Forum of Nuclear Regulatory Bodies in Africa: A Peer Review Mechanism

Professor S. B. Elegba , ***NPOM, FNIP***
Director-General/CEO
Nigerian Nuclear Regulatory Authority
and
Chairperson,
Forum of Nuclear Regulatory Bodies in Africa

IAEA Africa Regional Workshop on Establishing Self-Assessment Mechanisms and Capacities

Mombasa, Kenya 23rd-27th August 2010

USES OF RADIATION SOURCES IN AFRICA

- Diagnostic Radiology
- Nuclear Medicine
- Radiotherapy
- Industrial Radiography
- Nuclear Well-Logging
- Nuclear Gauging
- Uranium Mining and Milling
- Nuclear Research Reactors
- Nuclear Power Reactors

Safety and Security Implications

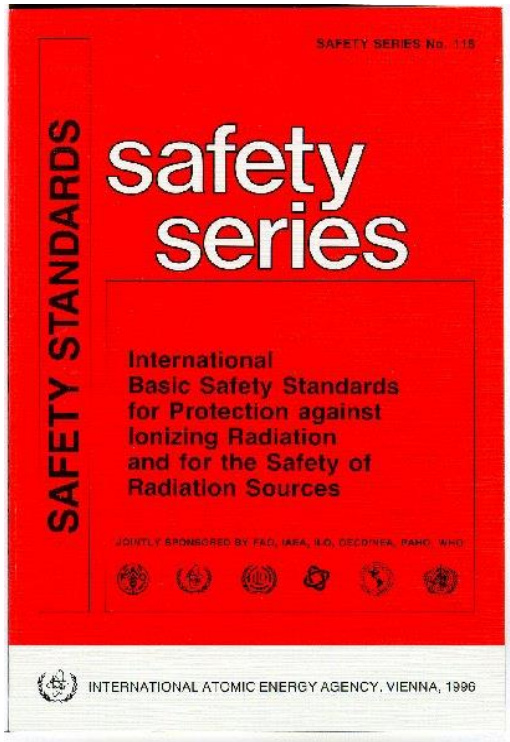
- Exposure of Workers in all
- Exposure of Patients in Medical Applications
- Exposure of the Public
- Security of Radioactive Sources during use storage and transportation
- Disposal of radioactive waste
- Operation of Nuclear Research Reactors
- Operation of Nuclear Power Plants

