

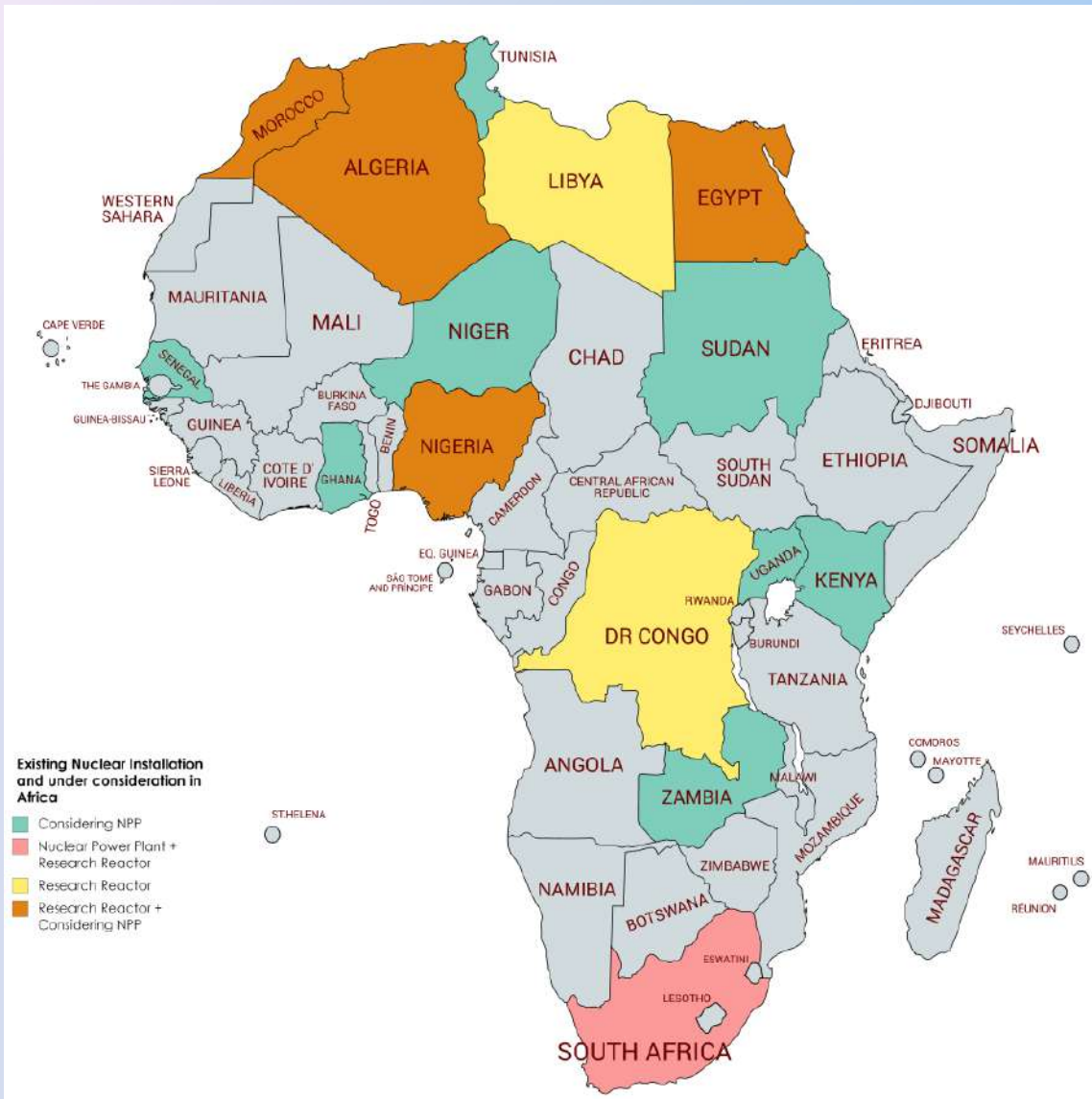
**DEVELOPMENT OF A LONG-TERM HUMAN RECOURSES
STRATEGY FOR A NUCLEAR POWER PROGRAM:
-REGULATORY PERSPECTIVES**

Dr. Yau Idris

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Vice-Chair and TWG6 Coordinator of FNRBA*

Presentation at
The Africa Nuclear Business Platform (ANBP),
15-17 October 2019, Nairobi, Kenya

