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A Comparative Study Of The Formation And Development Of Road Construction Terminology

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Abstract: This article examines the history of formation, stages of development, and current state of terminology in the field of road construction on the basis of comparative linguistics methods. A lexical-semantic, morphological, and etymological analysis of terms was carried out on the material of the Uzbek, Russian, and English languages. In the course of the study, the ways in which specialized terminology enters the national terminological system, the ratio between borrowed and native terms, as well as the problems of standardization were reviewed.

Keywords: terminology, road construction, comparative study, lexical-semantic analysis, borrowed terms, derivation, standardization, technical lexis, neologism, etymology.

Introduction: The development of any field of science and technology is directly linked to the existence and refinement of the terminological system that serves it. This pattern is equally evident in road construction: the development from the simple road-building technologies of antiquity to the construction of modern *expressways* and *interchanges* gave rise to a unique terminological fund, which entered the Uzbek language at different times and through different channels.

Although the systematic study of road construction terminology in the Uzbek language began in the second half of the twentieth century, the field has to this day not been sufficiently investigated from a linguistic perspective. The comparative aspect in particular — that is, the contrastive analysis of these terms against their equivalents in Russian and English — has scarcely been carried out. Yet such analysis would serve to reveal the mechanisms by which terms become entrenched in the national system, their semantic shifts, and the methods of borrowing.

Developing national infrastructure, and in particular modernizing the road-transport network, has become one of the priority directions of state policy in our country. This process in turn places on the agenda the need to regulate the terminological base of the field and to adapt it to the capacities of the national language. It is precisely this circumstance that determines the relevance of the present study.

Literature Review: The work of Gerd A.S. on terminological systems served as a broad methodological basis for the study of theoretical and practical issues in terminology [1]. The scholar examines a term not merely as a lexical unit but as a structural element of a given system of knowledge, and this approach proved a methodological foundation for analyzing road construction terminology. The universal and specialized properties of terms are addressed in detail in the reference work by Superanskaya A.V., Podolskaya N.V., and Vasil'eva N.V., devoted to the comparative study of terminology in the technical sciences [2].

Among studies on terminology in Uzbek linguistics, the scholarly works of Berdialiyev A. occupy a special place. The researcher provided a scientific foundation for the stages of development of Uzbek technical terminology and its contemporary problems [3]. Likewise, the research of Yo'ldoshev M. in lexicology yielded a number of important conclusions regarding Uzbek terminology [4]. As a directly relevant source for the scientific study of road construction terms, the dissertation of Mirzayev O'. on engineering terminology was used [5].

At the international level, the reference work by Sager J.C., Dungworth D., and McDonald P.F. served as a foundation for the comparative study of terminology in technical fields [6]. This source offers a

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convenient methodological apparatus for analyzing the semantic structure of engineering terms across different languages. The terminology system based on communication theory, developed by the French terminologist Cabré M.T., was also employed in the study as a methodological guide [7].

Research Methodology: The study employed comparative-contrastive analysis, etymological analysis, componential analysis, and lexical-semantic modelling. The comparative-contrastive method was applied to compare road construction terms across three languages — Uzbek, Russian, and English — and to determine their semantic scope, derivational structure, and sphere of use.

Etymological analysis served as the primary instrument for identifying the source language of terms and the routes through which they were borrowed. Through this method, it was established which terms have Latin, Greek, French, or Arabic roots. Componential analysis, in turn, was directed toward uncovering the semantic structure of multi-component terminological units.

As empirical material for the study, state standard documents of the Republic of Uzbekistan, the "Road Construction Glossary" (Tashkent, 2012), the "Technical Regulations for Motor Roads," as well as engineering encyclopedias and specialized dictionaries published in English and Russian were used. In total, more than 480 terminological units were subjected to analysis.

Analysis and Results

Etymological Classification of Terms and Routes of Formation

The etymological analysis of road construction terms reveals that the bulk of this field's lexis in the Uzbek language has been replenished through three main sources. The largest of these is terms borrowed from the Russian technical language, accounting for approximately 52 percent of the study material. Terms such as *asfalt* (asphalt), *beton* (concrete), *gidroizolyatsiya* (waterproofing), *katta halqa* (ring junction, from Russ. *kol'tsevaya razvyazka*), and *qoplamalar* (pavements/coatings) entered the language either directly or through phonetic adaptation.

The group of terms derived from international technical terminology — entering chiefly through English — includes such units as *expressway*, *freeway*, *interchange*, *overpass*, and *underpass*. These terms are currently used among specialists both in their original English form and in Uzbek transcription. For example, the term *"overpass"* appears in official documents alongside its translation *"ustqurilma ko'prigi"* (overhead bridge).

