

ABSTRACT

Akhdan Waliuddin 'Antar, 1228010019, 2026, Implementation of Nuclear Waste Management Policy at the National Research and Innovation Agency.

The utilization of nuclear technology in national research activities continuously generates residual consequences in the form of radioactive waste accumulation with high radiological risks. The primary problem in this study is the immaturity of derivative regulations post-organizational restructuring, which triggers operational ambiguity, limitations and damage to physical storage facilities in several regional installations, low compliance among general researchers due to a conflict between stringent output targets and the complexity of adjusting to newly realigned bureaucratic workflows, as well as sectoral ego resulting from fragmented administrative workflows after the institutional merger.

This study aims to analyze the execution of communication in the implementation of nuclear waste management policies at the National Research and Innovation Agency (BRIN). Furthermore, this study aims to analyze the fulfillment and utilization of resources, analyze the disposition or attitudinal commitment of implementation actors, and analyze the effectiveness of bureaucratic structure and coordination carried out in nuclear waste management within BRIN.

The theoretical framework of this study is structured by positioning active material residue management as a crucial issue within the domain of public administration and strategic environmental management. The theoretical analysis workflow fully adopts George C. Edward III's Policy Implementation Model, which posits that the success of radioactive waste management regulations execution at BRIN is dynamically driven by four main dimensions, namely communication, resources, disposition, and bureaucratic structure as the administrative engine.

The research methodology applied in this study is a descriptive qualitative method. Primary data sources were obtained directly from key informants through online semi-structured interview, while secondary data were gathered using documentation techniques on national nuclear regulations and BRIN's internal documents. All collected verbal and textual data were systematically through the stages of data condensation, data display, and conclusion drawing and verification.

Research findings indicate that the digital communication dimension via ELSA BRIN successfully enhanced administrative transparency but left lingering technical ambiguities stemming from the macro-level legal transition period. Regarding the resource dimension, personnel qualifications were adequate, as evidenced by BAPETEN Work Permits (SIB) yet physical facilities faced serious bottlenecks, specifically limited storage space for radioactive waste (TPS) in Building J and a malfunctioning hot-cell drum lift in the IRM facility. The disposition dimension revealed a stark contrast between the specialized radiation safety unit, which demonstrated high regulatory compliance, and general researchers, who struggled to adapt their research culture due to the clash between scientific output targets and the transition to a new organizational governance

structure. Finally, the bureaucratic structure dimension showed a clear division of authority between researchers and infrastructure managers, underpinned by a high level of environmental accountability (an ESG aspect) maintained under the strict oversight of BAPETEN and the IAEA.

Keywords: *Policy Implementation, George C. Edward III, Radioactive Waste, BRIN, Radiation Safety.*



ABSTRAK

Akhdan Waliuddin 'Antar, 1228010019, 2026, Implementasi Kebijakan Pengelolaan Limbah Nuklir Di Badan Riset Dan Inovasi Nasional.

Pemanfaatan teknologi nuklir dalam aktivitas riset nasional secara kontinu menghasilkan konsekuensi sisa berupa akumulasi limbah radioaktif yang memiliki risiko radiologis tinggi. Masalah utama dalam penelitian ini adalah adanya ketidakmatangan regulasi turunan pasca-restrukturisasi organisasi yang memicu ambiguitas operasional, keterbatasan dan kerusakan fasilitas fisik penampungan di beberapa instalasi daerah, rendahnya kedisiplinan periset umum akibat benturan tekanan target luaran dengan rumitnya proses adaptasi tata alur birokrasi, serta adanya ego sektoral akibat fragmentasi alur kerja birokrasi pasca-penggabungan instansi.

Penelitian ini bertujuan untuk menganalisis pelaksanaan komunikasi dalam implementasi kebijakan pengelolaan limbah nuklir di Badan Riset dan Inovasi Nasional (BRIN). Selain itu, penelitian ini bertujuan untuk menganalisis pemenuhan dan pemanfaatan sumber daya, menganalisis disposisi atau komitmen sikap para aktor pelaksana, serta menganalisis efektivitas struktur birokrasi dan koordinasi yang dijalankan dalam pengelolaan limbah nuklir di lingkungan BRIN.

Kerangka berpikir penelitian ini disusun dengan memposisikan tata kelola sisa material aktif sebagai isu krusial dalam domain administrasi publik dan manajemen lingkungan hidup strategis. Alur analisis teoretis mengadopsi secara penuh Model Implementasi Kebijakan George C. Edward III yang menempatkan keberhasilan eksekusi regulasi pengelolaan limbah radioaktif di BRIN dipengaruhi oleh jalinan dinamis empat dimensi utama, yaitu komunikasi, sumber daya, disposisi, dan struktur birokrasi sebagai mesin penggerak administratif.

Metodologi penelitian yang digunakan dalam kajian ini adalah metode penelitian kualitatif deskriptif. Sumber data primer diperoleh secara langsung dari informan kunci melalui metode wawancara daring semi-terstruktur, sedangkan data sekunder dihimpun menggunakan teknik dokumentasi terhadap regulasi ketenaganukliran nasional dan dokumen internal BRIN. Seluruh data verbal dan tekstual yang terkumpul dianalisis secara sistematis melalui tahapan kondensasi data, penyajian data, serta penarikan kesimpulan dan verifikasi.

Hasil penelitian menunjukkan bahwa dimensi komunikasi digital via ELSA BRIN sukses meningkatkan transparansi administrasi namun masih menyisakan ambiguitas teknis akibat masa transisi hukum makro. Pada dimensi sumber daya, kualifikasi personel telah mumpuni dengan Surat Izin Bekerja (SIB) BAPETEN, tetapi sarana fasilitas fisik mengalami sumbatan serius berupa keterbatasan ruang TPS Gedung J dan kerusakan lift drum hotcell di IRM. Dimensi disposisi memperlihatkan adanya disparitas disposisi yang tajam antara unit khusus keselamatan radiasi yang menunjukkan kepatuhan regulasi yang tinggi dan periset umum yang mengalami hambatan adaptasi kultur riset akibat benturan tekanan target luaran ilmiah dengan proses transisi penyesuaian tata kelola organisasi baru.

Terakhir, dimensi struktur birokrasi menunjukkan pembagian wewenang formal yang jelas antara periset dengan pengelola infrastruktur, didukung oleh tingginya akuntabilitas lingkungan (aspek ESG) di bawah pengawasan ketat BAPETEN dan IAEA.

Kata Kunci: Implementasi Kebijakan, George C. Edward III, Limbah Radioaktif, BRIN, Keselamatan Radiasi.

