ABSTRACT

Coal-fired power plants (CFPPs) continue to dominate Indonesia's electricity system and generate large volumes of Fly Ash and Bottom Ash (FABA). Unmanaged accumulation of FABA may create environmental and operational challenges. Government Regulation No. 22 of 2021, which removed FABA from the hazardous waste category, has expanded opportunities for its utilization, particularly as a substitute material in the construction industry. Although PT PLN (Persero) has actively implemented FABA utilization, maintaining consistent quality remains a challenge due to variability in coal characteristics and operational conditions. This study aims to analyze FABA management and quality control practices at PLN from a Total Quality Management (TQM) perspective and to formulate strategic directions for strengthening quality management.

This research applies a qualitative approach using an exploratory single case study design. Data were collected through semi-structured interviews with four key informants and analyzed using thematic analysis with a pattern matching approach.

The findings indicate that FABA quality control has been conducted through laboratory testing, monitoring, and cross-functional coordination based on existing procedures. Core TQM principles, such as data-driven decision-making and continuous improvement, are implicitly reflected in current practices. However, quality consistency remains structurally constrained by variability in coal input affecting FABA characteristics. The study recommends strengthening strategic quality management through improved monitoring consistency, systematic documentation of operational learning, and greater transparency of quality information to enhance FABA's added value and support circular economy implementation.

Keywords : Fly Ash Bottom Ash (FABA), quality management, Total Quality Management (TQM), quality control, circular economy.