Safety and Security

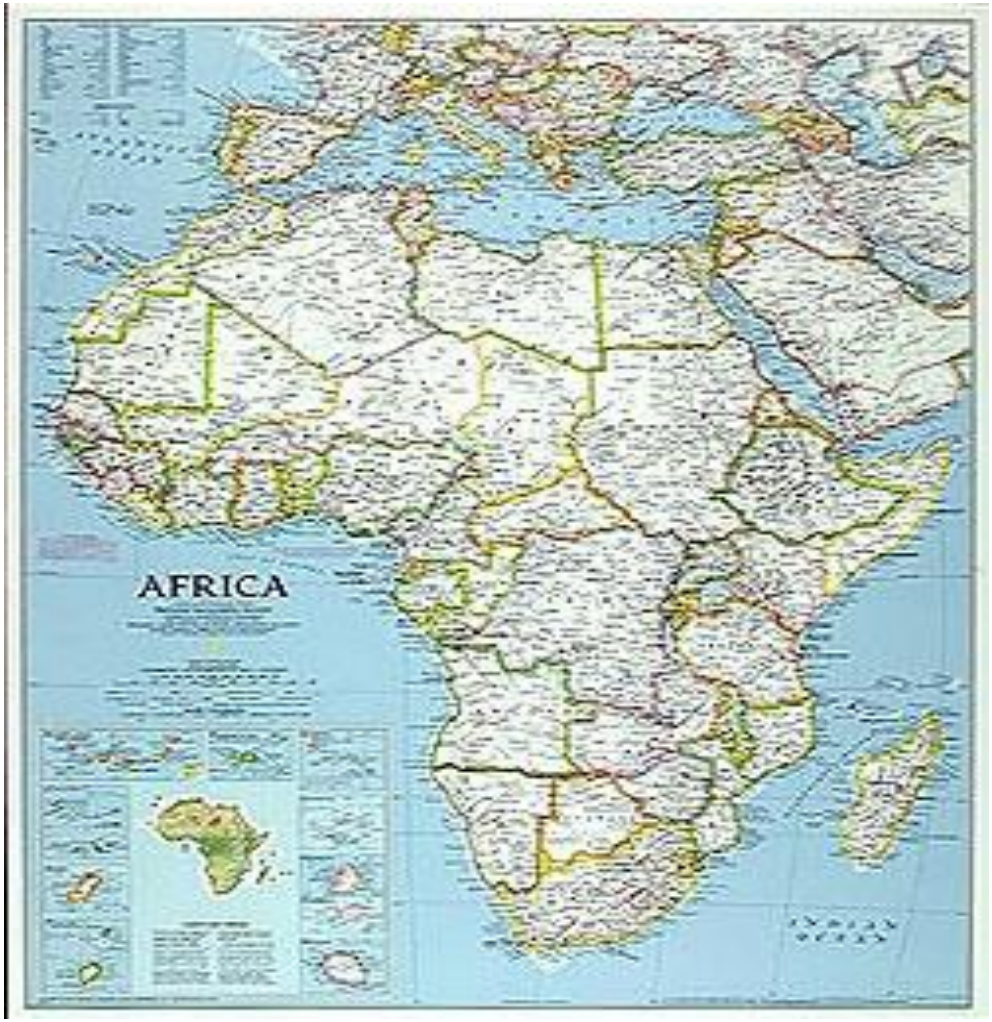
- **The *Safety Principle* is primarily: the prevention of harm and protection of health, safety and the environment.**
- **The *Security Principle* recognizes the importance of preventing diversion or malicious acts.**
- **The *Sustainable Development Principle* recognizes a duty to prevent undue burden and degradation of the environment on future generations**

Radiation Safety & Security Infrastructure

- RADIATION SAFETY
  - 1994-2004 Model Project on the "Establishment of Radiation Protection Infrastructure"
  - The BSS 1996
  - The 2004 Code of Conduct on the Safety and Security of Radioactive Sources, 20



STATUS RADIATION SAFETY INFRASTRUCTURE



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International Effort

- IAEA Model Project on the "Establishment of Radiation Protection Infrastructure" in Member Sates started in 1995
- The 48th IAEA General conference in September 2004 formally signalled the end of the Model Project

International Effort

- 49th General Conference
  - Statements made by several African Member States revealed the desire of the various Member States to embark on nuclear power for electricity generation.
  - This development thus expanded the original scope of the discussion from radiation protection to now include nuclear safety and nuclear security.

