CURRENT RESEARCH JOURNAL OF PHILOLOGICAL SCIENCES (ISSN: 2767-3758)

VOLUME: Vol.07 Issue02 2026
Page: - 26-30
DOI: - 10.37547/philological-crjps-07-02-06

RESEARCH ARTICLE OPEN ACCESS

Semantic Boundaries Of The Terms "Irrigation" And "Land Reclamation (Melioration)": An Analysis Of Conceptual Scope And Content

Nazarova Sayyora Azimjanovna

Senior teacher of department of Foreign languages education at Tashkent state university of economics, Uzbekistan

Received: 14 December 2025 **Accepted:** 06 January 2026 **Published:** 09 February 2026

ABSTRACT

The terms irrigation and land reclamation (melioration) are frequently used side by side in agricultural engineering, water governance, and academic discourse, yet their semantic boundaries are often blurred by institutional naming traditions, translation practices, and overlapping technological processes. This article examines the conceptual scope and content of both terms to clarify where they coincide and where they diverge. Using a terminological approach grounded in definitional analysis and concept-structure modeling, the study synthesizes dictionary and normative definitions, domain texts from agronomy and water management, and principles of terminology work. The results show that irrigation is conceptually centered on the purposeful, controlled application and distribution of water to agricultural land or crops to supplement natural moisture, while melioration denotes a broader complex of long-term measures aimed at the radical improvement of unfavorable land conditions, including but not limited to irrigation, drainage, salinity control, soil amendments, and protective engineering. The discussion highlights major sources of ambiguity: scope narrowing of melioration in some regional usages to mean primarily drainage and salinity mitigation; polysemy of English land reclamation beyond agriculture; and metonymic shifts in administrative discourse. The article concludes with implications for terminology standardization, translation, and the compilation of critical domain glossaries.

Keywords: Semantic boundary, irrigation, land reclamation, melioration, conceptual scope, definitional analysis, terminology work, agrarian terminology.

INTRODUCTION

Precise terminology is not a purely linguistic concern in water and land management; it shapes design standards, legal interpretation, funding priorities, and the way scientific results are communicated. In many contexts, irrigation is treated as an intuitively clear concept, yet its meaning expands or contracts depending on whether one speaks about a single on-farm practice, a hydraulic network, or a sector of public administration. Melioration (often rendered in English as land reclamation or land improvement) presents an even more complex case because it is historically embedded in different national traditions of agrarian engineering and because the term's everyday meaning ("improvement") invites broad, sometimes unspecific usage. As a result, the paired expression "irrigation and melioration" is widespread in institutional language, but the semantic relationship between its components is not always explicit: are the terms synonyms, complementary processes, or hierarchical categories?

Clarifying semantic boundaries requires looking at the conceptual content of each term, not only at their surface forms. A term is expected to designate a concept, and a concept is defined by essential characteristics that separate it from neighboring concepts in the same domain. Contemporary terminology standards emphasize the systematic link between objects, concepts, definitions, and

designations as the basis of consistent professional communication. When terms are used interchangeably despite differences in conceptual content, discourse becomes vulnerable to ambiguity: an "irrigation project" might be interpreted narrowly as water delivery infrastructure, while a "melioration project" might be interpreted broadly as a package including drainage, leaching, land leveling, and soil treatment, even if both projects intervene in the same landscape.

This article therefore asks: what are the semantic cores of irrigation and melioration; how do their conceptual scopes differ; where does their extension overlap; and which discourse practices generate boundary confusion? The study aims to deliver a conceptually grounded explanation that can support terminography (specialized dictionaries and glossaries), translation, and the development of domain-specific curricula.

The study applies a terminological and semantic methodology centered on definitional and contextual analysis. First, authoritative definitions were collected from domain glossaries and normative sources. For irrigation, the analysis relies on definitions that explicitly state the core action and purpose of the concept, describing irrigation as an artificial and controlled application of water to agricultural land or crops to supplement natural rainfall. For melioration, the study uses sources that define it as a system of measures for the radical improvement of unfavorable land conditions, and also distinguishes it from routine annual agronomic practices by its long-term and intensive impact.

Second, the conceptual scope of each term was modeled through genus–differentia reasoning. This does not require lists of features in the final exposition; rather, it involves identifying (a) the superordinate concept to which the term belongs and (b) the differentiating characteristics that delimit it from adjacent concepts. Third, contextual patterns were examined in domain texts where irrigation and land improvement measures are described as integrated investments. In particular, land development and improvement descriptions frequently treat drainage, leveling, soil amendments, reclamation leaching, and irrigation engineering as co-present measures within a single improvement logic. Such contexts are crucial for boundary-setting because they reveal how practitioners organize the domain: irrigation appears as one component inside a wider meliorative framework.

