

AFRICAN STRATEGY FOR FUNDAMENTAL & APPLIED PHYSICS: AFRICAN ACADEMY OF SCIENCES



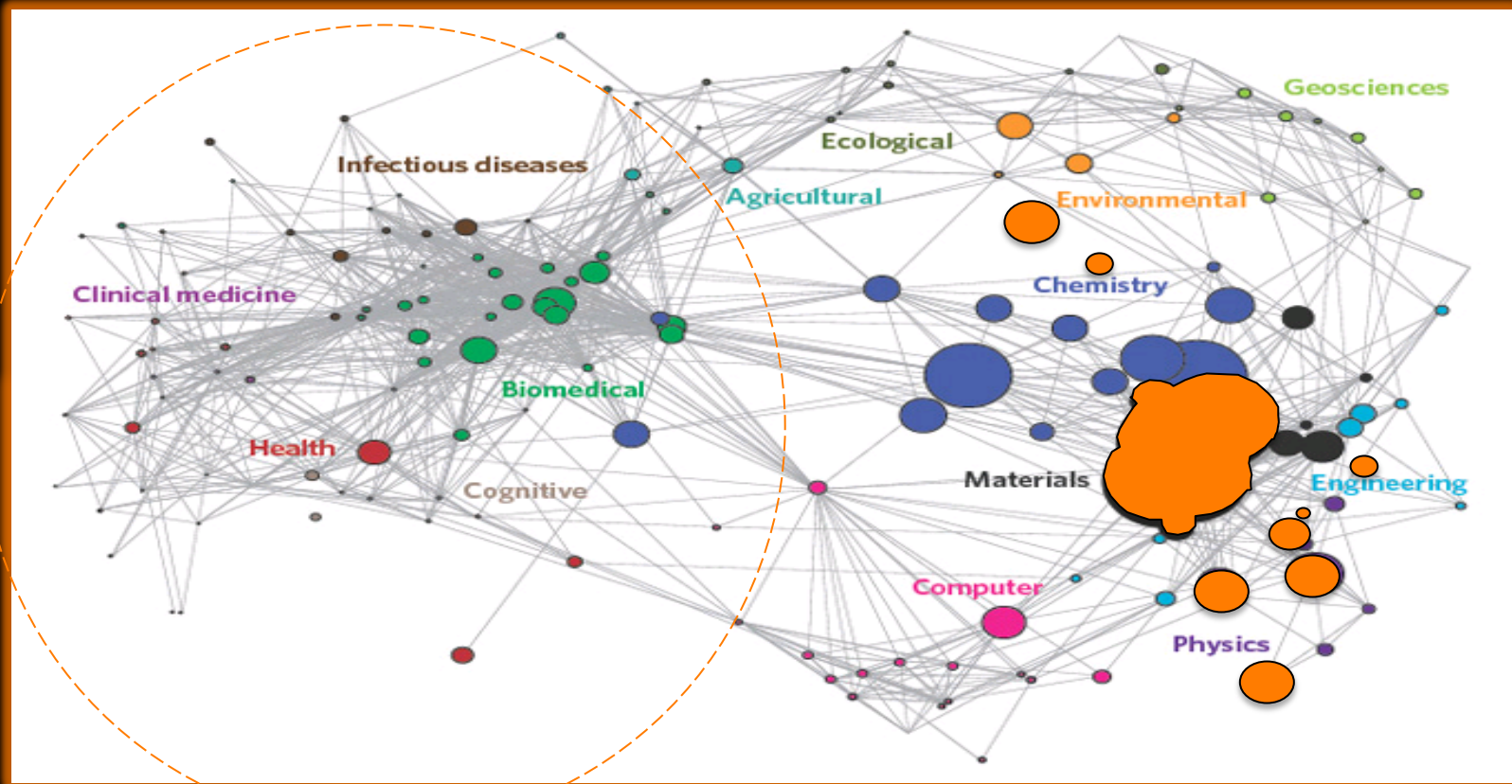
**The African
Academy of Sciences**

*Driving Scientific and Technological
Development in Africa*

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MISSION: ADVOCATE for ALL DISCIPLINES



- **ALL DISCIPLINES**
- Towards **Continental AU programs** with **Social impact** ,
- Towards R&D translations, Blue Sky type R&D.
- **Effective limited Resources sharing/usage**
- Towards **Multi-skilled emerging workforce**
- **Focus & Priorities: Bio:TB, HiV, Malaria, Ebola**

