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The green construction site index (gcsi): A quantitative tool used to assess an ongoing project to meet the green construction concept

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Abstrak

The development of the construction industry in Indonesia has been substantially contributing to the enhancement of the social and economic development of the people. However, its expansion has also become an issue, as the development might be implicated in the abuse of environmental sustainability when the practices of conducting the construction project abandon the rules and regulations of sustainable green construction concepts. Therefore, this study attempted to introduce a quantitative assessment tool called the Green Construction Site Index (GCSI) to evaluate the performance of an ongoing project to meet the sustainable green construction concept. The aim of this study was to investigate the effectiveness of GCSI as a quantitative assessment tool to measure the implementation of the green construction concept conducted by ongoing projects. Data were collected by onsite direct observation, interviews with key personnel, and project documentation review. Data were organized and analyzed using descriptive elaboration. The results showed that three aspects, the Efficiency Index (IE), Productivity Index (IP), and Awareness Index (IA), were effective in assessing 10 ongoing construction projects, categorized as Non-Commercial Non-Residential Building, Commercial Residential Building, and Commercial Non-Residential Building. The index generated using GCSI, upon assessing 10 buildings, was 3.39 and fell into the Good category with IE = 3.51, IP = of 2.86, and IA = 3.84. Another finding shows that the Project Organizational Commitment Index (POCI) to the indicator of the GCSI was 3.31 (Good category) with IPOL = 3.36, IPRO = 3.49, and IPRAC = 2.75. The capability of the GCSI to identify three aspects within a construction project simultaneously and comprehensively suggests the importance of its function as an effective tool that gives benefits to not only the contactors, but also to the authorities that control the green construction–related performance. Therefore, the GCSI is expected to be applied as a standardized reference by both the construction industries and regulating authorities. Despite its satisfactory findings, the GCSI needs to be furthered to achieve its reliability and validity to be adopted internationally.