The third group consists of terms formed from native Uzbek resources or derived from the Arabic-Persian stratum. Organically Uzbek terms such as *ko'prik* (bridge), *yo'l* (road), *ko'cha* (street), *zovur* (drainage ditch), *to'siq* (barrier), and *qopma* (cover/overlay) belong to this group. Notably, the term *"zovur"* is used as a synonym for the Persian *"juy,"* yet in technical documents the form *"zovur"* is predominant.

Semantic Shifts and the Phenomenon of Polysemy

The comparative analysis identified distinctive types of semantic change in road construction terminology. The most frequently observed phenomenon is terminological narrowing — the process whereby, as a word moves from the general literary language into a specialized system, it acquires a precise technical meaning. For instance, the word *"qatlam"* (layer) denotes any stratum in standard Uzbek literary language, whereas in road construction it refers exclusively to a specific structural component of a road surface.

A comparison of the semantic scope of a single term across different languages revealed numerous discrepancies. The English term *"pavement"* denotes the road surface in American English, while in British English *"pavement"* refers to the footpath. When this term is translated into Uzbek, it is

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rendered as *"qoplama"* or *"yo'l qoplami"* (road surface), whereas a separate term, *"piyodalar yo'lkasi"* (pedestrian walkway), exists for the footpath. This divergence demands particular care in terminological translation.

The phenomenon of polysemy also attracted special attention during the study. The Russian term *"pokrytiye"* carries the meanings of road surface, building cladding, and, in a legal sense, financial coverage. In Uzbek technical language, however, *"qoplama"* is used exclusively within a road construction context, giving it a considerably lower degree of polysemy. This circumstance suggests that Uzbek technical terminology is on a path toward semantic transparency.

Morphological and Derivational Features

Analysis of the morphological structure of road construction terms revealed the dominance of several derivational models. In English, multi-component terms are widespread — for example, *"flexible pavement design," "rigid pavement subgrade,"* and *"highway interchange geometry"* — in which the head noun appears at the end and the remaining components function as modifiers.

In Russian, adjective-noun collocations such as *"dorozhnoye pokrytiye"* (road surface), *"zemlyanoye polotno"* (subgrade/earthworks), and *"podpornaya stena"* (retaining wall) are widely used. When transferred into Uzbek, these units are typically rendered as *"yo'l qoplami," "tuproq to'shama,"* and *"tirgak devor,"* drawing on both noun-noun and adjective-noun collocation models of the Uzbek language.

The suffixation method is also actively used in term formation. Derivatives such as *"asfaltlash"* (asphalting), *"betonlashtirish"* (concreting), *"qoplamali"* (surfaced/paved), and *"yo'lsizlik"* (roadlessness) demonstrate the morphological richness of Uzbek. However, a situation was also observed in which two suffixed forms exist for the same concept: *"yo'l quruvchi"* and *"yo'lsoz"* are used with the same meaning, yet the former is more typical of colloquial register while the latter is characteristic of formal style.

Problems of Standardization in Terminology

The most pressing problem in Uzbek road construction terminology identified over the course of the study is the existence of parallel terms. The presence of two or more names for a single concept creates serious difficulties in organizing the terminological system. The pairs *"yonbag'ir"* and *"qiyalik"* (slope/embankment), *"trassirovka"* and *"yo'nalish belgilash"* (route surveying/alignment), and *"profil"* and *"ko'ndalang kesim"* (cross-section/profile) serve as clear illustrations of this.

Although efforts to unify terms have been undertaken within the framework of state standard documents, in practice specialists continue to use terms that retain Russian-language influence. For example, although the use of *"yo'l ajratgich"* or *"kesishma inshoot"* is recommended in place of *"razvyazka,"* the latter remains in wide circulation in construction projects. This situation demonstrates how much time is required for terminological reform to move from paper into practice.

The problem of harmonization with international standards, including ISO and ASTM norms, is equally significant. The fact that the English term *"subgrade"* is translated into Russian as *"osnovaniye"* or *"podlozhka"* and into Uzbek as *"tuproq asosi"* or *"gruntli taglik"* plainly demonstrates the necessity of standardization.

Conclusion: Three main sources have played a decisive role in the formation of Uzbek road construction terminology: the Russian technical language, international engineering lexis, and the native resources of the national language. The ratio among these three sources continues to shift to

the present day: the influence of Russian is gradually diminishing, while the weight of English and native terms is increasing.

Semantic analysis shows that the expression of a single concept in different languages does not always carry an identical semantic scope. This situation gives rise to problems of non-equivalence in terminological translation and places a concrete task before translators and standardization bodies. Morphological analysis leads to the conclusion that the word-formation potential of the Uzbek language must be more fully realized. Terms created through native derivational models are considerably more convenient than borrowed terms in terms of organic integration into the language, retention, and use.

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