

RESEARCH PROPOSAL PRESENTATION

The Impact of Re-Use and Recycling of Structural Steel in the Construction Industry: Sustainability and Economic Implications.

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INTRODUCTION

Topic Overview

In order to discover advantages, difficulties, and approaches for advancing sustainable and circular building practices, this study uses a mixed-methods approach to examine the environmental, practical, and financial effects of recycling and reusing structural steel in construction.

Background of the Study

Although steel's strength and durability make it essential for construction, its production is energy-intensive and harmful to the environment, making recycling and reuse essential for lowering carbon emissions. However, issues like disassembly, transportation, and financial barriers must be resolved to promote sustainable building practices.

Aims / Objectives

1. Assess the environmental impact of reusing and recycling structural steel compared to using new steel.
2. Evaluate the economic feasibility of these practices for construction companies, including cost savings and long-term benefits.
3. Identify challenges and barriers to adopting steel recycling and reuse in construction.
4. Provide recommendations for improving the adoption of sustainable steel practices in the industry.

RESEARCH DESIGN & METHODOLOGY

- **Design:** Mixture of Quantitative & Qualitative
- **Data Collection:**
 - Lifecycle Assessments & Surveys of Construction Companies.
 - Semi structured interviews with industry professionals & Case Studies of construction projects using recycled steel.
- **Sample:** Random selection method & purposive sampling
- **Analysis Plan:** Statistical analysis & thematic analysis

REFERENCES

American Institute of Steel Construction (n.d.) 'Structural Steel Sustainability'. Available at: <https://parallax.aisc.org/sustainability.aspx> (Accessed: 1 April 2025).

Shyam Steel (2023) 'The Benefits of Using Recycled Steel in Construction: Environmental and Economic Advantages'. Available at: <https://shyamsteel.com/blogs/the-benefits-of-using-recycled-steel-in-construction-environmental-and-economic-advantages/> (Accessed: 1 April 2025).

Steel Construction Institute (2016) 'Barriers to structural steel reuse and means of overcoming them'. Available at: <https://asbp.org.uk/wp-content/uploads/2016/08/Barriers-to-structural-steel-reuse-and-means-of-overcoming-them-SCI-Report-1.pdf> (Accessed: 1 April 2025).

LITERATURE REVIEW

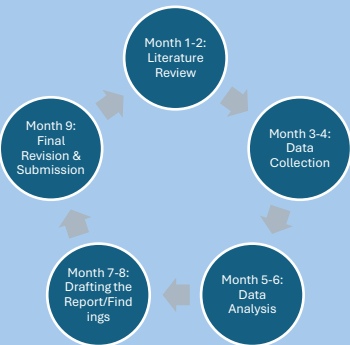
Key Findings

Through the principles of the circular economy, recycling and reusing structural steel promotes resource conservation, environmental protection, and sustainable construction. However, quality, logistical, and regulatory issues that necessitate industry cooperation and policy support are impeding widespread adoption.

Gaps Identified

In order to encourage sustainable practices, this study examines industry-specific obstacles decision-making factors, and professional attitudes in order to fill the knowledge gap on structural steel recycling in the construction sector.

TIMELINE



EXPECTED OUTCOMES / CONCLUSION

Findings

In addition to highlighting important obstacles like material quality issues, logistical difficulties, and regulatory gaps that need to be fixed to allow for wider industry adoption, this study is anticipated to show the financial and environmental advantages of recycling structural steel, including lower emissions, energy consumption, and expenses.

Impact

By offering evidence-based insights that support the use of recycled steel, fostering sustainable construction, establishing best practices and regulations, and advancing a circular economy through increased resource efficiency and decreased environmental impact, the study's findings could have an impact on industry practices and policy.