JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS

VOLUME 5, ISSUE 04
MONTHLY JOURNALS

ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

MULTILINGUAL TERMINOLOGY MANAGEMENT IN LARGE-SCALE INFRASTRUCTURE PROJECTS: THE CASE OF BRIDGE ENGINEERING IN UZBEKISTAN UNDER THE BELT AND ROAD INITIATIVE

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Abstract

The expansion of transnational infrastructure initiatives, particularly China's Belt and Road Initiative (BRI), has created complex multilingual environments in which technical documentation must function seamlessly across languages. This study explores the management of specialized terminology in bridge engineering projects in Uzbekistan, focusing on the interplay between Uzbek, Russian, and English.

Drawing on real BRI bridge construction projects, the paper identifies key terminological challenges arising from the coexistence of international (ISO, EN), regional (GOST), and national (O'z DSt) standards. It examines structural and semantic differences in multi-word terms, problems of equivalence, and the practical consequences of terminological inconsistency in engineering practice.

The research proposes an integrated approach to terminology management that combines traditional translation strategies with systematic harmonization methods. Special attention is given to developing practical tools for trilingual communication in project documentation, contracts, and normative acts. The findings highlight that effective terminology management is essential for minimizing risks, ensuring safety, and enhancing the efficiency of cross-border infrastructure cooperation.

Keywords: terminology management, bridge engineering, multilingual communication, Belt and Road Initiative, technical translation, term harmonization, trilingual terminology, infrastructure projects, Uzbekistan, ISO standards.

1. Introduction

Large-scale infrastructure projects implemented under the Belt and Road Initiative in Central Asia operate in highly multilingual settings. In Uzbekistan, bridge construction projects typically involve Chinese, Russian, European, and local specialists, resulting in documentation prepared in English, Russian, and Uzbek. In such conditions, consistent and accurate use of technical terminology becomes a critical factor for project success.

This article investigates current practices and challenges of terminology management in bridge engineering within the BRI context in Uzbekistan. Unlike purely theoretical studies, the focus is placed on real-world implications for engineering teams, translators, and project managers.

2. Terminological Landscape in Uzbekistan's Bridge Projects

Bridge engineering terminology in Uzbekistan is shaped by three main influences:

- Soviet-era and post-Soviet Russian standards (GOST and СП series);
- International standards widely used by foreign contractors (ISO 6707-1, Eurocodes);
- Emerging national standards (O‘z DSt) that are gradually being harmonized with international norms.

This layered system often leads to parallel terms for the same concept, creating confusion in technical specifications and on-site communication.

3. Major Challenges in Multilingual Terminology Use

The study identifies several recurring problems:

- **Structural asymmetry**: English frequently uses compact noun clusters (e.g., “post-tensioned segmental concrete bridge”), while Russian and Uzbek prefer more expanded syntactic constructions.
- **Equivalence gaps**: Some modern technologies and materials lack established equivalents in Uzbek or have only partial matches in Russian technical vocabulary.
- **Standard conflicts**: Terms approved in GOST may differ significantly from those recommended in ISO or EN standards, forcing project teams to choose or create hybrid variants.
- **Documentation inconsistency**: The same structural element can appear under different names within one project package depending on the language version.

These issues increase the risk of misinterpretation, design errors, and contractual disputes.

4. Strategies for Effective Terminology Management

Based on the analysis of ongoing BRI bridge projects in Uzbekistan, the following strategies prove most effective:

1. Development of project-specific trilingual glossaries updated at the early design stage;
2. Preference for calquing and descriptive translation for complex terms while maintaining links to international standards;
3. Creation of a centralized terminology database accessible to all project participants;
4. Regular terminology audits during the transition between design, construction, and operation phases;
5. Training programs for engineers and translators focused on harmonized terminology.

A proposed practical model includes a three-column terminological table (Uzbek – Russian – English) supplemented with definitions, standard references, and contextual examples from actual projects.

5. Recommendations for Stakeholders

For successful implementation of BRI infrastructure projects, it is recommended that:

- Uzbek regulatory bodies (Uzstandart and relevant ministries) accelerate the development of unified national terminology lists in bridge engineering;
- International contractors include terminology management clauses in tender documents;
- Project management teams establish dedicated terminology coordination roles;
- Academic institutions in Uzbekistan strengthen research and training in multilingual technical communication.

Conclusion

Effective management of multilingual terminology is no longer a secondary linguistic task but a strategic necessity in modern transnational infrastructure projects. In the context of Uzbekistan's participation in the Belt and Road Initiative, building robust systems for terminology harmonization in bridge engineering can significantly reduce risks, improve collaboration, and contribute to higher quality and safety standards. Future work should focus on creating open digital resources and standardized workflows for trilingual terminology support in Central Asian infrastructure development.

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