Nuclear Installations in Africa



- 1 country with Nuclear Power Plants
- 7 countries with Research Reactors
- 12 countries interested in introducing nuclear power

Establishment of Forum of Nuclear Regulatory Bodies in Africa (FNRBA)

- ❑ First FNRBBA Meeting was held on 02 October 2008 at the in Vienna, Austria on the margins of the IAEA GC 52 (Nigeria, Kenya, Namibia, Morocco, Tunisia and South Africa)
- ❑ First Plenary Meeting in Pretoria, South Africa, 24 March 2009 on the margin of First Project Coordination Meeting Of The AFRA Project *“Promoting Self Assessment Of Regulatory Infrastructures For Safety And Networking Of Regulatory Bodies In Africa (AFFRA II) RAF9038”*
- ❑ Meeting lunched the FNRBA with 28 participating IAEA Member States in Africa,
- ❑ IAEA Mr. Gashaw G. Wolde – PMO for RAF/9/038
- ❑ IAEA Officers - Dr Guritno Lokollo of the Asian Nuclear Safety Network (ANSN)
- ❑ Dr. Stephen Fennell of European ALARA Network
- ❑ Mr. Jack Ramsey, of the US Nuclear Regulatory Commission (US NRC),

Objectives of the FNRBA

- ❑ Review the status of development of regulatory infrastructures in Africa,
- ❑ Identify challenges, opportunities, regional problems and appropriate solutions relevant to the promotion of self assessment methodology and networking of regulatory bodies,
- ❑ Review and update the project work plan and activities and outline implementation arrangements.
- ❑ Build on the current achievements of IAEA technical cooperation interventions relating to the strengthening of national radiation protection and safety infrastructures
- ❑ catalyze enhanced regional cooperation amongst peer institutions through the development of a network as an exchange platform which is currently building significant momentum with the establishment of the FNRBA

FNRBA Strategic Position

The Strategy of the FNRBA is to Position Itself as a Key Knowledge Network in Africa on Nuclear Regulatory Matters

- develop insight into the regulatory systems and practices in Africa.
- develop an association of African technical experts on matters of nuclear regulation.
- form a close collaboration with stakeholders like *the African Union, the IAEA, Asian Nuclear Safety Network, European ALARA Network and individual regulatory bodies from other non-African countries*. develop strategies to facilitate capacity building for regulatory bodies in Africa
- actively lobby Member's States to enhance the national regulatory systems to be compliant with or compatible with IAEA standards
- in short and medium term facilitate continuous professional and technical training using thematic programmes
- in the long-term, facilitate the establishment of centres of excellence

FNRBA SWOT ANALYSIS

Developed in 2009 During the First Plenary in South Africa

Strengths

- Government commitment to Develop NPP
- The growing awareness for regulatory activities
- Increased commitment of governments to support
- Availability of expertise on radiation safety
- Availability of training centres for radiation safety
- Better provision of national resources
- Political stability

Weaknesses

- The slow pace of progress
- Lack of sustainability
- Lack of comprehensive legislation, regulations and guidance
- Lack of coherent training and development plan and resources
- Lack of adequate financial resources
- Lack of well established regulatory system
- Capacity to maintain a stable base of core human resources

Opportunities

- Growing interest for nuclear applications, including nuclear power
- Increased partnership and international cooperation opportunities,
- Successful experience of some countries to motivate the others
- Renewed interest for uranium mining and milling
- Adoption of self assessment tools developed by IAEA

Threats

- Unprecedented demand for regulatory interventions/swift transformation
- The urge to engage in regulatory exercise while developing basic capacity
- Loss of experienced and trained people
- Staff retention

Status of Nuclear Regulatory Bodies in Africa in 2019

- 26** Countries have legislation in place. Though some are not always consistent with IAEA standards but nine countries are currently revising their legislation, and five additional countries plan to do it in the near future.
- 2** Countries, new IAEA Member States, have no radiation safety legislation in place, but are in the process of drafting their first act (Malawi and Seychelles).
- 18** Countries have radiation safety regulations in place, supporting the legislation. Most of the countries are currently drafting initial or revised or complementary regulations.
- 22** Countries have a regulatory body in place, discharging regulatory activities, though it was observed that inspection and enforcement are the weak parts of the regulatory programmes.
- 18** Countries have a formal licensing process in place and operational.
- 18** Countries have maintained national register of radiation sources.

