

## Awareness and Cost-Effectiveness of Green Residential Building Design in Kathmandu Valley

Subash Kumar Bhattarai  
Asst. Prof., Nepal Engineering College, Kathmandu, Nepal  
Email: Subash.bhattarai@hotmail.com  
ORCID: 0000-0003-4194-6508

### Abstract

In recent years, green building technologies have gained recognition as a swift, cost-effective, and often uncomplicated approach to reducing energy and water consumption. However, concerns have emerged regarding the initial construction expenses associated with green buildings. This study investigates the level of awareness among design consultants involved in the planning and design of residential buildings in the Kathmandu Valley, along with the life cycle cost-effectiveness of green building compared to conventional building methods. The study encompasses design consultants within the Kathmandu Valley, selected through consultancies enlisted in the SCAEF, with a sample size of 57 participants. The study's reliability was assessed using Cronbach's alpha in SPSS, yielding a score of 0.75, indicating reliability for a social science survey.

The research reveals that design consultants possess a moderate level of familiarity with green concepts in residential building planning and design. They emphasised the importance of sustainability design; however, they exhibited lower awareness regarding the use of building simulation software or energy modeling tools to optimise green building designs.

This research concludes that while the initial capital investment for green building construction appears relatively higher, a comprehensive analysis reveals that the long-term economic benefits far surpass upfront expenditure. Green buildings exhibit a notable reduction in operational and maintenance costs over their extensive lifespan, culminating in substantial financial advantages.

To address these challenges, essential solutions include disseminating information about green residential building to architects, engineers, developers, legislators, and the public; offering technical training; implementing green building design codes and standards; conducting research; responding to growing customer and developer demand; and promoting the use of local, environmentally friendly building materials and expertise.

**Keywords:** *challenges, green concepts, life cycle cost, solutions*