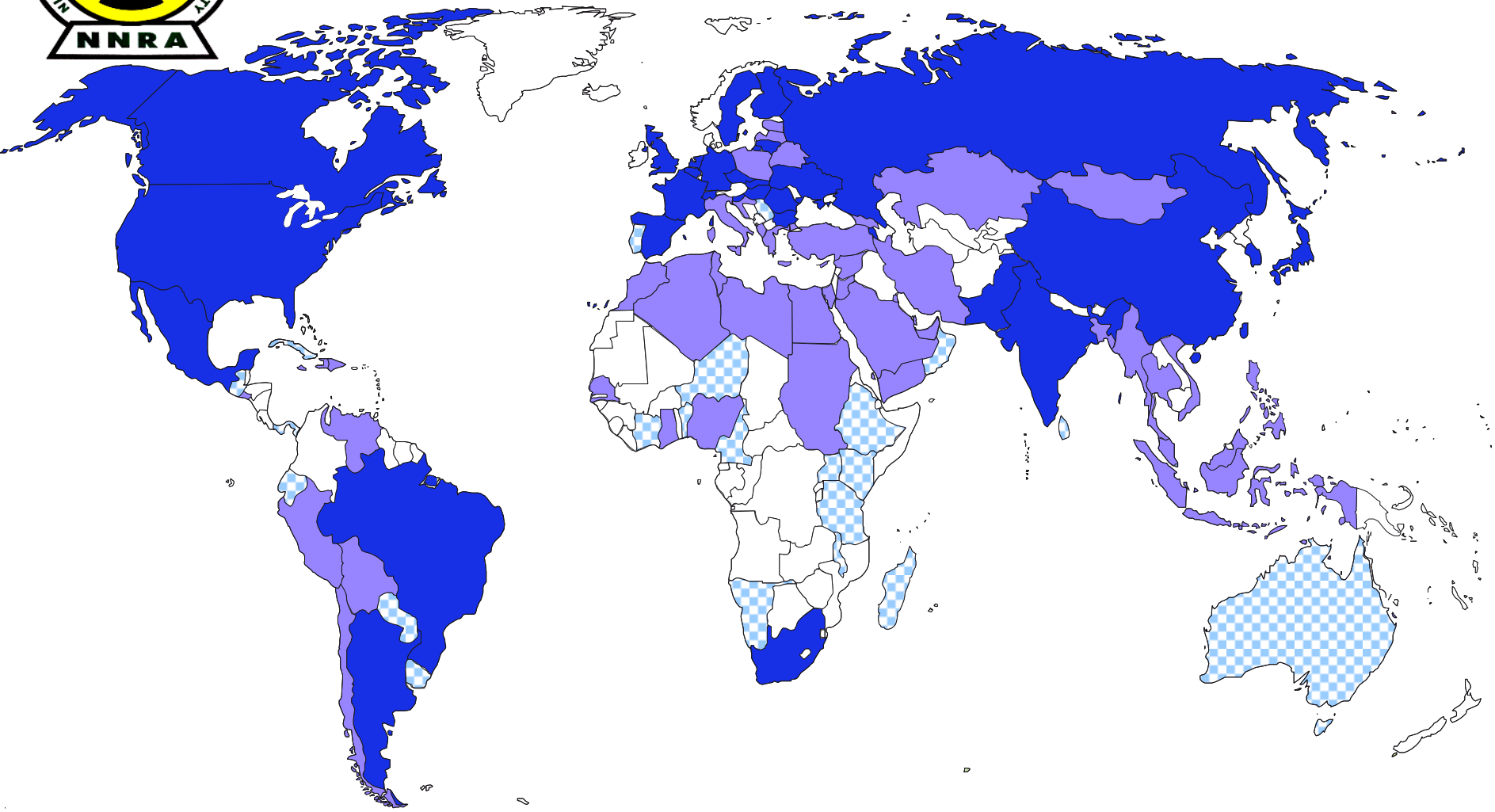
International Effort

- 50th General Conference of Sept. 2006
  - Special Event entitled “New Framework for the Utilization of Nuclear Energy in the 21st Century: Assurances of Nuclear Supply and Non-Proliferation”
  - At the event were several proposals from the USA, the Russian Federation, Japan, etc. and of particular relevance to these proposal was the remark by South African on the need for a regional body for regulators in Africa

International Effort

- Report of the Chairman of the Special event to the General Conference has added another reason for the African nuclear regulatory bodies to meet and harmonize their respective positions not only on radiation protection, nuclear security but also on the development of appropriate legislative and regulatory infrastructure that will ensure the supply of nuclear fuel to Member States in the Africa region.

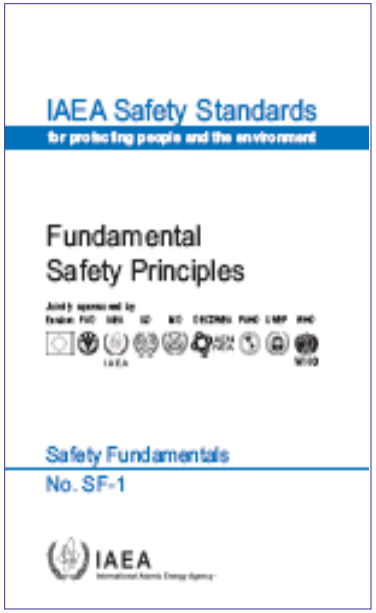
More than 60 countries have expressed their interest for nuclear power



Operating (30) Considering (43) Having expressed interest (25)

Nuclear Safety Infrastructure

- Basic Safety Fundamentals SF-1, 2006
  - Shows that basic safety principles for
    - nuclear safety,
    - radiation protection,
    - Waste management and transport safety are similar



