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Africa's Nuclear Regulatory Approaches for Handling and Transporting Radioactive Materials NORM/TENORM

The International Atomic Energy Agency (IAEA) estimates that approximately 20 million shipments of radioactive materials are transported annually worldwide for peaceful purposes across diverse sectors. This extensive utilization of nuclear technologies enables countries to advance their economies, strengthen societal resilience, and contribute to climate change mitigation. Ensuring the safe and secure transportation of radioactive materials is therefore fundamental to achieving global sustainable development objectives. The transportation of these materials including naturally occurring radioactive materials (NORM/TENORM) and medical isotopes raises significant safety and security concerns, particularly within the African continent, where recurrent conflicts, fragile peace, and uneven regulatory capacity compound existing risks. The main objective of this study is to critically assess the status and effectiveness of radioactive material transportation systems across selected African countries, with particular emphasis on the alignment of national policies with IAEA safety standards. It seeks to identify regulatory gaps, evaluate cross-border coordination mechanisms, and provide evidence-based recommendations for enhancing safety and security frameworks. This is not limited to a single case study; instead, it draws on comparative analyses across multiple African states, thereby offering a broader regional perspective. A comprehensive mixed-methods approach was adopted. First, regulatory frameworks were systematically analyzed to examine the degree of harmonization with international standards. Second, structured interview was conducted with international shipping company and regulatory officials to capture operational challenges and best practices. Third, stakeholder surveys targeting transport operators, regulators, and end-users were used to document local experiences and perceptions. Preliminary findings indicate wide disparities in implementation levels: while some countries have established robust systems, others lack essential legal instruments, trained personnel, and emergency preparedness capabilities. Moreover, cross-border coordination remains weak, highlighting the urgent need for harmonized policies, joint response strategies, and sustained inter-agency collaboration. This study is currently underway, with preliminary findings presented here to underscore key areas of concern. The results to date strongly suggest that advancing nuclear transport safety in Africa requires integrated policy frameworks, capacity-building initiatives, and investment in infrastructure for monitoring and detection. Establishing tailored, enforceable legislation coupled with strengthened awareness and training will be vital for ensuring the safe, secure, and sustainable transportation of radioactive materials across the continent.

Country or International Organization

Instructions

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