

The Linguistic Peculiarities of Ecological Terminology in English and Uzbek

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Annotation: This article explores the linguistic peculiarities of ecological terminology in English and Uzbek, focusing on how environmental language evolves in response to cultural, social, and scientific developments. Through a comparative linguistic analysis, the study examines the morphological, lexical, and semantic features that shape ecological terms in both languages. Particular attention is given to the ways in which international scientific discourse, globalization, and language contact contribute to the formation and transformation of ecological vocabulary. The research reveals that English ecological terminology is characterized by extensive use of affixation, compounding, and the adoption of international borrowings, reflecting its integration into the global scientific community. In contrast, the Uzbek language demonstrates a tendency toward native lexical adaptation, calquing, and increased bilingual influence, especially from Russian and English. These linguistic differences highlight how each language mirrors its unique sociocultural context and level of exposure to global environmental discourse. By analyzing these aspects, the study offers valuable insight into the dynamic relationship between language and environmental communication. It also underscores how ecological terminology not only conveys scientific concepts but also serves as a linguistic tool for raising environmental awareness. The findings contribute to a deeper understanding of language change in the context of global ecological challenges.

Keywords: ecological terminology, linguistic peculiarities, English, Uzbek, morphology, semantics, language contact

Лингвистические особенности экологической терминологии в английском и узбекском языках

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Аннотация: В данной статье исследуются лингвистические особенности экологической терминологии в английском и узбекском языках, с акцентом на то, как язык, связанный с окружающей средой, развивается в ответ на культурные, социальные и научные изменения. Посредством сравнительного лингвистического анализа рассматриваются морфологические, лексические и семантические особенности, формирующие экологические термины в обоих языках. Особое внимание уделяется влиянию международного научного дискурса, глобализации и языковых контактов на формирование и трансформацию экологической лексики. Исследование показывает, что экологическая терминология английского языка характеризуется широким использованием аффиксации, словосложения и заимствований из международной лексики, что отражает её интеграцию в мировое научное сообщество. В то же время узбекский язык демонстрирует тенденцию к адаптации родной лексики, калькированию и возрастанию двуязычного влияния, особенно со стороны русского и английского языков. Эти различия подчеркивают, как каждый язык отражает свой уникальный социокультурный контекст и степень вовлеченности в глобальный экологический

дискурс. Анализ этих аспектов позволяет получить ценную информацию о динамической взаимосвязи между языком и экологической коммуникацией. Также подчеркивается, что экологическая терминология не только передаёт научные концепции, но и служит инструментом повышения экологической осведомленности. Результаты исследования способствуют более глубокому пониманию языковых изменений в условиях глобальных экологических вызовов.

Ключевые слова: экологическая терминология, лингвистические особенности, английский язык, узбекский язык, морфология, семантика, языковой контакт.

Ingliz va o'zbek tillaridagi ekologik atamalarning lingvistik xususiyatlari

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Annotatsiya: Ushbu maqolada ingliz va o'zbek tillaridagi ekologik atamalarning lingvistik xususiyatlari hamda atrof-muhit tilining madaniy, ijtimoiy va ilmiy o'zgarishlarga qanday javob sifatida rivojlanib borayotgani o'rganiladi. Qiyosiy lingvistik tahlil asosida har ikki tildagi ekologik terminlarni shakllantiruvchi morfologik, leksik va semantik xususiyatlar ko'rib chiqiladi. Xalqaro ilmiy diskurs, globallashuv va til aloqalarining ekologik lug'atning shakllanishi va o'zgarishiga qanday ta'sir qilishi alohida e'tiborga olinadi. Tadqiqot shuni ko'rsatadiki, ingliz tilidagi ekologik terminologiya affiksatsiya, so'z yasash va boshqa tillardan olingan atamalarning keng qo'llanilishi bilan ajralib turadi, bu esa uning global ilmiy hamjamiyatga integratsiyasini aks ettiradi. Aksincha, o'zbek tili mahalliy leksikani moslashtirish, so'zma-so'z tarjima qilish va ayniqsa rus va ingliz tillaridan kelayotgan ikki tillilik ta'sirining ortib borishini namoyon qiladi. Bu lingvistik tafovutlar har bir tilning o'ziga xos ijtimoiy-madaniy kontekstini va global ekologik diskursga bo'lgan ta'sir darajasini aks ettiradi. Ushbu jihatlarni tahlil qilish orqali til va ekologik kommunikatsiya o'rtasidagi dinamik munosabatlar haqida qimmatli ma'lumotlar taqdim etiladi. Shuningdek, ekologik terminologiya nafaqat ilmiy tushunchalarni yetkazib beradi, balki ekologik xabardorlikni oshirishda til vositasi sifatida xizmat qiladi. Tadqiqot natijalari global ekologik muammolar fonida til o'zgarishini chuqurroq tushunishga hissa qo'shadi.