AAS FELLOWS & CONTINENTAL DYNAMIC



- LAMNETWORK-1993
- ALC-1999
- AMRS-1999
- NANOAFNET-2005
- ANSOLE-2011
- ANDi-2012
- U2ACN2-2013



PROGRAMS: HUMAN CAPITAL MOBILITY

•North Africa:

France: 40%

Italy: 2%

Spain: 2.5%

USA: 2.6-9.6%

•West/Central Africa:

USA: 7.4-11%

UK: 5.9-12%

Germany: 2.5-7.2%

China: 2.6-8.1%

•East Africa:

USA: 2.7-32%

UK: 5.9-23%

Germany: 6.8%

Netherlands: 5.8%

•Southern Africa:

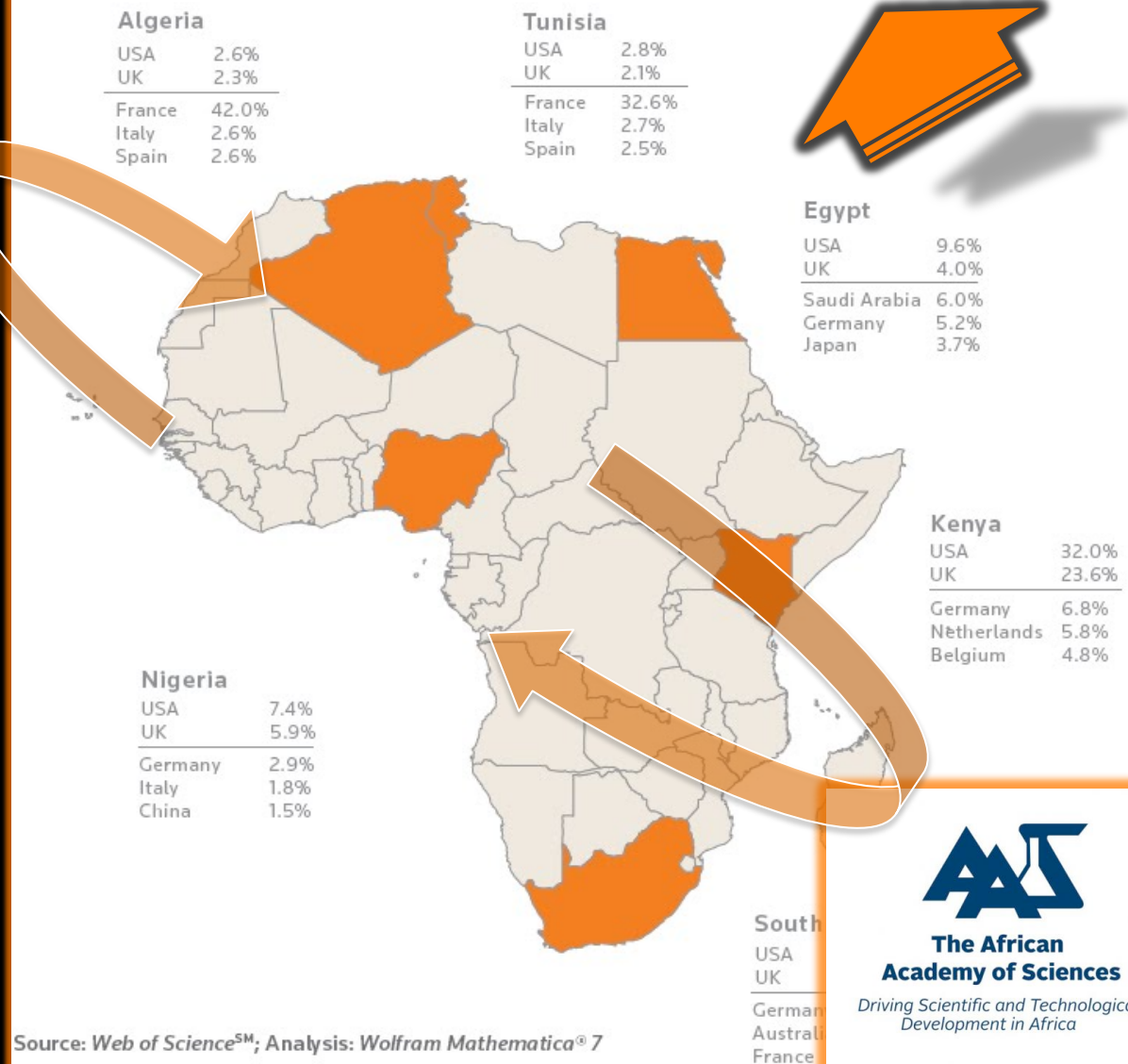
USA: 15.1%

UK: 11.7%

Germany: 5.2%

•African Diaspora

FIGURE 5: TOP COLLABORATING COUNTRIES FOR SIX KEY AFRICAN COUNTRIES



Source: Web of ScienceSM; Analysis: Wolfram Mathematica[®] 7



The African Academy of Sciences

Driving Scientific and Technological Development in Africa

PROGRAMS: YOUNG SCIENTISTS FOCUS



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THE
ROYAL
SOCIETY

AAS The African
Academy of Sciences

GCRF
Global Challenges Research Fund



- **Trilateral: UK Rsoc/AAS/GCRF (Global Challenges Research Fund)**
- **150.000£each grantee/year (2-3 years)**
- 20-30 each year,
- SubSahara
- 2021: 3rd call



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PROGRAMS: SOCIAL IMPACT FOCUS



The Alliance for Accelerating Excellence in Science in Africa (AESA)

Putting science at the core of Africa's future



WEBINAR-ASFPS, 12-07-2021

- **Multi-lateral: UK DFID/AU-NEPAD/AAS/WELCOME TRUST+BMGF**
- **2015 Nairobi** (Shifting the centre of gravity for African science to Africa)
- **40.000 each grantee/year (2-3 years)**
- Building R&D Infrastructure
- Developing Excellence (DELTAS)
- Innovation & Entrepreneurship
- Rising Research Leaders/Post-Docs (AESA RISE.)



PASi: PAN-AFRICAN SYNCHROTRON init.



- Africa Light Source Project 1st Conference of the ExCom
- 1st African Universities Conference (Dakar)
