jamaica-Co-Chair
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-

Africa), Dr. Aggrey Mbali, Professor (NEPAD-Africa), Dr. Dia Gasamma, Professor (AMCOST-Africa), Dr. Ishenkumba Kahwa, Professor (UWI-Jamaica-Caribbean) (Co-Chair), Dr. Juergen Simon (Siemen-Germany-EU), Dr. Rodney Townsend, Professor (Royal Society of Chemistry-UK-EU), Dr. Françoise Roure (National Council on information Technology-France-EU), Dr. Hongda Chen (USDA-USA), Dr. Gird Bachman (VDI Tz-Germany-EU), Otilia Saxl (Institute of Nanotechnology-UK-EU), Eloho Otobo (UN-USA), Dr. Mostapher El-Sayed, Professor (Georgia Tech-USA), Dr. Mike Spencer, Professor (Cornell-USA), Dr. Wole Soboyejo, Professor (Princeton-USA), Dr. Cynthia Friend, Professor (Harvard-USA), Dr. Paula Hammond, Professor (MIT-USA) Dr. Harry Atwater (Professor (CALTECH), Ex-Congressman Sherwood Boehlert (USA), Paul Iwezulu (London-EU), Dr. David Wilson, Professor (Cornell-USA), Dr. Clement Sakant, Professor (UWI-Trinidad-Caribbean), Dr. Sossina Haile, Professor (CALTECH-USA), Dr. Mauricio Terrones, Professor (Advance Material Department-Mexico), Dr. Omowunmi Sadik, Professor (UB-Co-Chair-USA), Dr. Yong Lak Jo, Professor (Cornell, Co-Chair-USA), Dr. José Vega Baudrit, Professor (National Nanotechnology Lab-Costa Rica), Dr. Harold Ramkisson, Professor (CARISCIENCE-Caribbean) (Co-Chair), Dr. Samuel Ugbolue, Professor (UMASSD-Co Chair-USA), Dr. Sogah D. Y., Professor (Cornell) (Co-Chair-USA), Dr. Ejembi Onah (FONAI)-Co-Chair-USA), Dr. Aldrin Sweeney, Professor (UCF-USA), Dr. El-Shall Samy, Professor (VCU-USA), Senator Ameh Ebutte-Co-Chair-Africa, Dr. Vicki Colvin, Professor (Rice University-USA), Dr. David Guston, Professor (Arizona State University-USA), Dr. Robert Westervelt, Professor (Harvard-USA), Dr. Ahmed Busnaina, Professor (North Eastern University-USA), Dr. Monsoori, Professor (U of Illinois Chicago-USA), Dr. Peter Agre, Professor (John Hopkins-AAAS-USA), Dr. Francisco, Professor (Purdue University and ACS-USA), Dr. Helen Asemota, Professor, (UWI-Caribbean), Dr. David Hui, Professor (University of New Orleans-USA), Dr. Lubomir Lapcik, Professor (Tomas Bata Univ., Czech Rep, Europe), Dr. Jean Ebothe, Professor (U. Reims, France-EU), Dr. Emmanuel Gianellis, Professor (Cornell University-USA), Dr. Lynden Archer (Professor, Cornell University-USA), Dr. Ajibefun; Professor (FUTA-Africa), Dr. G. Egharevba (Professor, OAU-Africa), Bill and Mellinda Gate (Co-Chairs; Bill and Mellinda Foundation), Warren Buffett (Trustee, Bill and Melinda Gate Foundation-USA); President Ubinas (Ford Foundation-USA); President, Don Michael Randel (The Andrew W. Mellon Foundation-USA); President Judith Rodin (Rockefeller Foundation-USA); Joan Daboub (MD for Caribbean, World bank-USA), Dr. Anil Chaudhary (Prof. India-Asia), Dr. Nelson Ocheke, Professor (University of Jos-Africa), Dr. Ralph Cicerone (President, National Academy of Science-USA), Dr. Charles West (President, National Academy of Engineering-USA)

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