Kalit so'zlar: ekologik terminologiya, lingvistik xususiyatlar, ingliz tili, o'zbek tili, morfologiya, semantika, til aloqasi

Introduction

This study investigates the linguistic peculiarities of ecological terminology in English and Uzbek. In recent decades, environmental issues have become central to global discourse, which has led to the rapid expansion of ecological vocabulary across many languages. As Márquez (2017, p. 24) notes, "the language of ecology has grown in complexity and prominence alongside the urgency of environmental crises." English, as the dominant language of science and international communication, has developed a rich and complex system of ecological terminology. Crystal (2003, p. 128) states that "English has become the medium through which much of the world's scientific knowledge, including environmental research, is communicated." Uzbek, as a Turkic language with its own syntactic and morphological structure, is in the process of adopting and adapting ecological terms, often through borrowing and translation. According to Kurbanov and Saidova (2021, p. 47), "the Uzbek language increasingly incorporates ecological terminology through both calquing and phonetic borrowing, though consistency remains an issue."

The object of this study is to examine how ecological terms are constructed and understood in both languages, focusing on morphology, semantics, and cultural relevance. Central concepts include affixation, compounding, lexical borrowing, and semantic equivalence. Over the past decade, research in this field has gained momentum due to the urgency of climate change and the increasing importance of sustainable development, prompting scholars to pay close attention to how these concepts are linguistically represented. Stibbe (2015, p. 5) emphasizes that "language plays a central role in shaping our ecological worldview and influencing environmental behavior."

However, several challenges remain. Despite the proliferation of ecological terminology, inconsistencies and gaps in translation, standardization, and understanding still exist. Many ecological terms are not fully adapted to the linguistic and cultural context of Uzbek, and the integration of these terms often lacks systematic methodology. Traditional approaches tend to focus either on lexical equivalence or direct borrowing, leaving conceptual clarity and communicative effectiveness underexplored.

This study aims to fill these gaps by exploring the mechanisms of term formation, identifying inconsistencies, and providing recommendations for the more effective adaptation and development of ecological terminology in Uzbek. Through a comparative analysis, this paper highlights the scientific and practical relevance of linguistic alignment in environmental communication and policy.

Methods

This study employs a comparative linguistic methodology that integrates both qualitative and limited quantitative approaches to examine ecological terminology in English and Uzbek. The research combines corpus analysis, morphological and semantic examination, translation comparison, and expert validation to ensure a comprehensive and reliable investigation.

A total corpus of 500 ecological terms – 250 from each language – was compiled from diverse sources, including environmental science textbooks, glossaries, official reports (e.g., UNEP, IPCC), academic journals, government publications, and educational materials. Resources such as the Oxford English Dictionary, environmental glossaries, JSTOR, ScienceDirect, the Uzbek National Corpus, and dictionaries of ecological terms were utilized to ensure terminological relevance and credibility.

The methodology encompassed several key stages:

- Corpus Analysis: A broad sample of ecological terms was analyzed to identify usage trends, frequency, and contextual application in both languages.

- Morphological and Semantic Analysis: Terms were examined for their internal structure, including affixation, root combinations, and compounding patterns. Semantic transparency and classification by semantic fields were also considered.

- Translation Comparison: English-Uzbek ecological dictionaries and bilingual glossaries were reviewed to assess how terms are rendered across languages and to identify inconsistencies or gaps in translation.

- Etymological Research: The origins and linguistic evolution of selected terms were traced using authoritative etymological dictionaries and academic databases to highlight borrowing and adaptation trends.

- Expert Consultation: Interviews with Uzbek linguists and translators were conducted to evaluate the practical applicability and clarity of ecological terms used in media and education. Their feedback provided insights into the challenges of standardization and localization.

The study applied thematic coding and frequency analysis to identify recurring linguistic patterns, supported by qualitative interpretation of term usage. While the primary emphasis was on linguistic interpretation, quantitative tools were used to support term frequency analysis.

By employing a multimethod design, this research ensures a balanced and context-sensitive understanding of ecological terminology, offering practical implications for lexicographers, educators, and policymakers involved in environmental communication.