- **AAS/Royal Society (UK) Partnership for an African Synch.**
- **AAS : the Pan-African Continental Co-ordinator**



PASi: PAN-AFRICAN SYNCHROTRON init.

EX.CL/Dec.987(XXXII)Rev.1
Page 3

C. STC ON EDUCATION, SCIENCE AND TECHNOLOGY

17. **ADOPTS** the common pedagogical contents developed on the basis of the General History of Africa and **REQUESTS** Member States to integrate them into their national curricula;
18. **TAKES NOTE** of the progress that the African Union High Level Panel on Emerging Technologies (APET) has made since its inception and its analysis of the first three emerging technologies on Gene Drive for control and elimination of malaria; Drones in the horizon: transforming Africa's agriculture; and Micro-grid: empowering communities and enabling transformation in Africa;
19. **REQUESTS** the African Union and Member States to harness these emerging technologies for development initiatives;
20. **ENDORSES** the proposal to operationalize the Africa Virtual and e-University as the open, distance and e-learning arm of the Pan African University;
21. **CALLS UPON** Member States to support the Pan-African Synchrotron Initiative;
22. **TAKES NOTE** of the Skills Initiative for Africa as a continental programme for improving perspectives of young people in Africa through increased employment and income opportunities;
23. **ENDORSES** the Skills Initiative for Africa and the creation of World Skills Africa as programmes geared towards addressing skills shortages, mismatches and enhancing employment prospects for youth in Africa;
24. **URGES** Member States to contribute to the Continental Plan of Action for implementation of the Decade on Technical, Professional, Entrepreneurial Training and Youth Employment, and also develop National Implementation Plans in line with Decision Assembly/AU/Dec.652 (XXIX) of July 2017.

