

An Analysis of Achievements and Challenges in the Implementation of Regulations and Policies to Gain Safety and Sustainability of Radioactive Waste Management in Indonesia

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ABSTRACT

The utilization of nuclear energy to support achieving Indonesia's four pillars of sustainability (social, economy, environment, and law and governance) is increasing yearly. Such utilization will produce radioactive waste, which requires exceptional management. Several regulations and policies have been established as references for radioactive waste management. In Indonesia, radioactive waste is mainly generated from operating three research reactors and using radioactive material and sources in the health, industrial, and research facilities. This literature review presents an overview of achievements and challenges in implementing several regulations and policies to improve radioactive waste management's safety and sustainability in Indonesia. Several achievements have been obtained, including establishing a centralized radioactive waste management organization, IPLR-BRIN, and its national inventory. This paper also presents challenges in managing radioactive waste related to the issue of developing sustainable storage and disposal facilities in terms of site and sustainable maintenance of facilities. In addition, as an archipelagic country, Indonesia needs to give attention to the safety and security aspects of radioactive waste during transport, including improvement of coordination between related parties. The analysis results show that implementing regulations and policies for radioactive waste management presents various challenges for regulators and operators to ensure that radioactive waste management in Indonesia remains safe, secure, and sustainable.

Keywords: Radioactive waste management, IPLR-BRIN, radioactive sources, sustainable storage, regulations and policies