Results

The analysis of ecological terminology in English and Uzbek revealed significant differences in term formation, usage frequency, and structural patterns. In English, a substantial portion of ecological terms are created through affixation, compounding, and blending. Words such as "deforestation", "biodiversity", and "biodegradable" demonstrate productive word formation processes that allow for concise and meaningful expression of complex concepts.

In contrast, Uzbek ecological terminology often relies on borrowing from English or Russian. Terms such as "bioxilma-xillik" (biodiversity) or "ekotizim" (ecosystem) reflect direct phonological or semantic transfers. These borrowed terms are not always fully integrated into the morphological system of Uzbek, leading to occasional confusion or lack of clarity in usage, especially among non-specialists.

A comparative analysis of 250 terms from each language showed that approximately 60% of English ecological terms were derived using native morphological processes, while in Uzbek, over 70% were borrowed or translated. Furthermore, while English showed a tendency toward creating metaphorically rich and semantically transparent terms, Uzbek equivalents often lacked cultural resonance. The research also identified a lack of standardization in Uzbek ecological terminology. Terms were often used inconsistently across different sources, with variants appearing in media, textbooks, and academic literature. This inconsistency hampers effective communication, especially in educational contexts.

Word formation type	English(%)	Uzbek(%)
Affixation	35	10
Compounding	25	15
Borrowing	10	70
Blending	5	1
Calquing	15	4
Others	10	0

Table 1 below illustrates the types of word formation processes found in the 500-word database.

These results confirm the initial hypothesis that ecological terminology in Uzbek remains largely underdeveloped and heavily dependent on loanwords. However, they also indicate opportunities for enriching the lexicon through native word formation and cultural adaptation.

Morphological Features

In English, ecological terminology largely follows patterns of derivational morphology, particularly through affixation. Common prefixes include eco-, bio-, enviro-, and suffixes like -logy, -system, -sphere, and -friendly. For example:

- Ecology (eco- + -logy)
- Biodiversity (bio- + diversity)
- Ecosystem (eco- + system)

Uzbek ecological terms, on the other hand, often involve native compounding or direct borrowings. Native formations include:

- Atrof-muhit (environment, literally "surrounding-world")
- Tabiiy muhit (natural environment)
- Biologik xilma-xillik (biodiversity)

However, there is increasing use of borrowed roots from Russian or English, such as:

- Ekologiya (from Russian/Latin)
- Biogaz (bio + gaz)

Lexical Borrowing

English ecological terms are frequently borrowed into Uzbek either directly or via Russian, which historically played an intermediary role. For example:

- Carbon footprint → karbon izi
- Climate change → iqlim o'zgarishi
- Sustainability → barqarorlik

Loanwords are often adapted phonetically and morphologically. The Uzbek term *ekotizim* (ecosystem) reflects a direct structural borrowing.

Semantic Fields and Neologisms

English shows a rapid proliferation of neologisms in response to environmental developments. Terms such as greenwashing, carbon neutrality, and zero-emissions represent nuanced concepts developed within policy and media discourse (Crystal, 2003).

In Uzbek, equivalent neologisms often appear later and are introduced through translation or media. The term *yashil iqtisodiyot* (green economy) is an example of a calque translation from English.

Cultural and Conceptual Differences

Certain ecological concepts require cultural adaptation. For example, the English term *sustainability* implies a set of socio-economic and environmental practices, whereas its Uzbek equivalent *barqarorlik* traditionally means “stability” or “durability,” which may carry different connotations (Nazarov, 2018).

Discussion

The comparative analysis reveals distinct linguistic strategies in the formation and adaptation of ecological terminology in English and Uzbek. English serves as the global source language, generating original terms through affixation and compounding. Uzbek functions both as a recipient and transformer of this terminology. The reliance on loan translations and borrowings in Uzbek reflects its efforts to modernize scientific vocabulary while preserving linguistic identity. Morphological adaptation plays a key role in integrating foreign terms. For instance, the suffix *-lik* (e.g., *barqarorlik*) mirrors the English *-ity*, maintaining grammatical harmony.

Semantic shifts are common in translation, as cultural and conceptual mismatches necessitate redefinition or recontextualization. The difference in the interpretation of “sustainability” demonstrates this point well. While in English, *sustainability* conveys a set of socio-economic and environmental practices, its Uzbek equivalent, “*barqarorlik*,” traditionally means “stability” or “durability,” which may carry different connotations. Such discrepancies in meaning highlight the challenge of translating complex ecological concepts into languages with different cultural backgrounds and linguistic structures.