D. STC ON PUBLIC SERVICE, LOCAL GOVERNMENT, URBAN DEVELOPMENT AND DECENTRALIZATION (STC 8)

25. **COMMENDS** the Commission and the Republic of Congo for the leadership in the progress made on the implementation of activities of STC 8 and the level of its operationalization from 2015 to 2016;
26. **TAKES NOTE** of the prevailing challenges in Public Service, Local Government, Decentralization and Urban Development;

32nd Ordinary Session of the Executive Council, 25- 26 January 2018, Addis Ababa, Ethiopia

- Continental funding

- Partnership
(Donation)

- **AAS/Royal Society (UK)
Partnership for an African
Synchrotron**

- **AAS : the Pan-African
Continental Co-ordinator**



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AFRICAN STRATEGY FOR FUNDAMENTAL & APPLIED PHYSICS: NANOSCIENCES AFRICAN NETWORK & UNESCO AFRICA NANO-CHAIR



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NANOAFNET & U2ACN2: (Network of Excellence)/PAU

AFRICAN UNION

الاتحاد الأفريقي



UNION AFRICAINE

UNIÃO AFRICANA

Addis Ababa, ETHIOPIA, P. O. Box 3243, Telephone: 251 11 5517700 Fax: 251 11 5 517844
Website: www.africa-union.org

DEPARTMENT OF HUMAN RESOURCES, SCIENCE AND TECHNOLOGY

Reference: HRST/ED/15A/899/09.10

Date: 28 September 2010

Prof. M. Maaza
Africa-International Desk,
iThemba LABS-NRF, Old Faure Road
PO Box 722, Somerset West 7129,
Western Cape Province, South Africa

Dear Professor Maaza,

Reference is made to your letter dated on 28th June 2010 including your annual reports activities 2009, 2010. I wish to congratulate all the members of the NANOAFNET (NANO Sciences African Network) in paving the way for the implementation at the continent all levels of this emerging multi-disciplinary STI component of Nanosciences /Nanotechnologies. Such an ongoing African initiative does fit distinctly with the vision of the Pan African University project, particularly the one within the thematic area on Basic Sciences, Technology and Innovation.

In accordance to the received annual reports, the human capital and mobility within the continent that NANOAFNET has put into action since its birth stage is of an exemplary status if one considers the achieved R&D joint outputs. Hence, the commission wishes to add its voice to the ICTP-Abdus Salam and TWAS, among others and support to the NANOAFNET.

With this in mind, the Commission suggests that you make a proposal to be considered for evaluation as a potential host of a PAU Center in Basic Sciences, Technology and Innovation in areas of Nanosciences /Nanotechnologies.

My contact officer for any further detail or information is Dr. Chaibi Thameur, Focal Point PAU, AUC Education Division, e-mail: chaibit@africa-union.org, Chaibithameur@yahoo.fr and Ms Alice Sena Lamptey, Higher Education Expert, the Project Management Unit (PMU), LampteyA@africa-union.org



Yours sincerely,

Prof. Jean- Pierre Ezin
Commissioner Human Resources,
Sciences and Technology



The Assistant Director-General
for Natural Sciences

United Nations
Educational, Scientific and
Cultural Organization

Organisation
des Nations Unies
pour l'éducation,
la science et la culture

Organización
de las Naciones Unidas
para la Educación,
la Ciencia y la Cultura

Организация
Объединенных Наций по
вопросам образования,
науки и культуры

منظمة الأمم المتحدة
للربية والعلم والثقافة

联合国教育、
科学及文化组织

Ref: SC/PCB/CB/20/4458

Mr Carlton Mukwehvo
Secretary General
South African National Commission
for UNESCO
Department of Basic Education
Private Bag X 895
222 Struben Street
Pretoria, 0001
South Africa

5 November 2020

Dear Secretary General,

On behalf of the Director-General of UNESCO, I would like to acknowledge receipt with thanks, of your letter of 24 June last, by which the Government of South Africa submits its application for the designation of a UNESCO Category 2 Centre (C2C), to be titled "UNESCO C2C African Centre in Nanoscience & Nanotechnology" following the format of the 2019 Strategy for Category 2 Institutes and Centres as contained in document 40 C/79. We also take note of the letter of support to this application that was addressed to the Director-General of UNESCO by Mr Felix Dapare Dakora, President of the African Academy of Sciences.

In accordance with the procedures in document 40 C/79, a preliminary assessment of the proposal shall be undertaken by the Intersectoral Review Committee to ensure that:

- it is complete,
- fits with the principles of eligibility outlined in the aforementioned Strategy for Category 2 Institutes and Centres under the auspices of UNESCO, and;
- falls within the fields of action of the Organization, in particular the programme priorities set by Programme Sector(s).

