Competency Management of the South African National Nuclear Regulator

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Abstract for Poster Presentation

Introduction

The National Nuclear Regulator (NNR) serves as the country's competent authority responsible for ensuring the safe, secure, and compliant utilisation of nuclear energy and radioactive material, including its transportation. Established in line with international nuclear safety obligations, the NNR reflects South Africa's commitment to maintaining an independent, effective, and credible regulatory framework. Its evolution has been characterised by the progressive integration of international best practices, particularly those recommended by the International Atomic Energy Agency (IAEA), to strengthen oversight mechanisms and regulatory capacity.

Competency Framework

Central to the NNR's mandate is the development and maintenance of a highly skilled workforce capable of implementing its regulatory functions. The NNR's Human Resources policy provides the foundation for equitable, efficient, and legally compliant management of human capital. Competence management is embedded across all HR processes, including recruitment, job evaluation, training, performance management, and succession planning.

To achieve this, the NNR employs an adapted version of the IAEA's Systematic Assessment of Regulatory Competence Needs (SARCoN) methodology (IAEA-TECDOC-1757). This framework enables the systematic identification of required knowledge, skills, and attributes for each regulatory role. It further supports structured decisions on training needs, development priorities, and role specific recruitment. Through this approach, the NNR ensures that its staff remain technically proficient, adaptable, and capable of addressing evolving regulatory challenges.

Error! Reference source not found. below illustrates how competence management is integrated into all human resource related processes.

Figure 1: NNR Competence Management Model

In addition, the NNR maintains a job evaluation system that applies scaled and weighted factors such as problem-solving capacity, strategic input, span of accountability, and breadth of knowledge to determine the relative ranking of positions. Salaries are benchmarked every three years to maintain competitiveness, supporting both staff attraction and retention.

Graded Approach

The NNR implements a graded approach consistent with IAEA guidance, particularly in areas of nuclear transport oversight. This approach recognises that the risks and complexities associated with radioactive material vary depending on type, quantity, and transportation route. Accordingly, regulatory requirements and compliance assurance activities are scaled to reflect the potential hazard level.

The effective application of the graded approach requires regulatory staff to possess not only deep technical knowledge but also the ability to interpret, adapt, and apply regulations to diverse scenarios. By aligning competency development with graded oversight requirements, the NNR ensures proportionality in its regulatory response while optimising resources without compromising safety.

Compliance Assurance

Compliance assurance is achieved through a combination of systematic oversight, targeted inspections, performance monitoring, and continuous staff training. The identified competencies of regulatory staff form the basis of these assurance mechanisms, enabling the NNR to uphold high standards of accountability and decision-making.

Furthermore, the NNR invests in capacity building initiatives, including bursary and internship programmes, to secure a sustainable pipeline of future regulatory talent. Organisational

benchmarking against national and international counterparts further ensures that the regulator's structure, staffing levels, and processes remain aligned with global standards.