



NUCLEAR REGULATORY AUTHORITY, GHANA

Nuclear Regulatory Authority Ghana Presentation “No Need to Reinvent the Wheel”

Panel Session for RIC 2004 Conference

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14 March 2024

Ghana Nuclear Power Programme

- The Ghana Nuclear Power Programme is following the IAEA Milestones Approach and has the Ghana Nuclear Power Programme Organisation (GNPPO) as its NEPIO. The country is currently in Phase 2 of the programme.
- At the end of Phase 1 of the programme, the GNPPO developed the Programme Comprehensive Report (PCR), which served as a decision-making document for government to make a knowledgeable commitment.
- Based on the document, the President in July 2022 made a public declaration of Ghana's intention of adding nuclear energy to the country's energy mix.
- Further to this, the government has come out with an Energy Transition Policy which details the country's transition to a net-zero carbon emission economy. Nuclear is seen to play a strategic role in this document and serves as one of the main baseload energy sources.
- The Nuclear Regulatory Authority, Ghana is one of the key organisations in the nuclear power programme and was established in 2016.

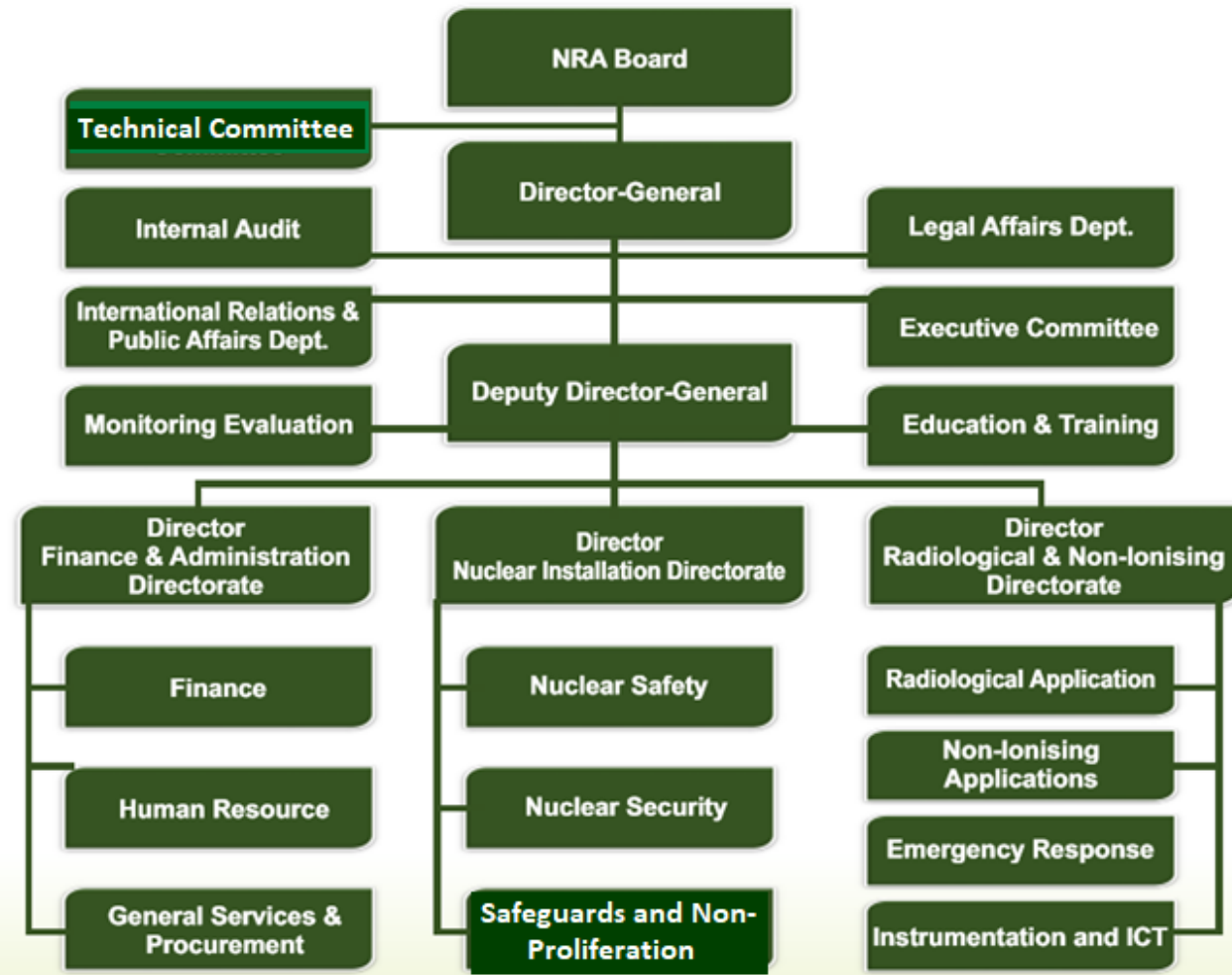
Nuclear Regulatory Authority, Ghana

- The Nuclear Regulatory Authority of Ghana was established in 2016 by the NRA Act 2015 (Act 895).
- It serves as the competent authority for the regulation of all nuclear and radiation matters in Ghana.
- Its scope covers the:
 - Regulation and management of activities and practices for the peaceful use of nuclear energy and radiation
 - Management of radioactive waste and spent fuel resulting from civilian applications in Ghana
 - Liability for nuclear damage

Organisational Structure & Staffing

The NRA is a 3S nuclear regulator responsible for safety, security and safeguards. It currently has three directorates

- Radiological and Non-Ionising Directorate
- Nuclear Installations Directorate
- Finance and Administration Directorate
- The initial staff of the Authority totaling 54 were transferred from Ghana Atomic Energy Commission in 2016.
- The NRA currently has a staff strength of 88.



