

## **ABSTRACT**

### **MODEL OF SUSTAINABLE GREEN OPERATION AND MAINTENANCE MANAGEMENT FOR EXISTING BUILDINGS**

The operation-maintenance phase is known as the longest phase of the building life cycle. This phase has the highest percentage of energy consumption and produces the highest CO<sub>2</sub> emissions compared to other phases. So far, there hasn't been a lot of research on this phase. This study aims to produce a sustainable green operation and maintenance management model for existing buildings. Data was collected through interviews and questionnaire surveys, which were distributed to 103 respondents consisting of experts, practitioners, bureaucrats, environmental activists, and managers of green building facilities in Indonesia. The three main groups of factors that influence the performance of sustainable green building management in this phase consist of support and facilitating, management practices, and refurbishment and upgrading. The research instrument was developed using the CVI method, and the model was built and analyzed using Structural Equation Modeling (SEM)-PLS. The validation and model testing were carried out on six existing buildings through an independent assessment by the building manager. The results showed that the success of sustainable green operation and maintenance management for existing buildings was influenced by support and facilitating (path coefficient = 0.348), management practices (path coefficient = 0.242) and, refurbishment and upgrading (path coefficient = 0.393). The resulting R<sup>2</sup> value of 0.768 indicates that the influence of the three main factors is in the substantial category. The findings of this study provide insight and guidance for building owners and managers in formulating a comprehensive strategy towards sustainable green operations-maintenance management for existing buildings.

**Keywords:** PLS, green sustainable, operation and maintenance, existing building