Moreover, globalization has fostered bilingual and trilingual influences in ecological discourse in Uzbekistan. English terms often coexist with their Uzbek and Russian counterparts, contributing to a multilingual environmental lexicon. This can be both enriching and challenging, especially in education and policy-making. The presence of multiple terms for the same concept may confuse non-expert audiences and hinder effective communication. As a result, there is a need for greater standardization and careful selection of ecological terms to ensure clarity and consistency in public discourse (Saidov, 2020).

The results of this study shed light on the complex nature of ecological terminology in English and Uzbek, revealing clear structural, semantic, and cultural differences between the two languages. Through the comparative analysis of 250 terms in each language, this research has demonstrated that while English is characterized by a highly productive, flexible approach to ecological term creation, Uzbek remains largely dependent on lexical borrowing and translation.

One of the key insights is that linguistic innovation in English is driven by active scientific discourse and the need to coin new terms rapidly. This has led to a robust lexicon with terms like “greenwashing,” “carbon footprint,” and “eco-friendly,” which not only convey technical meaning but also reflect cultural attitudes toward the environment. English-speaking countries often shape public discourse on environmental issues, creating terms that carry both conceptual and ideological weight. In contrast, Uzbek has tended to adopt foreign terms without fully integrating them into the

native grammatical and semantic framework, leading to a linguistic gap and an underdeveloped ecological lexicon.

The discussion also highlights how terminology development in Uzbek is influenced by institutional and educational factors. The lack of a unified terminological authority has led to inconsistencies and overlaps in ecological terminology. Different sources, including academic publications, media, and governmental documents, often use terms interchangeably, which leads to confusion. While some progress has been made through academic efforts and lexicographic initiatives, these remain scattered and underfunded. The absence of a centralized regulatory body to oversee the standardization of ecological terms in Uzbek further exacerbates the issue.

From a theoretical perspective, the study supports the view that language and environment are culturally embedded. This affirms the need for ecological terms to reflect local knowledge, values, and linguistic habits. In the Uzbek context, terms related to traditional environmental practices, agriculture, and sustainability are underrepresented, indicating a missed opportunity to draw from indigenous concepts. This suggests that further research could focus on how ecological terminology could be developed by integrating local ecological knowledge and practices, rather than relying solely on borrowed terms.

In evaluating the research process, it is important to acknowledge limitations. This study focused primarily on written and standardized language. Oral usage, dialectal variations, and slang were not included. Additionally, the study did not explore the dynamic role of media, education, or rural communities in shaping ecological discourse. Future research could explore how ecological language is used in different social settings, including media, education, and rural communities, where terms might evolve differently from formal sources.

To improve the development of ecological terminology in Uzbek, recommendations include establishing a centralized terminology body, enhancing cooperation between linguists and environmental scientists, and promoting the use of native word formation strategies. Furthermore, public education campaigns can help familiarize speakers with new terms, fostering broader linguistic acceptance and usage. Strengthening the relationship between linguistic and environmental research will also contribute to a more coherent and culturally relevant ecological lexicon in Uzbek.

Conclusion

This research set out to explore the linguistic features of ecological terminology in English and Uzbek, aiming to answer key questions about how environmental concepts are formed, translated, and used in both languages. The findings confirm that there are significant differences in the structural formation, semantic interpretation, and cultural adaptation of ecological terms between the two languages.

Firstly, the study revealed that English ecological terminology is highly productive and dynamic, utilizing a variety of word formation strategies such as affixation, compounding, and blending. In contrast, Uzbek relies heavily on borrowings from English and Russian, with less frequent use of native affixation or compounding. This creates challenges in forming terms that are concise, consistent, and easily understood by the general public.

Secondly, the analysis showed that many ecological terms in Uzbek do not fully capture the connotative and metaphorical richness of their English counterparts. This highlights the need for culturally and linguistically appropriate adaptation of terms, rather than direct translation.

Thirdly, the study found inconsistencies in the standardization and usage of ecological terms within Uzbek sources. A unified approach to terminology, supported by collaboration among linguists, ecologists, and policymakers, is essential for effective environmental communication and education.

In conclusion, this research provides a detailed comparison of ecological terminology in English and Uzbek, underlining the importance of linguistic planning in environmental discourse. While English continues to innovate in the field of ecological language, Uzbek has the opportunity to enrich its terminology by integrating traditional knowledge and developing a standardized lexicon.

Future studies should explore oral discourse and regional variations to deepen the understanding of ecological language use in Uzbek society.

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