

ENHANCING RURAL CONECTIVITY: DEVELOPING A PWD FRIENDLY BRIDGE MODEL FOR SITIO ILIGAN, NORZAGARAY, BULACAN

ABSTRACT

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Bridges are not merely structures that span physical gaps—they are essential connectors that unify people and communities. This study focuses on designing a bridge model that champions inclusivity and accessibility, particularly for persons with disabilities (PWDs). It aims to construct a sustainable and secure structure that enhances mobility for all, ensuring that no one is left behind. By thoughtfully addressing structural integrity, environmental sustainability, and social equity, the research aspires to create a bridge that promotes safety, supports equal access, and contributes meaningfully to local development and community well-being. This study utilized a quantitative research approach with a descriptive design and employed purposive sampling to select expert respondents. Data were gathered through a structured survey questionnaire administered to two professional groups: five (5) Civil Engineers and five (5) Architects. The study aimed to assess the acceptability of the proposed bridge model titled "Enhancing Rural Connectivity: Developing a PWD-Friendly Bridge Model for Sitio Iligan, Norzagaray, Bulacan." Evaluation criteria included the suitability of materials and construction methods, structural and foundation design, load-bearing capacity, overall structural integrity, and the inclusion of safety and accessibility features specifically designed for persons with disabilities (PWDs). The results indicated that both Civil Engineers and Architects rated the proposed bridge model as Acceptable in terms of Materials and Construction, Structural and Foundation Design, Structural Integrity, and Safety Features. However, a discrepancy emerged in the evaluation of Load Capacity, where Civil Engineers rated it Acceptable, while Architects provided a Low Acceptable rating, suggesting a need for further refinement in this area. A statistical comparison between the two groups revealed no significant difference in their overall assessments. Civil Engineers recorded a mean score of 2.98 with a variance of 0.436, while Architects had a mean of 2.62 and a variance of 0.476. With a significance level set at $\alpha = 0.05$, the calculated t-value of 0.843 was less than the t-critical value of 2.110. Thus, the null hypothesis (H_0) was accepted, confirming that the differences in evaluation between the two professional groups were not statistically significant. The findings of the study affirm that the proposed bridge model was generally accepted by both Civil Engineers and Architects. Nonetheless, the comparatively lower rating given by the architects concerning load capacity highlights a critical area for refinement. Key challenges noted by the respondents included appropriate scaling, material selection, and overall structural design. In response to these concerns, several enhancements were recommended, such as ensuring accurate structural dimensions, employing more durable and high-quality materials, and optimizing the design for improved performance. These adjustments aim to strengthen the model's structural integrity, increase its usability for persons with disabilities (PWDs), and promote long-term sustainability and inclusivity.

RECOMMENDED CITATION

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