REGIONAL COOPERATION

- 22 countries embarking on NPP
  - countries party to CNS
  - countries party to JC
  - countries to Nuclear Liability Convention
- Establishment of the FNRBA – 28 MS
  - The Committee
  - The TWG
    - Self assessment
    - Networking
    - Partnership

FNRBA CHARTER

- **Preamble**

First meeting for establishing FNRBA held on 2 October 2008 along the margins of the 52nd IAEA General Conference at Vienna International Centre;

Regional Coordination Meeting RAF 9/038 project held on 23-27 March 2009, in Pretoria, South Africa;

FNRBA CHARTER

Article 1 Establishment and Name

A regional organization to be known as the **FORUM OF NUCLEAR REGULATORY BODIES IN AFRICA** (hereinafter referred to as “FNRBA”) is hereby established.

FNRBA CHARTER

- **Article 2 Purpose**

The purpose of FNRBA is to provide for the enhancement, strengthening and harmonisation of the radiation protection, nuclear safety and security regulatory infrastructure and framework among the members of FNRBA**;** and to provide for mechanisms for the FNRBA to be an effective and efficient internationally recognized forum for the exchange of regulatory experiences and practices among the nuclear regulatory bodies in Africa.

FNRBA CHARTER

- **Article 3 Objectives**
- **The objectives of** FNRBA **are to:**
  - Provide a platform for fostering regional cooperation;
  - Provide for the exchange of expertise, information and experience;
  - Provide opportunity for mutual support and coordination of regional initiatives; and
  - Leverage the development and optimisation of resource utilization.
- **Article 4 Membership**
- Membership of the FNRBA shall be open to all national nuclear regulatory bodies in Africa on a voluntary basis.

FNRBA CHARTER

- **Article 5 Organs of the FNRBA**
- The FNRBA shall function through the following organs –
  - The Plenary;
  - The Steering Committee; and
  - The Thematic Working Groups.
- **Article 6 The Plenary**
  - The Plenary shall be the supreme decision making body of the FNRBA
  - Activities of the Plenary

FNRBA CHARTER

- **Article 7 Steering Committee**
- Membership
- Role of the Committee
- Tenure of Office of the Committee
- Meetings of the Committee -The Committee shall meet at least once a year.

- **Article 8 Thematic Working Groups**
  - **As may be determined by the Plenary**

FNRBA CHARTER

- **Article 9 Resources**
  - Member regulatory bodies from the region,
  - International, Regional and National partners.
- **Article 10 Effective Date**
- This Charter shall take effect on the date of signature by the tenth Nuclear Regulatory Body in the region.

MEMBERSHIP

33 IAEA Member African Nuclear Regulatory Bodies

Algeria	Angola	Botswana	Burkina Fasso
Cameroon	Chad	CoteD'Ivoir	DRC
Egypt	Ethiopia	Gabon	Ghana
Kenya	Libya	Madagascar	Malawi
Mali	Mauritania	Morocco	Mozambique
Namibia	Niger	Nigeria	Senegal
Seychelles	Sierra Leone	South Africa	Sudan
Tanzania	Tunisia	Uganda	Zambia
Zimbabwe			

STEERING COMMITTEE

The elected Members are:

• Prof. Shams Elegba	Nigeria	Chairperson
• Prof. Azza Hammou	Tunisia	Vice Chairperson
• Mr. Wilbert Leotwane	South Africa	Secretary
• Dr. Abdellaziz Hajjani	Morocco	Deputy Secretary
• Mr. Joel Kamande	Kenya	Rep. Eastern Africa
• Dr. Kaniki Kakule	DRC	Rep. Central Africa
• Mr. Hamadou Kando	Niger	Rep. Western Africa
• Mr. Axel Tibiniane	Namibia	Rep. Southern Africa
• Prof. M. R. M. Ezz El-Din	Egypt	Rep. Northern Africa

