BG Pulse Journal USA
ISSN:1947-2536 http://www.bgpulseusa.com/index.php/bg

Ecological Terminology in Karakalpak Publicistic Discourse: Semantic and Functional Analysis

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doi:https://doi.org/10.5281/zenodo.23656478
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Abstract. This article examines the semantic and functional characteristics of ecological terminology in Karakalpak publicistic discourse. The study draws on environmental materials published in the Karakalpak newspapers Erkin Qaraqalpaqstan and Qaraqalpaqstan jasları. Descriptive, contextual, semantic, comparative, and functional-stylistic methods are used to analyze terms related to water resources, environmental conditions, climate change, biodiversity, protected areas, environmental security, and the consequences of the Aral Sea disaster. The findings indicate that ecological terms generally preserve their core conceptual meanings in newspaper discourse, while their communicative functions are adapted to a broad readership. Some terms are used without explanation because they have become familiar to the public, whereas others occur with descriptive or semantically related expressions. The analysis also identifies lexical variation, illustrated by expressions corresponding to water scarcity and water shortage. Such variation can improve textual accessibility, but it may also create challenges for terminological consistency when conceptually distinct units are treated as interchangeable. The article argues that publicistic discourse plays a dual role in ecological terminology: it disseminates specialized vocabulary and makes environmental concepts socially recognizable, while also providing evidence of variants that may require further terminological assessment.

Keywords: ecological terminology; Karakalpak language; publicistic discourse; semantic analysis; functional analysis; environmental communication; lexical variation

Introduction. Language reflects the social, cultural, scientific, and intellectual development of a community. Different communicative settings give rise to functional varieties with distinctive lexical choices, syntactic patterns, and communicative purposes. Publicistic discourse occupies an important position among these varieties because it mediates between socially significant information and the general public. Newspapers and other mass-media channels report events, explain developments, and often encourage readers to recognize the importance of particular social issues.

Terminology is not restricted to scientific and professional communication. When specialized knowledge becomes socially relevant, terms move into educational, administrative, media, and everyday contexts. Ecology provides a particularly clear example of this process. Climate change, water scarcity, desertification, biodiversity loss, pollution, environmental security, and the degradation of natural ecosystems are now discussed not only by specialists but also by journalists and members of the public.

This development is particularly significant for the Karakalpak language. The ecological situation of the Aral Sea region has made environmental issues a recurring subject of public communication in Karakalpakstan. The consequences of the Aral Sea disaster, changes in water resources, dust and salt storms, desertification, biodiversity conservation, and environmental protection are addressed in newspaper materials. Ecological terminology consequently serves as a link between specialized environmental knowledge and public understanding.

The movement of terms into publicistic discourse raises several questions. Do terms preserve their core meanings when used in newspaper texts? How are specialized concepts made accessible to non-specialist readers? What kinds of semantic groups are represented in environmental journalism? Do semantically related expressions function as variants, or do they indicate different concepts? The purpose of this article is to examine the semantic and functional characteristics of ecological terminology in Karakalpak publicistic discourse, focusing on representative newspaper materials and the communicative role of ecological terms.

Literature Review. Terminology is commonly understood as a system of designations associated with specialized concepts. The meaning of a term is shaped not only by its lexical form but also by its place within a conceptual system. Ecological terminology is especially interconnected because environmental concepts relate to water resources, ecosystems, biodiversity, climate, pollution, environmental risks, and conservation measures.

Research on ecological terminology has approached the field from structural, semantic, and derivational perspectives. Paluanova (2016), examining ecological terms in English, Uzbek, Russian, and Karakalpak, addresses the derivational and semantic principles involved in the development of ecological vocabulary. Such work provides a basis for investigating both the internal structure of terms and the concepts they designate. Jumanov (2017) provides a general ecological framework relevant to distinctions between environmental conditions and more serious ecological problems.

Publicistic discourse differs from scientific communication in its intended audience and communicative priorities. Scientific writing generally emphasizes precision, systematic explanation, and consistency. Newspaper writing also requires factual accuracy, but it must communicate information to readers with different levels of specialist knowledge. As a result, terms may occur alongside familiar words, explanations, concrete examples, or descriptive expressions.

Orazbayev and Kilichov (2025), in their study of Arabic borrowings characteristic of publicistic style in Uzbek, Karakalpak, and Turkmen, demonstrate the relevance of publicistic discourse to the functional circulation of lexical units. More broadly, media texts can contribute to the popularization of specialized vocabulary. Repeated exposure may make a term recognizable even when readers do not possess its full scientific definition.