Finally, a translation-oriented semantic comparison was conducted to account for cross-linguistic mapping. The analysis considers how the Russian/Uzb. engineering tradition of melioratsiya is often translated into English as land reclamation or amelioration, and how English land reclamation can also denote non-agricultural concepts (e.g., creating land from sea or restoring mined lands). This step is needed because semantic boundaries are frequently distorted not within one language, but at the interface of languages and institutional discourses.

The definitional evidence shows that irrigation has a relatively stable semantic core: it denotes the purposeful, artificial supply of water to land or crops to compensate for insufficient natural moisture. The concept's center is an action (application/distribution of water) directed at an object (agricultural land/crops) for a goal (meeting plant water requirements and stabilizing production). In this sense, irrigation is conceptually narrower than "agricultural water management" because it does not cover every water-related activity, but rather a specific mode of supplying water. The FAOLex definition makes this boundary explicit by focusing on artificial application and controlled distribution to supplement rainfall. The stability of this semantic core explains why irrigation is comparatively easy to operationalize in engineering terms: one can measure diversion volumes, conveyance efficiency, and scheduling performance with relatively direct linkage to the concept.

Melioration, by contrast, denotes a broader concept class whose core is not a single action but a complex of measures and interventions. The semantic center of melioration is "radical improvement of unfavorable land conditions" with a long-term horizon, and its content is inherently multi-component. In the agrarian engineering tradition summarized in the UNESCO–EOLSS chapter on agricultural land improvement, amelioration is defined as a system of measures that improves unfavorable hydrologic, soil, and agroclimatic conditions, and it is explicitly differentiated from routine yearly practices by the radical and long-lasting nature of its effects. This definition positions melioration as a framework concept that can encompass irrigation, drainage, erosion control, chemical soil improvement, and other interventions, depending on local constraints.

The semantic boundary between the two terms becomes clearer when conceptual scope (intension) and extension are separated. The intension of irrigation is comparatively

compact: it is defined by water supply to crops/fields through controlled application and distribution. The extension of irrigation includes multiple techniques (surface, sprinkler, drip), but these are variants inside one conceptual frame: delivering water to meet plant needs. By contrast, the intension of melioration is defined by improvement of land conditions through an organized system of measures, and its extension includes a range of different measure types. Land development discussions in FAO materials illustrate this wider extension by grouping drainage, land leveling, soil amendments, reclamation leaching, and irrigation engineering within the domain of land improvements for irrigated agriculture. In such a conceptual structure, irrigation is not a co-equal synonym of melioration; it is one possible component of meliorative action, particularly within hydro-melioration.

The overlap between the two concepts appears in two main ways. First, irrigation projects often include measures that are not strictly "irrigation" in the narrow sense, such as drainage development to prevent waterlogging and salinity. This creates an everyday discourse tendency to treat irrigation as a package name for irrigated agriculture infrastructure, including drainage. Second, melioration programs in arid and semi-arid regions frequently prioritize irrigation and drainage because water regime and salinity control are decisive constraints; therefore, in practice, a "melioration intervention" may be perceived primarily as an irrigation–drainage system, even though the term's conceptual scope remains broader.

A particularly important boundary phenomenon is scope narrowing of melioration in some administrative and educational contexts. While the conceptual definition of melioration points to a broad system of improvements, regional discourse may reduce the term to one salient subset, commonly drainage and salinity mitigation, because these issues dominate the local problem landscape. This narrowing is not "incorrect" as an observed usage, but it becomes problematic when it is silently transferred into dictionaries, translations, or research writing without specifying that a narrower, context-bound sense is being used. Linguistically, this is a common semantic process: a term with a broad extension acquires a specialized sub-sense through repeated association with the most frequent or socially salient component of the broader concept.

Cross-linguistic mapping further complicates boundaries. In English, land reclamation is a plausible equivalent for melioration in agrarian engineering because it can denote transforming land conditions through a set of measures, and in some technical uses it explicitly includes irrigation and drainage as major forms. Yet English also uses land reclamation for non-agricultural meanings, including recovering land from water bodies or restoring degraded industrial sites. When such polysemy is not controlled, translation can distort the intended concept: a text about agricultural melioration might be misread as coastal reclamation or post-mining restoration. Consequently, the semantic boundary problem is not only between irrigation and melioration, but also between melioration and its translation equivalents.

The results support a hierarchical interpretation of the term relationship: irrigation is best treated as a concept that can function as a component within melioration, rather than as a parallel synonym. From a terminological perspective, this has practical consequences for how definitions should be written and how glossaries should structure entries. Terminology standards emphasize that definitions should reflect conceptual relations and help users distinguish neighboring concepts; they are not mere paraphrases, but tools for concept management in professional communication. If a glossary defines melioration simply as "irrigation and drainage," it risks collapsing the broader improvement concept into a subset and thereby losing the term's capacity to denote chemical, anti-erosion, agroforestry, or landscape interventions that also belong to the meliorative domain.

