

ABSTRACT

The logistics industry plays a crucial role in maintaining product quality until it reaches the consumer, but challenges related to product damage often occur. PT Nusantara Bangun Mitrautama (PT NBM), a distributor of building materials in Banyumas, is facing the highest product defect rate of 41% for cement boards. This has led to an increase in returns, a decrease in operational efficiency, and customer dissatisfaction. This research aims to improve the quality control of cement board products using the Six Sigma (DMAIC) method integrated with Failure Mode and Effect Analysis (FMEA) to identify defect causes, prioritize risks, and formulate improvements. The research results show that the quality level of cement board is at a sigma level of 4.52 with a Defects Per Million Opportunities (DPMO) value of 1476.336. The factors causing defects include people, machines, methods, and the environment. The main types of defects, such as cracks and dents, are caused by a lack of worker training, poorly maintained material handling equipment, and non-standard handling methods and environmental conditions. Recommendations include regular equipment maintenance, the use of maintenance checklists, and the implementation of special protective measures for products during handling. The implementation of these improvements is expected to reduce returns, increase operational efficiency, and maintain customer satisfaction and the company's reputation.

Keywords: *quality control; six sigma; FMEA; cement board; storage; delivery*