A further issue is lexical variation. Expressions that appear to be synonymous in ordinary communication may not be fully equivalent as technical designations. For example, terms corresponding to water scarcity and water shortage can be used in closely related contexts, yet their precise conceptual boundaries may differ according to the field and context. For terminology research, this distinction is important: contextual variation should not automatically be interpreted

as complete synonymy. The present study addresses this issue by examining ecological terms as they occur in Karakalpak publicistic materials.

Materials and Methods. The empirical material consists of environmental and ecology-related publications in the Karakalpak newspapers Erkin Qaraqalpaqstan and Qaraqalpaqstan jasları. The selected material addresses water supply, water scarcity, the Aral Sea disaster, climate change, biodiversity, protected areas, environmental security, natural hazards, and natural-resource management. These newspapers provide examples of ecological terminology in naturally occurring journalistic contexts addressed to a broad readership.

Five complementary methods were used. The descriptive method identified and characterized ecological terms. The contextual method examined how terms function in individual sentences and wider textual environments. The semantic method classified terms according to the concepts they designate and examined relationships such as semantic proximity and conceptual association. The comparative method considered differences between scientific terminology and publicistic usage. Finally, the functional-stylistic method examined how the communicative requirements of newspaper discourse affect the selection and presentation of terms.

The analysis focused on four criteria: semantic content, structural form, immediate context, and communicative function. Simple terms, compound terms, and terminological combinations were considered when they referred to specialized ecological concepts. Particular attention was paid to cases in which a term was accompanied by a descriptive expression or a semantically related unit.

The study is qualitative and representative rather than statistically exhaustive. It does not claim to constitute a complete corpus of ecological terminology in Karakalpak media. The findings should therefore be understood as patterns observed in the selected materials, not as frequency estimates for the entire language.

Results. The analyzed materials contain ecological terminology related to environmental conditions, water resources, environmental processes, biodiversity, protected areas, natural hazards, and resource management. Representative units include environmental problem, environmental security, drinking water, water scarcity, artesian water wells, climate change, desertification, drying of the Aral Sea, biological diversity, gene pool, Red Book, nature reserve, and natural disaster.

These units can be grouped into several semantic fields. Terms for environmental conditions characterize the state of the environment and associated risks. Water-related terms describe resources, access, supply, and shortages. Process terms refer to climate change, desertification, and the drying of the Aral Sea. Biodiversity and conservation terms identify species-related concepts, protected territories, and conservation instruments. Resource-management terms describe human interaction with land and water.

Water-related terminology is particularly prominent in the selected materials. The expression drinking water appears in contexts concerning supply, infrastructure, public welfare, and environmental conditions. One newspaper example reports the construction of water networks as part of an investment programme intended to improve drinking-water supply (Erkin Qaraqalpaqstan, 2021a, p. 4). In this context, the term designates water suitable for human

consumption, but its communicative role extends to the social significance of reliable infrastructure and access to a basic resource.

The materials also present ecological processes as interconnected. A passage discussing water scarcity links it with environmental problems, the drying of the Aral Sea, dust and salt storms, climate adaptation, and socio-economic conditions (Erkin Qaraqalpaqstan, 2021b). The terms form a semantic chain rather than an isolated list. Their co-occurrence helps readers interpret environmental phenomena as related processes with consequences for both ecosystems and human communities.

Terms related to biodiversity and conservation include biological diversity, gene pool, Red Book, and nature reserve. These units connect specialized ecological concepts with concrete species, territories, and conservation activities. The expression Red Book is especially accessible to a general readership, likely because it is repeated in educational, administrative, and public communication. In such cases, a term can retain its specialized reference while becoming part of widely shared public knowledge.

The term nature reserve also has a practical function in newspaper texts. It identifies protected territories and can appear alongside information about measures such as the construction of artesian water wells to improve conditions for wild animals. In this use, ecological terminology communicates not only abstract concepts but also the location, purpose, and expected environmental relevance of practical measures.

Environmental security provides another example of terminology crossing disciplinary boundaries. In one reported context, strengthening environmental security is discussed together with preventing poaching and other violations (Erkin Qaraqalpaqstan, 2021b, p. 3). The term therefore appears at the intersection of environmental, administrative, and legal communication while maintaining its ecological relevance.

The analysis also reveals variation between semantically related expressions. The source material discusses forms corresponding to water scarcity and water shortage, represented in the related discussion by “suv tanqisligi” and “suv yetishmovchiligi.” Their meanings are close, but they should not automatically be treated as exact equivalents. Water scarcity may foreground limited availability of water resources, whereas water shortage may refer more generally to a deficit under particular conditions. The actual distinction requires further terminological verification and should not be imposed solely on the basis of English-language distinctions.