At the same time, the article's analysis explains why boundary confusion persists even among specialists. Real-world projects do not neatly separate "irrigation" from "drainage" or "soil improvement"; integrated project design is often necessary to prevent negative externalities such as waterlogging and salinization. This is why FAO-oriented descriptions of land improvements for irrigated agriculture treat drainage and reclamation leaching alongside irrigation engineering as coordinated investments. When practitioners experience these measures as one engineered system, language tends to follow practice: the most institutionally visible label, often "irrigation," may extend metonymically to cover the whole system. Such metonymic extension is cognitively natural, but terminologically risky unless it is consciously controlled in scientific writing and formal documentation.

The semantic boundary issue also highlights a tension between domain terminology and general-language semantics. Melioration in its Latin etymology means

"improvement," and this invites broad general usage. Professional discourse restricts and specifies this broad meaning by linking it to land conditions, long-term interventions, and engineered measures. The UNESCO–EOLSS treatment makes that restriction explicit by contrasting amelioration with routine annual practices and defining it as radical and long lasting. In discourse, however, speakers may oscillate between general and specialized senses depending on context, producing ambiguity in mixed-audience texts such as policy communication or public media.

For translation and multilingual terminography, the findings imply that equivalence should be treated as concept-based rather than word-based. If melioratsiya is rendered as land reclamation, the translator should check whether the receiving context is agricultural engineering or a broader environmental restoration domain. If the target audience might interpret reclamation as "creating land from sea" or "mine-site restoration," alternatives such as land improvement, agricultural amelioration, or land melioration (with an explanatory gloss) may better preserve the intended concept. In the opposite direction, translating English land reclamation into languages where melioration is strongly associated with irrigation–drainage can lead to unwanted narrowing. The safe approach is definitional anchoring: ensuring that key texts provide short, explicit definitions at first mention, especially in research articles, standards, and educational materials.

The boundary clarification also supports better research design in agricultural linguistics and terminology studies. Once concepts are separated, corpus-based investigations can more accurately track collocations and semantic prosody. For example, irrigation tends to co-occur with "scheduling," "application," "efficiency," and "water requirement," while melioration tends to co-occur with "soil fertility," "drainage," "salinity control," "land leveling," and "reclamation period." Such patterns are not arbitrary; they reflect the conceptual content discovered through definitional analysis. When scholars conflate the terms, they risk mixing two different frames of meaning and drawing weak conclusions about "terminological variation" that is actually conceptual heterogeneity.

This article clarified the semantic boundaries between irrigation and land reclamation (melioration) by analyzing their conceptual scope and content. Irrigation is centered on the controlled, artificial application and distribution of water to agricultural land or crops to supplement natural moisture. Melioration is a broader concept denoting a system of long-term measures aimed at radically improving unfavorable land conditions, within which irrigation can function as one component among others such as drainage, soil amendments, and salinity control. The study identified recurring sources of ambiguity: integrated engineering practice that encourages metonymic extension of "irrigation," scope narrowing of "melioration" in some regional usages, and polysemy in English translation equivalents such as "land reclamation." The practical implication is that terminological resources, translations, and educational texts should treat irrigation and melioration as conceptually distinct but hierarchically related, and should support this distinction through explicit definitions consistent with recognized principles of terminology work.

REFERENCES

1. ISO 704:2022. Terminology work — Principles and methods. Geneva: International Organization for Standardization, 2022. Available at: https://www.iso.org/standard/79077.html (accessed: 07.02.2026).

2. FAOLEX Glossary. Irrigation: Definition. Rome: Food and Agriculture Organization of the United Nations. Available at: https://www.fao.org/faolex/glossary/en/ (accessed: 07.02.2026).

3. FAO. Land development and land improvements. Rome: Food and Agriculture Organization of the United Nations. Available at: https://www.fao.org/4/x5648e/x5648e0g.htm (accessed: 07.02.2026).

4. Maslov B. S. Agricultural Land Improvement: Amelioration and Reclamation // Encyclopedia of Life Support Systems (EOLSS). Paris: UNESCO–EOLSS, n.d. 9 p. Available at: https://www.eolss.net/sample-chapters/c10/E5-09.pdf (accessed: 07.02.2026).

5. «мелиорация» // Грамота.ру: справочно-информационный портал русского языка. Available at: https://gramota.ru/meta/melioratsiya (accessed: 07.02.2026).

6. Wüster E. Einführung in die Allgemeine Terminologielehre und Terminologische

Lexikographie. Wien: Springer, 1979. 245 S.

7. Cabré M. T. Terminology: Theory, Methods and Applications. Amsterdam; Philadelphia: John Benjamins, 1999. 248 p.

8. Sager J. C. A Practical Course in Terminology Processing. Amsterdam; Philadelphia: John Benjamins, 1990. 254 p.

9. Lyons J. Semantics. Cambridge: Cambridge University Press, 1977. Vol. 1–2.

10. Cruse D. A. Lexical Semantics. Cambridge: Cambridge University Press, 1986. 310 p.