Pending the result of this assessment, which will be communicated to you, I wish to take this opportunity to renew the commitment of the UNESCO Natural Sciences Sector to support the Government of South Africa's initiatives in Science, Technology and Innovation.

Yours sincerely,

Shamila Nair-Bedouelle



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Tel. : +33 (0)1 45 68 11 98

www.ictp.org

NANO: IN AFRICA



1991-998

NNI-USA

Japan & EU Nano

2001



SANI

2003



AMANAT



ENS

2004

NANOAFNET

2005



ATN

NNI

2006

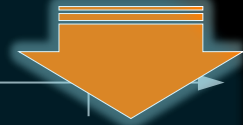


2012



U2ACN2

2013



NANO-AFRICA: POLICY DOCUMENTS

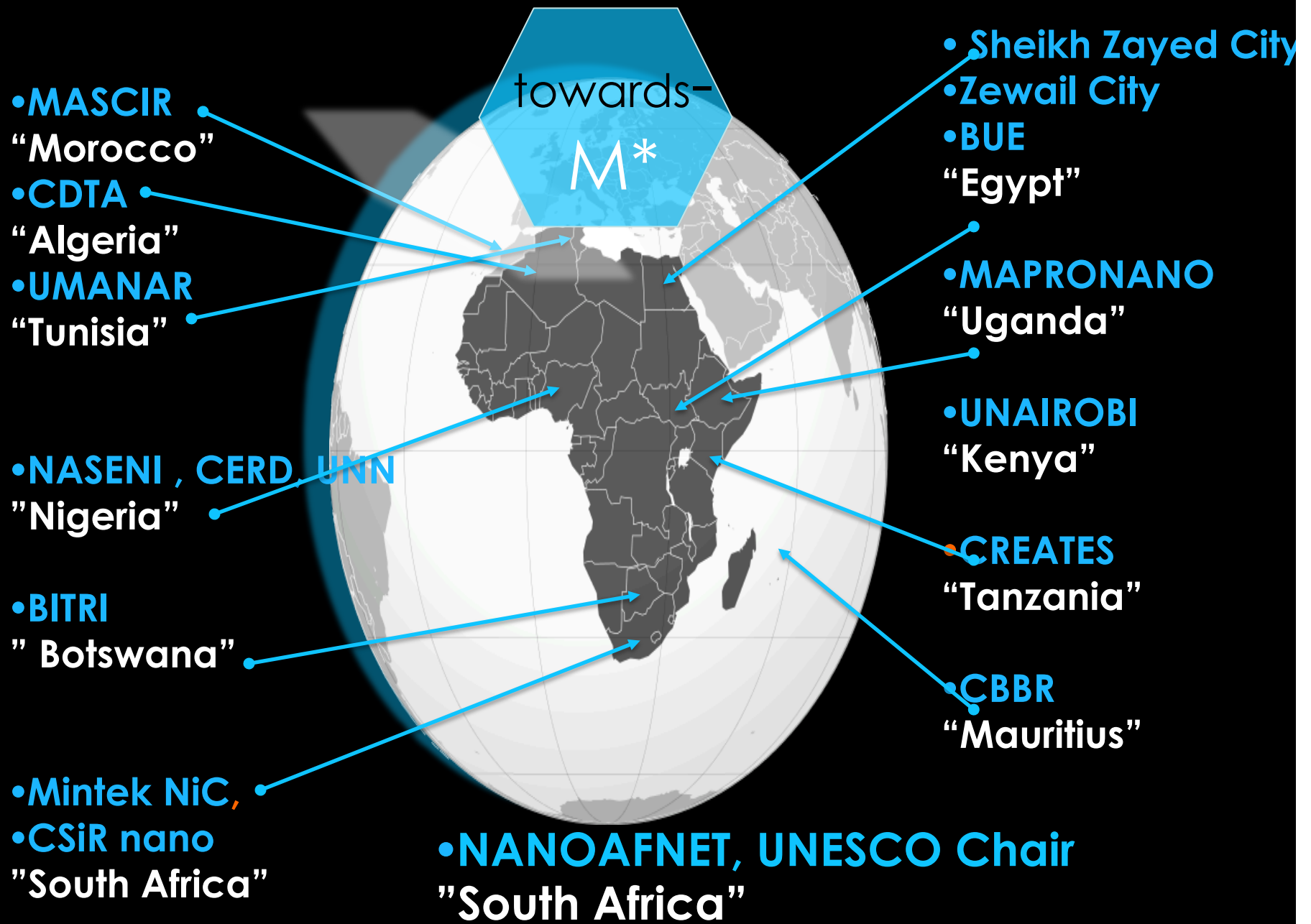
StatNano INDICATORS ▾ DATABASES ▾ ... LOGIN CREATE NEW ACCOUNT