A similar need for semantic precision appears in expressions such as environmental situation, environmental problem, and environmental disaster. These expressions may refer to different degrees or types of environmental conditions. Treating them as stylistic substitutes could obscure the severity or conceptual nature of the phenomenon being described. The findings therefore suggest that lexical variation in publicistic discourse should be assessed in relation to conceptual content, not merely surface similarity.

Discussion. The findings indicate that ecological terminology generally preserves its core conceptual meaning when it appears in Karakalpak newspaper discourse. Its communicative environment, however, differs from that of specialist scientific writing. A term such as climate

change may occur in a scientific publication alongside technical explanations and data, while in a newspaper it may be linked to water resources, agriculture, regional living conditions, or public policy. The concept remains recognizable, but the surrounding text gives it practical and social relevance.

This contextual adaptation should not be confused with a loss of terminological status. A term does not cease to be specialized simply because it appears in a newspaper. Instead, contextual accessibility allows specialized knowledge to be communicated to a broader audience. Familiar expressions, examples, and references to everyday life can help readers understand the relevance of a concept without providing a full technical definition.

Publicistic discourse also contributes to the popularization of ecological vocabulary. Repeated exposure to terms such as climate change, biodiversity, Red Book, and environmental security can increase public familiarity with environmental concepts. This process is important in a region where environmental conditions and the consequences of the Aral Sea disaster are socially significant. Newspapers document environmental events and communicate information about institutional measures, resource management, and conservation initiatives.

At the same time, publicistic texts allow greater lexical flexibility than highly specialized scientific writing. Writers may choose a semantically related expression to avoid repetition or make a passage more accessible. This flexibility is not inherently problematic. It becomes an issue when two forms are used interchangeably despite designating different concepts, or when inconsistent naming makes it difficult for readers to determine whether the same or different phenomena are being discussed.

For this reason, lexical variation should be divided into at least two categories: variation between forms that designate the same concept, and variation between semantically related expressions that designate distinct but connected concepts. The first category may be a candidate for unification. The second requires conceptual clarification before any recommendation is made. The distinction is particularly important for terms relating to water resources and environmental severity.

The results also suggest that ecological terms frequently occur in semantic clusters. Water scarcity may be discussed alongside the drying of the Aral Sea, dust and salt storms, climate change, and socio-economic conditions. Such co-occurrence reflects the interconnected nature of ecological systems and helps readers perceive environmental issues as parts of a wider process. The social dimension of the terminology is also evident: drinking water relates to human needs, nature reserves connect conservation with territorial management, and environmental security intersects with public administration.

The study has implications for terminology development. Newspaper materials can be used to identify forms that are actively circulating in public communication, but frequency alone is insufficient to establish a normative term. Terminological recommendations should also consider the precision of the designated concept, consistency with the wider terminological system, the resources of the Karakalpak language, established usage, and specialist assessment. Media materials are therefore best treated as evidence of actual usage and potential variation, to be

considered alongside dictionaries, scientific publications, educational resources, and official documents.

Conclusion. The analysis of ecological terminology in Karakalpak publicistic discourse demonstrates that environmental vocabulary functions actively beyond specialist scientific communication. The selected newspaper materials contain terms relating to environmental conditions, water resources, climate change, desertification, biodiversity, natural hazards, protected areas, and environmental security. These terms generally preserve their principal conceptual meanings, while their communicative roles expand through association with everyday life, public welfare, regional development, and environmental protection.

The findings show that context is an important mechanism for making specialized terminology accessible to a broad readership. Terms such as drinking water and nature reserve are linked to practical measures and social concerns, while expressions such as Red Book have become recognizable through repeated public use. The co-occurrence of terms also helps represent environmental phenomena as interconnected processes rather than isolated events.

Lexical variation is another important feature of the analyzed discourse. Expressions corresponding to water scarcity and water shortage demonstrate the need to distinguish between genuine synonymy and semantic proximity. Similarly, environmental situation, environmental problem, and environmental disaster should not be treated as interchangeable without examining their conceptual boundaries.

Publicistic discourse consequently plays a dual role: it contributes to the dissemination of ecological terminology and provides evidence of forms that may require terminological assessment. Future research could expand the material to television, radio, online news platforms, official websites, and social media. Comparative research across scientific, administrative, educational, publicistic, and digital discourse could offer a more comprehensive account of terminological variation and stabilization in Karakalpak.

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