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SEISMIC VULNERABILITY ASSESSMENT OF INSTITUTIONAL RC BUILDING IN SURKHET VALLEY

Er. Nirajan Adhikari*; Prof. Gokarna Bahadur Motra**

*M.Sc. in Structural Engineering,
Mid-West University Surkhet,
NEPAL
Email id: adhikarin84@gmail.com

**Ph.D,
Tribhuvan University, Institute of Engineering,
Pulchowk Campus, Kathmandu, NEPAL
Email id: gmotra@ioe.edu.np

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ABSTRACT

This study presents a seismic vulnerability assessment of existing institutional reinforced concrete (RC) buildings in Surkhet Valley, Nepal. The assessment is conducted using non-destructive testing (NDT) to obtain the material properties of the existing buildings, followed by a 3D modeling of the buildings using the Etabs 2000 software. The vulnerability assessment is conducted using a nonlinear static approach, which involves applying incremental displacement to the structure until it reaches a predefined limit state.

Based on the study results, some of the RC buildings in Surkhet Valley are vulnerable to seismic events, and some have low to moderate seismic performance. The study also identified the key factors contributing to the vulnerability of the structures, including insufficient seismic design and construction practices, lack of maintenance, and inadequate building codes and regulations. Studies have shown that strengthening measure of buildings to improve their seismic performance can significantly enhance their overall performance. In this study, the recommended strengthening measure is to add shear walls at suitable locations in the building.

The findings of the study can be used to develop effective strategies for reducing the vulnerability of school buildings in Surkhet Valley to seismic events. These strategies may include retrofitting or strengthening measures of existing structures, improving construction practices, and enforcing stricter building codes and regulations. Overall, this study provides valuable insights into the seismic vulnerability of school buildings in Surkhet Valley and highlights the need for effective measures to reduce their vulnerability to seismic events.

KEYWORDS: *Vulnerability, Seismic Performance, Retrofitting*.

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