Assessing the Influence of Climate Change Adaptation Strategies on Construction Project Completion in the First District of Camarines Sur

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Abstract

Climate change has emerged as a critical challenge for the construction industry, particularly in vulnerable regions that frequently experience extreme weather events such as heavy rainfall, flooding, typhoons, and prolonged periods of adverse climatic conditions. In the First District of Camarines Sur, these environmental disruptions have increasingly affected construction activities, resulting in project delays, cost overruns, resource inefficiencies, and challenges in maintaining quality standards. Consequently, the adoption of climate change adaptation strategies has become essential for ensuring the successful completion of construction projects and enhancing the resilience of the sector.This study examined the influence of climate change adaptation strategies on construction project completion in the First District of Camarines Sur. Specifically, it assessed the effectiveness of adaptation measures, including flood mitigation initiatives, rainwater management systems, flexible project scheduling, and the utilization of early-warning technologies. Employing a quantitative descriptive-correlational research design, data were collected from 250 construction professionals, including project managers, engineers, contractors, and site supervisors, through a structured survey questionnaire. Descriptive statistics and regression analysis were utilized to analyze the data and determine the relationship between adaptation strategies and project completion outcomes.The findings revealed that climate change adaptation strategies positively contributed to project performance by improving adherence to project schedules, controlling construction costs, maintaining quality standards, and enhancing client satisfaction. Respondents generally perceived these strategies as effective in minimizing the adverse impacts of climate-related disruptions on construction operations. However, challenges such as inconsistent implementation practices, limited resource allocation, and coordination gaps among stakeholders were identified as barriers to maximizing their effectiveness. Regression analysis indicated that climate change adaptation strategies accounted for 31.2% of the variation in project performance, demonstrating their significant influence on construction project completion. The study concludes that integrating climate-resilient practices into construction planning and management is essential for improving project efficiency, reducing climate-related risks, and strengthening the long-term sustainability and resilience of construction projects in climate-vulnerable communities.

Keywords: Climate Change Adaptation; Construction Project Completion; Climate Resilience; Project Performance; Sustainable Construction