

FROM BORDER DETECTION TO REGULATORY REFORM: ADDRESSING THE SAFETY AND SECURITY OF NORM TRANSPORT IN AN ERA OF CRITICAL MINERAL EXPANSION IN ZIMBABWE

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1. Background and Problem Statement

The technological revolution towards advanced technology and clean energy has induced a rush into the mining of significant minerals, particularly lithium and tantalum, in resource-rich countries like Zimbabwe. One of the significant but often overlooked corollaries of this mining bonanza is the management of Naturally Occurring Radioactive Material (NORM). Although Zimbabwe took a progressive stance by enacting special Radiation Protection (Naturally Occurring Radioactive Material) Regulations, 2013 (S.I. 99 of 2013), a glaring omission exists. Section 2 of these regulations does not cater for the transport of NORM by land domestically within Zimbabwe and for the import and export of NORM across borders into and through Zimbabwe. This omission from the statutes forms the essence of the problem. The lithium and tantalum ore and concentrates contain potential high radionuclide content, which makes them NORM and raises high radiation protection and security concerns during transport. The external gamma radiation exposure, the internal hazard of inhalation of the radioactive dust, and the risk of environmental pollution during a spill are the main ones. The omission regarding transport provisions creates a gap for regulations, which induces intolerable risk for workers, the public, and the environment, and creates an opportunity for security loopholes.

2. The Regulatory Gap and the Triggering Incident

The silence of the regulations on transport forces an overreliance on international standards, such as the IAEA's Regulations for the Safe Transport of Radioactive Material (SSR-6), without a mechanism for national enforcement or stakeholder awareness. This critical shortcoming was starkly revealed by a recent incident involving a consignment of lithium ore (NORM) transported from Mutoko to the Nyamapanda Border Post for export.

The shipment was detected at the port of entry/exist due to improper shipping documents, proper radioactive labeling (Class 7 labels), correct packaging, and complete customs documentation declaring its radiological nature. This detection acted as the catalyst, exposing the specific failure of the 2013 regulations and triggering a formal response

3. Multi-Agency Response and Corrective Actions

The interception of the non-compliant consignment necessitated an immediate, coordinated multi-agency response. The incident was escalated beyond the border authorities to involve the Radiation Protection Authority of Zimbabwe (RPAZ) as the competent authority, along with other relevant government bodies. The collective decision was made to prevent the export of the shipment in its non-compliant state. The corrective actions mandated were:

- i. Official Export Clearance - The consignment was returned to the RPAZ to undergo a formal authorization process, filling the procedural void left by the regulations.
- ii. Packaging and Labeling Remediation - The material was required to be repackaged into internationally approved containers, clearly labeled with the radioactive trefoil and hazard information to ensure the safety of handlers, the driver, and the public.

4. The Draft Transport Regulations

The incident tangible risks arising from the silence on domestic and transboundary transportation. In direct response, the RPAZ spearheaded the development of a draft Transport Regulation. This comprehensive legal instrument is designed specifically to bridge this gap by:

- i. Formally adopting the IAEA SSR-6 standards into enforceable national law.
- ii. Amending the regulatory framework to clearly include and govern all aspects of the transport of radioactive material, including NORM, within and through Zimbabwe.
- iii. Explicitly designating the RPAZ as the Competent Authority with powers for licensing, inspection, and enforcement for transport activities.
- iv. Establishing specific requirements for packaging, labeling, transport documents, and radiation protection programs for consignors and carriers.

5. Conclusion and Implications

This case study demonstrates that a comprehensive regulatory framework must explicitly address transport to be effective. The multi-agency response, while successful as a crisis mitigation measure, was a direct consequence of the legislative gap in S.I. 99 of 2013.

The development of the draft Transport Regulation represents a critical and targeted step towards a safe and secure transportation of NORMs.

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