



**CORPUS-BASED ANALYSIS OF SPECIALIZED TERMINOLOGY IN
ENGLISH HYDROMELIORATION TEXTS**

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Abstract: This study presents a corpus-based investigation into the specialized terminology used in English hydromelioration texts. Hydromelioration is a highly technical and interdisciplinary field, combining hydrology, soil science, agricultural engineering, and environmental management. Given the increasing internationalization of academic and technical discourse, understanding the patterns of terminology in English texts is essential for researchers, translators, and ESP (English for Specific Purposes) instructors. The corpus compiled for this study includes a wide range of sources such as academic journals, technical manuals, and institutional reports. Through frequency analysis, collocation exploration, and comparative profiling, the research identifies the most recurrent and functionally significant lexical items, their context of use, and potential implications for education and translation in this domain.

Keywords: Hydromelioration, specialized terminology, corpus linguistics, English for Specific Purposes (ESP), technical vocabulary, collocation analysis, irrigation and drainage, environmental engineering, terminology management, language teaching.

Introduction

Hydromelioration, more commonly known as land reclamation through irrigation and drainage, is essential for sustainable agricultural development, particularly in arid or semiarid regions. Along with the global push for efficient water governance and climate-smart agriculture, the demand for specialized knowledge in this area has increased tremendously. Consequently, English usage in publications, project reports, and teaching resources related to hydromelioration has grown exponentially.

Nonetheless, learners and practitioners from non-English-speaking countries struggle to exploit English texts despite their advanced hydromelioration education

because of hydromelioration's specialized vocabulary. Such texts are often devoid of any hydromelioration terms, making the existence of specialized assistance necessary.

This research seeks to analyze the structure and use of terminology within this discipline, seeking to broaden the understanding of word occurrence and collocation, and the syntactic behavior of language, illustratively through a corpus-based approach.

In achieving this goal, the research strives to enhance the development of instructional materials, improve translation, professional communication accuracy on hydromelioration, and fulfill other identified needs.

Methods

For examining the English specialized hydromelioration texts, a distinct domain corpus of about 1.2 million words was created. The composition of the corpus received attention to the balance of language variety and relevance of the topic, meaning that the data captured is genuine within that domain. The texts were taken from various reliable and authoritative sources like periodicals, international organization's reports (FAO, UNESCO, World Bank), specialized texts, government and NGO manuals, Ph.D. theses, proceedings of conferences, and textbooks at the bachelor's and master's levels in agricultural and environmental engineering.

To achieve proper context with relevance to terminological precision, only known professionals, researchers, and practitioners in hydrology, irrigation engineering, land reclamation and other environmental sciences were selected. This choice made it possible to achieve the expected professional level of the language in the corpus eliminating non-specialist or journalistic input while maintaining technical vocabulary. The selected texts also span the last two decades to ensure capturing the foundational terms as well as new language changes due to technologies and environmental changes.

Preliminary steps involving the digitization of documents (if necessary) as well as the preprocessing and standardization of the corpora were accomplished with the

assistance of AntConc and Sketch Engine. Within each step, specific actions such as tokenization, lemmatization, and the exclusion of non-verbal ('non-linguistic') content (like figures, tables, and metadata) were conducted to leave behind only linguistic content. Further, the corpus was processed to add part-of-speech tags and annotations for advanced linguistic queries such as frequency analysis, collocation extraction, and concordance generation.

This methodological approach enables one to determine the most commonplace and functionally relevant lexical constituents, culled from collocation and syntactic analysis of the hydromelioration discourse, with ease. The corpus design enables diachronic analysis, adaptation type research, and even ESP course development, translation training development, and evaluation of materials.

Using AntConc, the creation of word lists of varying frequencies, concordances, and collocational networks was created. Using Sketch Engine provided answers concerning word sketches, grammatical structures, and keyword extraction. Range software comparisons with general academic corpora, BAWE, and AWL were allowed.

The main goal for the examination was specialized vocabulary with high-frequency count, analysis of typical collocates, and dispersion of these terms in context. Interpretation was provided in regards to analysis of the framework for existing terminology and studies in relation to the ESP curriculum.

Findings

The corpus analysis identified a set of specialized lexical items which were used far more frequently in hydromelioration texts than in general academic writing. Some of the commonest examples are: Irrigation system, drainage channel, water table, capillary rise, field capacity, leaching requirement, hydraulic conductivity, and soil salinity.

These words often appeared in noun phrases and in more technical descriptions. Most of the vocabulary is highly nominal, which suggests that there is a preference towards concise structures that enhance objectivity and precise information.