POLICY DOCUMENTS

Australia	Austria	Belgium	Brazil	Canada	China	Colombia
Czech Republic	Denmark	Egypt	European Union	Finland	France	Georgia
Germany	Hungary	India	Iran	Ireland	Italy	Japan
Malaysia	Mexico	Morocco	Netherlands	New Zealand	Norway	Pakistan
Philippines	Poland	Romania	Russia	Saudi Arabia	Serbia	South Africa
South Korea	Spain	Sri Lanka	Sweden	Switzerland	Taiwan	Thailand
Turkey	UK	USA	Venezuela	World		

- **Gov.Policy Doc.:**
- **Egypt,**
- **Morocco,**
- **South Africa,**

NANO-AFRICA: MAJOR NODES





NANOAFNET & U2ACN2: (HCD) & Mobility (HCM)

• **PERIOD: 2013-18**

• **MSC: 28**

• **PhD: 30**

• **PostDocs: 16**

• **Emerging Scientists: 194**
(1-6 Months)

• **Senior Scientists: 173**
(1-3 Months)



17 PARTNERSHIPS
FOR THE GOALS





NANOAFNET & U2ACN2: (HCD) & Mobility (HCM)

- **PERIOD: 2013-18**
- **Female/Male R: 51%**
- **MSC: 28**
- **PhD: 30 • PostDocs: 16**
- **Emerging Scientists: 194**
(1-6 Months)
- **Senior Scientists: 173**
(1-3 Months)





NANOAFNET & U2ACN2: (HCD) & Mobility (HCM)

- **PERIOD: 2013-18**
- **Female/Male R: 51%**
- **MSC: 28** (1.5-2 Years)
- **PhD: 30** (3-4 Years)
- **PostDocs: 16** (3 Years)
- **Emerging Scientists: 194**
(1-6 Months)
- **Senior Scientists: 173**
(1-3 Months)



17 PARTNERSHIPS
FOR THE GOALS



NANOAFNET & U2ACN2: TOWARDS A NanoCo-DIPLOMA

towards
M*

• **PERIOD: 2013-18**

• **MSC: 28** (1.5-2 Years)

• **PhD: 30** (3-4 Years)

• **Female/Male R: 51%**



NANOAFNET & U2ACN2: Intra-Continental Coop.

17 PARTNERSHIPS
FOR THE GOALS



Structural and optical properties of nano-structured tungsten-doped ZnO thin films grown by pulsed laser deposition

B.D. Ngom^{a,b,c,*}, T. Mpahane^c, N. Manyala^d, O. Nemraoui^c, U. Buttner^e,
J.B. Kana^f, A.Y. Fasasi^g, M. Maaza^{a,c}, A.C. Beye^{a,b}

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^bGroupes de Laboratoires de physique des Solides et Sciences des Matériaux, Faculté des sciences et Techniques Université Cheikh Anta Diop de Dakar (UCAD), B.P. 25114 Dakar-Fann Dakar, Senegal

^cNANO-Sciences Laboratories, Materials Research Group, iThemba LABS, National Research Foundation, South Africa

^dDepartment of Physics and Electronics National University of Lesotho, Lesotho

^eEngineering Department, University of Stellenbosch, South Africa

^fDepartment of Physique University of Yaoundé 1, Cameroon

^gCentre for Energy Research and Development, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria



PHYSICS @NANOSCALE IN AFRICA: TARGETS



1-Nano-
MSC



3-Nano-
HCM



2-Nano
HCD



4-Open
Access
NanoJ.

Open Access NANO Journal: Nano-HORIZONS

• Publisher: UNISA Publishing House • 2022



ENKOSI, THANK YOU, DANKIE, MERCİ, CHUKRAN



iThemba LABS-NRF: •SAINT
iThemba LABS-NRF: •SAIF
iThemba LABS-NRF: •CoE TWAS-UNESCO
iThemba LABS-NRF: •CoE ANDi-AU