What We Do (1/2)

- Development of Regulations and Guidelines
- Review and Assessment of applications and associated submittals
- Conduct of Inspections to verify compliance with requirements
- Issue, modify, suspend or revoke authorisations and determine conditions for authorisation
- Conduct enforcement for authorised persons due to non-compliance with requirements
- Regulatory Research
- Implementation of international obligations of Ghana in the nuclear field

What We Do (2/2)

- Public awareness creation on nuclear and radiation matters
- Maintain a national register of radiation sources and of persons authorised to carry out any activity or practice related to a source of radiation
- Collaborate with national agencies responsible for emergency, security and environment to establish plans and procedures for coping with radiological, abnormal occurrence, and development of environmental impact assessments
- Exchange information and cooperate with regulatory authorities of other countries and relevant international organisations on matters of nuclear safety, nuclear security and safeguards

Involvement in Global Nuclear Safety Community

- In line with GSR Part 1, the NRA is involved in a number of international cooperation programmes.
- Requirement 14: International obligations and arrangements for international cooperation and assistance.
 - *The government shall fulfil its respective international obligations, participate in the relevant international arrangements, including international peer reviews, and promote international cooperation and assistance to enhance safety globally.*
- Requirement 15: Sharing of operating experience and regulatory experience.
 - *The regulatory body shall make arrangements for analysis to be carried out to identify lessons to be learned from operating experience and regulatory experience, including experience in other States, and for the dissemination of the lessons learned and for their use by authorized parties, the regulatory body and other relevant authorities.*
- As a new nuclear power embarking country this has helped the NRA to learn quickly from experienced regulators by receiving guidance in the development of its regulatory infrastructure for the nuclear power programme.

International Engagements (1/2)

- Obtaining support and training through Ghana's membership of the International Atomic Energy Agency (IAEA)
- FNRBA - Ghana Coordinating the TWG2 on Radiation and Waste Safety and serving as Secretary
- Arrangement for Technical Information Exchange and Cooperation in Nuclear Safety Matters signed with US NRC in September 2017 and renewed in September 2022
- US DOE in the area of Nuclear Security (INS, ORS, NSDD) and Safeguards (INSEP)
- EC's INSC support with ENCO as Lead Consortium; Project 60; and benefitting from ENEN and DEVCO Training & Tutoring Programmes



International Engagements (2/2)

- Regulatory Cooperation Forum since June 2017. Currently an active recipient.
- MoU with Canadian Nuclear Safety Commission (CNSC) for support signed in September 2019
- MoU with Pakistan Nuclear Regulatory Authority (PNRA) for collaboration signed in December 2021



Some US NRC Support for Nuclear Power Programme

- Workshop on Overview of Nuclear Power Plant Regulatory Oversight held from 19-21 October 2021.
- Workshop on Overview of NUREG 0800 – Standard Review Plan held from 14-16 December 2022.
- Provision of RAMP Computer Codes in addition to holding RAMP User's Meeting in Accra in from 25-28 April 2023.
- Some NRA staff have enrolled online in two nuclear safety internal trainings of the US NRC.
- NRA Inspector Qualification and Training Programme Review, May 2021.
- Use US NRC safety evaluation reports that are available online as reference material in learning how to conduct review and assessments for nuclear power plants license submittals.

Seeking International Support: Challenges to be Considered

- Being able to effectively match the needs of a recipient country to the strengths of a donor country. The Regulatory Cooperation Forum has assisted Ghana in this area.
- Ensuring that the support needed is well tailored and meets the specific needs of the recipient country. The NRA has tried to achieve this by ensuring that Terms of Reference for the support requested are clear, specific and detailed enough.
- Ensuring that there are no support overlaps. The NRA does well to track the support being provided by different experienced regulatory bodies and organisations, and uses this system to limit overlaps in requested support.
- Not enough staff to benefit from training. As a government organization, approval to employ is needed from higher levels of government. This can be bureaucratic and can take time. Among others, NRA is in constant engagement with its sector Ministry on its staffing issues.

Concluding Remarks

- Ghana seeks to ensure the safe, secured and safeguarded introduction of nuclear power
- Ongoing support from different experienced regulatory bodies has been a strong support for the development of the regulatory infrastructure for the nuclear power programme in Ghana. This has mainly enabled us learn directly from industry experts, and avoided us having to re-invent the wheel.
- In particular, the partnership with the US NRC has been strategic and the NRA is looking forward to learning further from the US NRC to strengthen its regulatory infrastructure for the nuclear power programme in Ghana.