THEMATIC WORKING GROUPS

TWG	ACTIVITY	COORDINATOR
TWG1	Upgrading Legislative and Regulatory Infrastructure	Ethiopia
TWG2	Regulatory Framework for Licensing of NPP	South Africa
TWG3	Upgrading of Radiation Safety in Uranium Mining and Milling	Namibia
TWG4	Upgrading of Radiation Safety in Radiotherapy	Tunisia
TWG5	Upgrading of Nuclear Safety in Research Reactor	Ghana
TWG6	Upgrading Security of RS and Waste Safety Mngt Infras.	Tanzania
TWG7	Education and Training, and Knowledge Management	Nigeria
TWG8	Transportation Safety	Zimbabwe
TWG9	Emergency Planning and Response	South Africa

PROGRESS REPORT: General

- Meeting September 2009
- Round table Discussion December 2009
- Participation at the KINS April 2010
- Participation at the Prep Meeting for the Pelindaba Treaty March 2010
- Coordination Meeting/Plenary Meeting, Nairobi, Kenya, May 2010
- MOU with KINS, USNRC and France ANS

Progress Report

TWG	ACTIVITY	COORDINATOR
TWG2	Regulatory Framework for Licensing of NPP	South Africa
TWG3	Upgrading of Radiation Safety in Uranium Mining and Milling	Namibia
TWG4	Upgrading of Radiation Safety in Radiotherapy	Tunisia

Objectives of the TWG on NPP

- Provide a platform for fostering regional cooperation;
- Provide for the exchange of expertise, information and experience;
- Provide opportunity for mutual support and coordination of regional initiatives, and
- Leverage the development and optimisation of resource utilization.

Objectives of the TWG on NPP

- Sharing of information on regulatory standards and practices with the aim to:
  - Increase knowledge transfer;
  - Identify similarities and differences;
  - Move towards convergence on regulatory standards;
  - Increase stakeholder understanding of regulatory practices; and
  - Enhance regulatory cooperation

Scope of Activities

- Sharing of information on safety standards and regulatory practices in the areas of nuclear, radiation, transport and waste safety as well as security of Nuclear Power Plants, which shall include the entire lifecycle of the facility viz:
  - **Siting**
  - **Design**
  - **Manufacturing of components and parts**
  - **Construction, including hot and cold commissioning**
  - **Operation, and**
  - **Decommissioning**

G2 Regulatory Framework for nsing of NPP South Africa

- Membership
  - South Africa - Coordinator
  - Nigeria - Dep. Coordinator
  - Egypt
  - Libya
  - Morocco
  - Tunisia
  - DRC
  - Tanzania
  - Senegal
  - Ghana
  - Uganda

Progress Report

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MANAGEMENT TOOLS

- **SELF ASSESSMENT**
- **NETWORKING**

OBSERVATIONS AND RECOMMENDATIONS

- Developing Nuclear power programme and establishing a national safety infrastructure is a complex process
- Involves the development of a governmental, legal and regulatory framework
- as well as the necessary training and expertise for all nuclear stakeholders: regulatory body, operator, technical support organizations, etc.

OBSERVATIONS AND RECOMMENDATIONS

- Nuclear safety is and must remain a national responsibility which cannot be delegated.
- Newcomers' money cannot substitute ownership and commitments to **safety and security**
- Nuclear Power Programme is **NOT** an R&D project; it is an **Economic Venture**
- It is **NOT** a prestige project; it is a **Survival Project**

OBSERVATIONS AND RECOMMENDATIONS

- Nuclear Power Programme is a long process for newcomers, lasting about 15 years until the first nuclear reactor becomes operational. Such a figure appeared in different presentations and should be taken into account when preparing national strategies
- This however depends on power rating, technology and ownership structure (national, sub-regional, private sector, private-public partnership, etc,)

OBSERVATIONS AND RECOMMENDATIONS

- Nuclear newcomers should sign, ratify and apply the package of Treaties and Conventions, including the Vienna Convention on Civil Liability for Nuclear Damage, to join the nuclear community
- Cooperation and interactions between regulators of vendor and buyer countries.

R_x for Governmental and Regulatory Framework for Safety

Ownership for safety + People → Safe Operation

Conclusions

- All elements of Governmental and Regulatory Framework for Safety have to be addressed
- Sufficient time should be allowed for establishing the regulatory framework and an independent regulatory body
- Early planning and prompt action is key for ensuring success
- Development of a nuclear safety culture and good safety practices will be neither easy nor automatic
- Regional and interregional cooperation

THANK YOU FOR YOUR ATTENTION