Establishments of Thematic Working Groups (TWGS) and Technical Advisory Groups (TAGS)-2009

TWGS	TITLE	REGIONAL COORDINATOR	DEPUTY COORDINATOR	NAME	EMAILS
TGW1	Upgrading Legislative and Regulatory Infrastructure	ETHIOPIA	Morocco	Abdulrezak Oumer Jeju	rezaqet@yahoo.com
TGW2	Upgrading Safety In Radiotherapy	TUNISIA	Sudan	Mme Azza Hammou	aza.hammou@rns.tn
TGW3	Upgrading Safety In Uranium Mining And Milling	NAMIBIA	South Africa	Mr Axel Tibinyane	atibinyane@mhss.gov.na
TGW4	Framework For Licensing Of Nuclear Power Plants	SOUTH AFRICA	Nigeria	Mr. Peter Bester	PBester@nnr.co.za
TGW5	Upgrading Safety In Nuclear Research Reactor	GHANA	Libya	Prof. Geoffrey Emi-Reynolds	gemi-reynolds@idngh.com
TGW6	Education And Training And Knowledge Management	NIGERIA	Mali	Mr Yau Idris	yauidi@yahoo.com
TGW7	Upgrading Safety Of Radioactive Waste Safety Infrastructure	TANZANIA	Malawi	Prof. Iddi Mkilaha	mkilaha@gmail.com
TGW8	Upgrading Safety In Transport Of Radiation Sources	ZIMBABWE	Madagascar	Mr Reward Severa	rm.severa@gmail.com
TGW9	Regulatory Infrastructure For Emergency Preparedness And Response	SOUTH AFRICA	Kenya	Mr Alan Muller	amuller@nnr.co.za
TGW10	Upgrading Nuclear Security Infrastructure	EGYPT	Nigeria	Mr Mohamed Reda Ezz El-Din	mreda17@yahoo.com
TAGS	TITLE	COORDINATOR	DEPUTY COORDINATOR		
TAG1	Publications Committee	UGANDA	BURKINA FASO		
TAG2	Standards Committee	LIBYA	BOTSWANA		

FNRBA Strategic Plan on HRD

- The FNRBA understood that the ability of a regulatory body to fulfill its responsibilities depends largely on the competence of its staff.
- Building employees' skills and knowledge is an investment in each employee and in the future of the organization.
- The FNRBA has 10 years experience in the oversight of Research Reactor and all other sectors involved in use of radiation sources except NPP which only South Africa is operating and regulating

FNRBA TWG 6- Education, Training and Knowledge Management

- Regional Leader – Dr Yau Idris Nigeria

- Members
 - Burkina Faso Mr. YAMEOGO Zakaria
 - Cameroon Dr. MOYO MAURICE
 - Cote d'Ivoire Prof. MONNEHAN Georges Alain
 - DRC Prof. MPIANA Tshimankinda
 - Madagascar Mr. RANDRIANTSIZAFY Ralainirina Dina
 - Mauritius Mr. OLLITE Faradally.
 - Morocco Dr. EL GAMOUSSI Rachida
 - Niger Mr. OUMAROU Sidibe Mahamdou
 - Nigeria Mr. OKOYA Olatunji Olaonipekun

FNRBA TWG 6 Plans

- Develop regional strategy for capacity building through competency mapping at national, institutional and individual level
- Identify the needs of MS
- Establish an effective network at the national level
- Achieving regional sustainability
- Eliminate the gaps in E&T at regional level

FNRBA TWG 6 Activities

- Capacity Building review mission
- Workshop on Nuclear Safety Knowledge platform (National Coordinators and IT Support)
- Conduct gap analysis and develop strategy for filling up the gaps
- Proposal of Basic professional training course in nuclear and radiation safety