Collocational analysis also indicated the presence of stable multi-word phrases for the following terms:

- *Surface irrigation method*
- *Salinity control measure*
- *Drainage infrastructure design*
- *Groundwater recharge system*

In terms of grammatical constructions, the passive voice and impersonals predominated, which indicates the formality and technicality of the texts. For instance:

“Drainage capacity is determined by soil permeability.”

“Irrigation efficiency is affected by climatic and hydraulic factors.”

While comparing the general academic corpora, the hydromelioration texts displayed a much greater prevalence of discipline-specific nominal collocations and compounds that, without focused training, render the texts almost incomprehensible to learners.

Discussion

It is clear from the preceding study that the English hydromelioration texts have highly concentrated specialized English vocabulary which differs from English scientific terms. Such results can be useful in several areas:

Language Teaching: Data-based vocabulary instruction term lists can be helpful for teaching English for Specific Purposes (ESP) to students specializing in Environmental and Agricultural Engineering.

Translation: Knowledge of collocations and context-bound words assists in creating more idiomatic translations into the local languages.

Curriculum Development: The use of corpora has heuristic value for universities in refining their English for Specific Purposes courses to better correspond to the actual language used by students in their disciplines.

Terminology Management

In addition, the study emphasizes the need for specific instructional materials for educational domains to aid learners in hydromelioration with bilingual resources. Such materials may incorporate a wide range of corpus-based tools, including bilingual dictionaries, term banks with contextualized explanations, and web-based concordancers that facilitate text comprehension.

Conclusion

This study offers an important corpus-based analysis on the value of the vocabulary employed within English hydromelioration discourse. The findings underline the critical importance of the awareness of language in technical communication and the use of corpus analysis in teaching English for specific purposes (ESP) and translation studies. Furthermore, the analysis illustrates the ways in which the general terms of hydromelioration are determined by scientific accuracy and context, illustrating how geared languages need subject matter knowledge and corpus-based language expertise from language specialists. This observation is important for educators, translators, and other interdisciplinary practitioners who face problems of language consistency and precision in the sharing of knowledge. The study also demonstrates the need to integrate authentic corpora into pedagogical designs so that learners are exposed to contemporary and relevant discourse. As a whole, the findings of this research address the disconnect between theoretical linguistics and the actual practice of language use, and suggest further research including interdisciplinary approaches to contrastive studies or the creation of specialized lexical resources for hydromelioration.

This study contributes both theoretically and practically by exposing prevalent terms, revealing collocational patterns, and accentuating the higher-order features of language in a particular discipline. It explains the diverse processes involved in efficient communication in hydromelioration and aids in the refinement of teaching strategies and translation paradigms of specific languages. Emphasis is placed not only on the mapping of the vocabulary and grammar of a particular field of study, but also on the overwhelming burden placed on non-native speakers of the language. Attention is also placed on the contributions of a text corpus in capturing the implicit mental mapping and sociolinguistic etiquette that definitional compilations of a glossary ignore.

Developing specialized educational resources for the distinct demands of the English-for-Specific-Purpose (ESP) classroom may also form part of future work, alongside multilingual corpus research focused on the variation and equivalence of concepts in different languages related to hydromelioration.

References:

1. Baker, P. (2006). *Using Corpora in Discourse Analysis*. Continuum.
2. Biber, D., Conrad, S., & Reppen, R. (1998). *Corpus Linguistics: Investigating Language Structure and Use*. Cambridge University Press.
3. Coxhead, A. (2000). A New Academic Word List. *TESOL Quarterly*, 34(2), 213–238.
4. Flowerdew, L. (2012). *Corpus-Based Language Studies: An Advanced Resource Book*. Routledge.
5. Gledhill, C. (2000). *Collocations in Science Writing*. Gunter Narr Verlag.
6. Hunston, S. (2002). *Corpora in Applied Linguistics*. Cambridge University Press.
7. Nation, I. S. P. (2001). *Learning Vocabulary in Another Language*. Cambridge University Press.
8. Sinclair, J. (1991). *Corpus, Concordance, Collocation*. Oxford University Press.

9. FAO (2017). Guidelines for Irrigation Management in Arid Regions. FAO Publishing.
10. TIAME Hydromelioration Faculty Reports (2021–2024).
11. SpringerLink. (2023). Hydrology and Water Resources. www.springer.com
12. Sketch Engine. (2023). Lexical Analysis Tool. www.sketchengine.eu



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