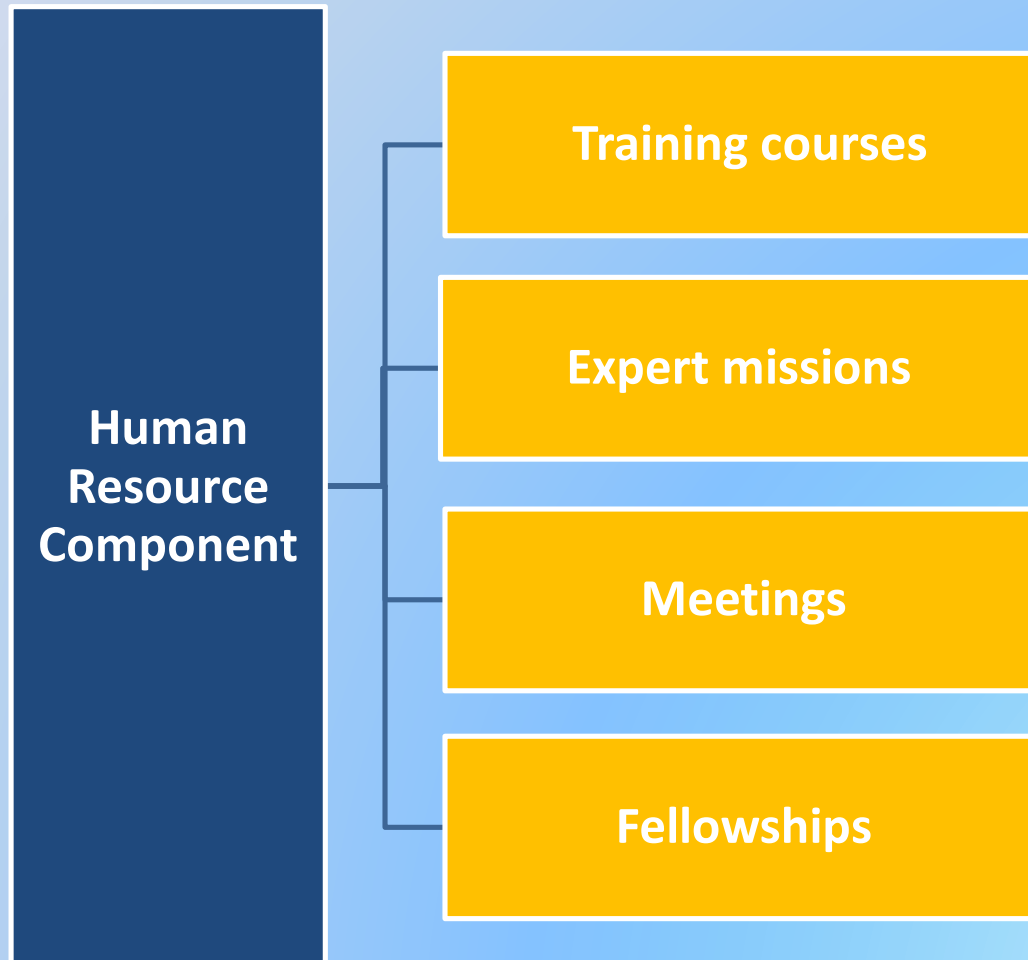
FNRBA TWG 6 Work Plan 2019-2021

TASK	PURPOSE	RELATED ACTIVITIES	VENUE	TIMELINE	CURRENT STATUS
5.1	<p>Presentation on process of developing e-learning materials</p> <p>Presentation on Member States practices in developing e-learning materials (Participants)</p> <p>Presentation of EU practices in developing online learning materials</p> <p>Discussion and agreement on framework for development of e-learning materials for supporting education and training among Africa nuclear regulators</p> <p>Development of plan of action</p>	IAEA (NKM) WINS EC	Abuja, Nigeria	To be scheduled	To be discussed further
5.2	Development of e-learning tools for nuclear regulators in Africa	IAEA (NKM) WINS, EC	Remotely	To be scheduled	To be a follow-up action
5.3	Fine-tuning of e-learning tools development methodology and hosting on FNRBA website	IAEA (NKM) WINS EC	South Africa	To be scheduled	To be discussed further
5.4	<p>Update and finalise draft report</p> <p>Submit to Steering Committee</p>	IAEA (NKM) WINS, EC	Accra, Ghana	To be scheduled	To be discussed further

IAEA HRD Assistance to Africa (AFRA/FNRBA)

- **RAF9032**- Development of Capabilities for the Protection of Health and Safety of Workers Exposed to Ionizing Radiation
- **RAF9038**-Promoting Self-Assessment of Regulatory Infrastructures for Safety and Networking of Regulatory Bodies in Africa
- **RAF9049**-Enhancing and Sustaining the National Regulatory Bodies for Safety in Africa Member States (AFRA)
- **RAF9058**-Improving the Regulatory Framework for the Control of Radiation Sources in Africa Member States
- **RAF9061**-Enhancing the Capacities of National Regulatory Bodies for Safety in Africa Member State

IAEA HRD Assistance to Africa (AFRA/FNRBA)



NRC International Regulatory Development Partnership (IRDP) Training – FNRBA Scheduled for 2019 or recently completed

2019		
Emergency Preparedness and Response workshop for Research Reactors	November 18-22 (SCHEDULED)	Accra, Ghana
Radiotherapy Guidance Development	TBD	TBD
2018		
Research Reactor Licensing Workshop (TWG5)	August 27-31	Accra, Ghana
Research Reactor Inspections Workshop (TWG5)	March 12-16	Accra, Ghana
NPP Siting and Environmental Review Workshop	January 15-19	Vienna, Austria
2017		
IAEA/NRC Small Modular Reactor Safety & Licensing Workshop for FNRBA and ANNuR	December 12-14	Hammamet, Tunisia
2016		
IAEA Workshop on SMR Safety and Licensing	June 7-10	Vienna, Austria
Nuclear Power Plant Licensing Workshop	April 18-21	Mombasa, Kenya

IRRS-Integrated Regulatory Review Service Missions by IAEA

IRRS Mission in aligning with SSG-16 “Establishing the Safety Infrastructure for a Nuclear Power Programme”

- IRRS Missions conducted and planned for FNRBA member countries:
 - 2020 - Cameroon (follow-up, June)
 - 2017 - Botswana, Ethiopia, Nigeria
 - 2016 - Kenya, South Africa
 - 2015 – Tanzania
 - 2014 - Cameroon, Zimbabwe
 - 2008 - Botswana, Cote d'Ivoire, Madagascar, Namibia, Sierra Leone
 - 2007 - Cameroon, Gabon, Kenya, Mauritius, Uganda, Niger

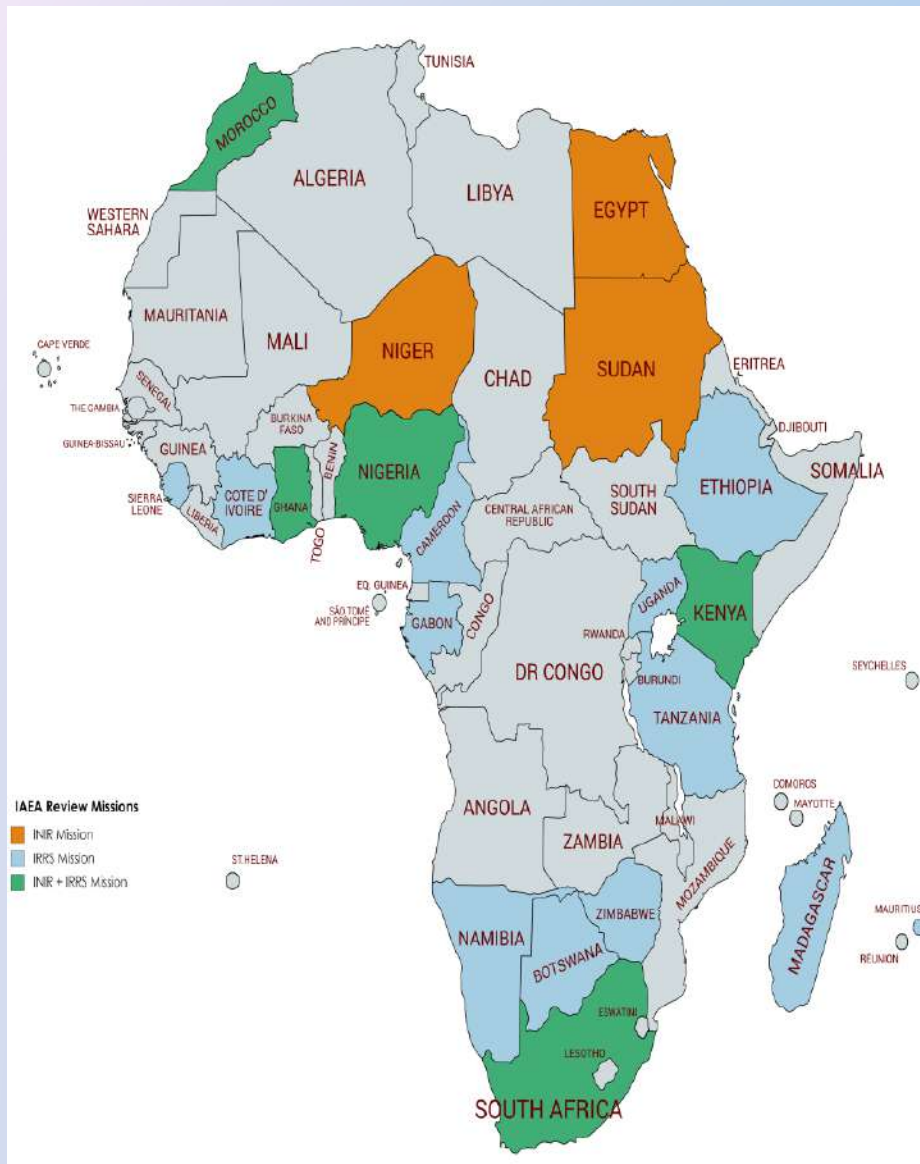
INIR-Integrated Nuclear Infrastructure Review Mission by IAEA

INIR Mission in aligning with NG-G-3.1 Rev.1 “Milestones in the Development of a Nuclear Infrastructure for Nuclear Power”

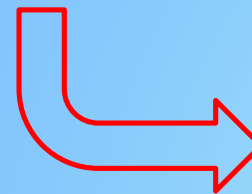
□ INIR Missions conducted and planned for FNRBA member countries:

- 2020 - Kenya (follow-up, Q2)
- 2019 - Egypt (October), Ghana (follow-up, October)
- 2018 - Sudan, Niger
- 2017 – Ghana
- 2015 - Kenya, Morocco, Nigeria
- 2013 - South Africa

FNRBA MS Implementation of IAEA Review Missions

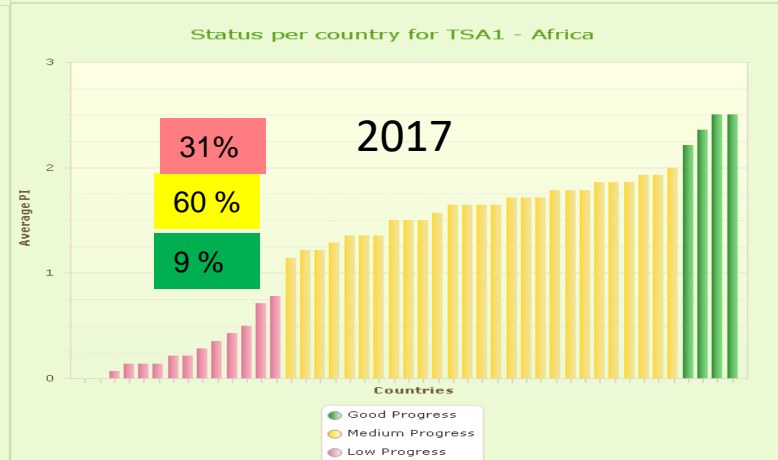
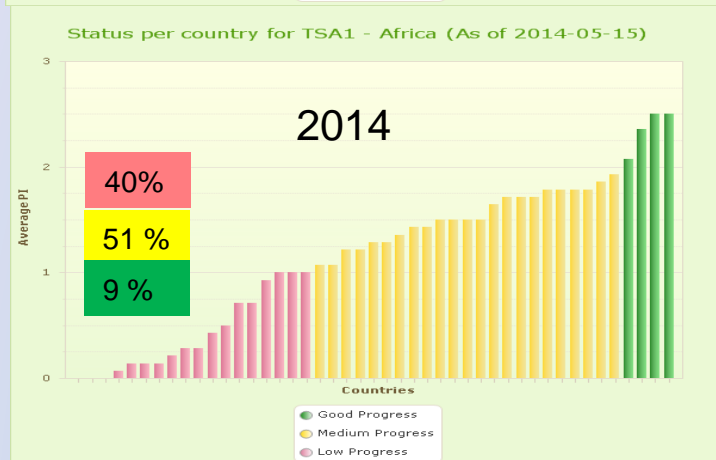
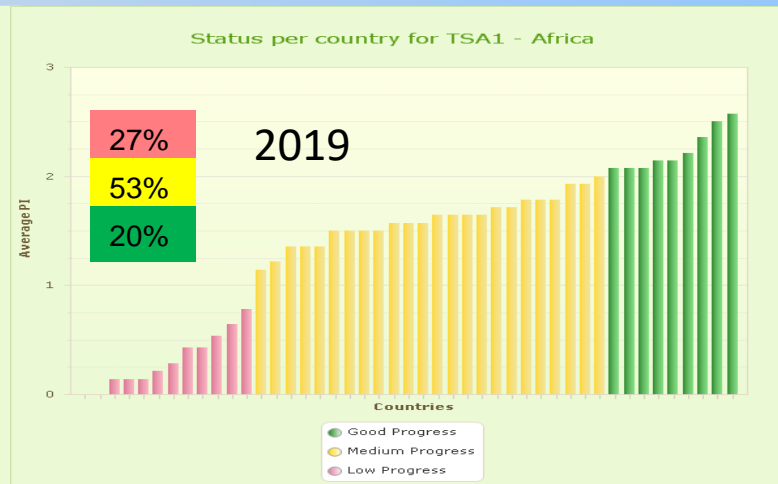
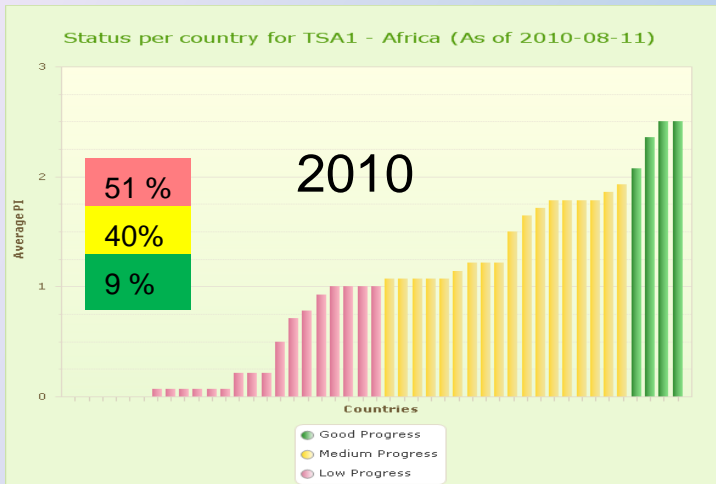


- ❑ IRRS (Integrated Regulatory Review Service) missions: 17 + 1 planned follow up mission
- ❑ INIR (Integrated Nuclear Infrastructure Review) missions:
 - ❑ INIR-1: 6 + 2 Follow-up planned
 - ❑ INIR-2: 1 + 1 planned
- ❑ 12 countries interested in nuclear power (7 countries have hosted INIR missions and 1 plans to do it in 2020)
- ❑ INSARR (Integrated Nuclear Safety Assessment of Research Reactor) missions: 14 (all countries with RR have received at least 1 mission)



**Last INSARR mission
hosted by Nigeria
5-9 August 2019**

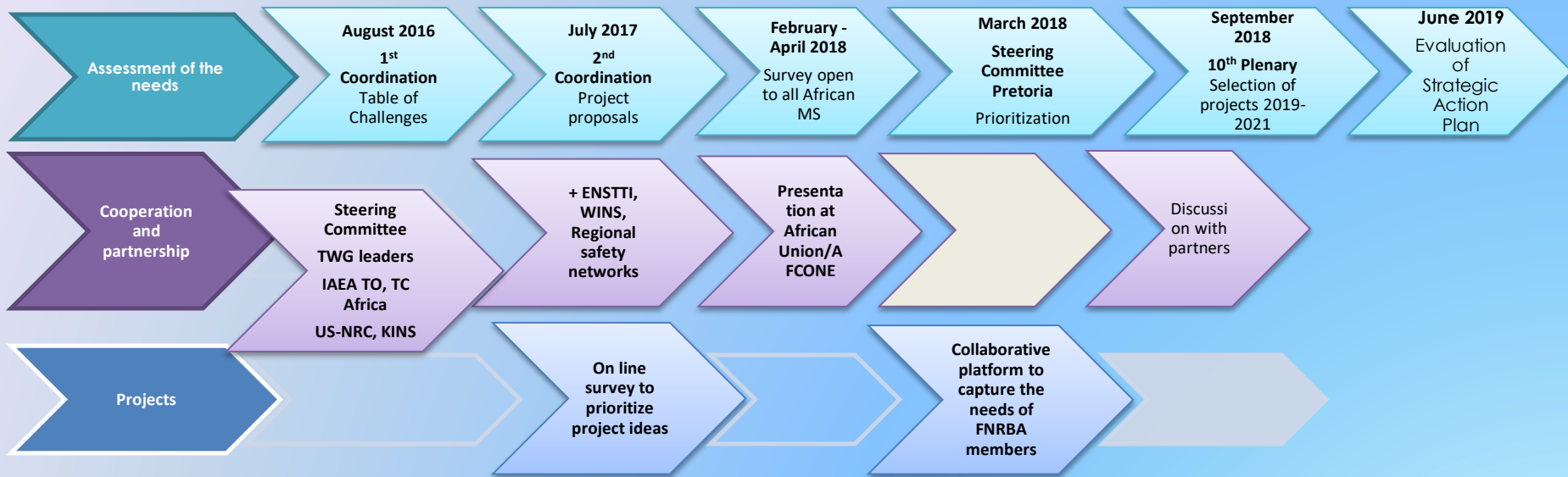
FNRBA MS Progress on Meeting the IAEA Safety Standards in TSA 1 “Regulatory Infrastructure for Safety” 2010-2019



Good progress
Medium progress
Low progress

14th Steering Committee Meeting of FNRBA, IAEA Headquarters, Vienna 27 August 2019

Timeline of action of FNRBA



FNRBA TWG 6 Achievements

- FNRBA Website developed and hosted by IAEA/GNSSN in accordance with the FNRBA Resolution
- IT experts from member states (Cameroon, Egypt and Nigeria) trained
- Regional training Workshop for TWG coordinators on the use of FNRBA website organized in Vienna from 25 - 26 February 2013.
- Some Education and Training Regional centres established (Nigeria, Ghana, Egypt, Morocco)
- Regional workshop on knowledge safety network, Nairobi, Kenya, 14-18 Oct 2013, KINS and IAEA-GNSSN support;
- Regional Workshop on National Nuclear Safety Knowledge Platforms, Vienna, Austria, 13 To 17 June 2016

FNRBA Website- TWG6-ETKM Page

The screenshot shows a web browser window displaying the FNRBA website. The browser's address bar shows the URL: gnsn.iaea.org/sites/fnrba/EN/TWG/ETKM/SitePages/Home.aspx. The website header includes the IAEA logo and the text "IAEA FNRBA Forum of Nuclear Regulatory Bodies In Africa". A navigation menu contains links for "FNRBA Home", "About Us", "Technical Working Groups", "Technical Advisory Groups", "Steering Committee", "Plenary", "IT Support Group", "GNSN", and "RW_RadioactiveSrcsMgmtFNRBAFr". A status bar indicates "Status: Checked out and editable." The main content area features a sidebar with navigation links: "Members", "Terms of Reference", "Workplan", "Shared Documents", "Calendar", "Tasks", "All Events", and "Team Discussion". The main content includes a red heading "Education, Training and Knowledge Management: TWG6-ETKM", a "Description" section with a permission message, a blue heading "Technical Working Group, TWG6-ETKM", a "Background" section, a "Purpose" section, and an "Objectives" section. On the right side, there is a text box with instructions for linking to an image, a portrait of Dr. Yau Idris, and a group photograph of the TWG6-ETKM members.

Education, Training and Knowledge Management: **TWG6-ETKM**

Description

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Technical Working Group, TWG6-ETKM

Background

Training and sharing of experience amongst Nuclear Regulators in the Africa Region for the effective understanding of the role of regulatory program in providing adequate safety and security in the use of nuclear material and radiation sources in various practices was found out by the FNRBA to be a major challenge. Though there are training institutions and experts within the region and beyond however, there is inadequate information amongst Member States and also the mechanisms for identification and collaboration are yet to be developed. These challenges are amongst the reasons for the formation of the FNRBA and the establishment of the TWG6-ETKM

Purpose


TWG5-ETKM was created by the FNRBA in accordance with article 8 of the FNRBA-Charter to specifically develop and implement a systematic way of identifying, collecting, analysing and sharing regulatory experience amongst Nuclear Regulators and to facilitate the adoption of insights and experience within the African region and beyond. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizations as processes or practices.

Objectives

The objectives of the TWG6-ETNM, as defined in article 3 of the Charter of the FNRBA, are to:

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Dr Yau Idris - Coordinator-ETKM Coordinator



FNRBA TWG 6 Major Challenges

- More active FNRBA office bearers and TWG Coordinators;
- Difficulty in convening workshops and meetings
- Inadequate internal training programmes for Member States
- Most MS have no operational website
- Inadequate utilization of the Forum website
- Funding for regional activities
- Increased cooperation and exchange between FNRBA and other regional networks
- utilization of regional training and education centres
- Directory of regional experts established and maintained

THANK YOU