



Original article

A Sociolinguistic Study of Register in Ecological Texts

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ABSTRACT

This qualitative study employs register analysis to examine lexical expansion in environmental discourse and how institutional language codifies new terminology to represent ecological phenomena. It investigates emerging nouns, verbs, adjectives, abbreviations, and noun phrases in the online cooperative agreement on ocean plastic pollution established following the 2019 G20 Summit in Osaka, Japan. The study focuses on linguistic developments resulting from international efforts to address ocean plastic pollution. Adopting a Hallidayan approach, the analysis operates on two levels: a linguistic level that identifies lexical features and a contextual level examining field, tenor, and mode. The findings reveal that noun phrases are the most frequent linguistic feature in the selected text. Contextual analysis further demonstrates that the agreement centers on ocean pollution and is written in a formal institutional register. The study highlights the role of environmental discourse in generating and institutionalizing specialized terminology.

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دراسة اجتماعية لغوية للأسلوب اللغوي في النصوص البيئية

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المستخلص

تعتمد هذه الدراسة على تحليل السياق اللغوي لفحص التوسع المعجمي ضمن الخطاب البيئي، مع التركيز بشكل خاص على كيفية قيام اللغة المؤسسية بتقنين مصطلحات جديدة لتمثيل الظواهر البيئية المعقدة. وقد لا تبدو العلاقة بين اللغة والطبيعة أو البيئة ذات أهمية للوهلة الأولى. وفي هذا السياق، تهدف الدراسة إلى تحديد مفردات جديدة—مثل الأسماء، والأفعال، والصفات، والاختصارات، والتراكيب الاسمية التي ظهرت في اتفاقية إلكترونية تعاونية تتعلق بالتلوث البلاستيكي في المحيطات. جاء هذا الاتفاق ثمرًا للتعاون المشترك في قمة مجموعة العشرين (G20) التي عُقدت في أوساكا باليابان عام 2019. وينصب تركيز هذا البحث على دراسة التطور اللغوي الناجم عن الجهود التعاونية الدولية الرامية إلى الحد من التلوث البلاستيكي في المحيطات خلال ذلك العام. وقد اعتمدت الدراسة على منهج Halliday في تحليل المعنى اللغوي والسياقي. واستخدمت مستويان من التحليل للكشف عن الجوانب اللغوية المتعددة، فضلاً عن مستوى سياقي يفحص ثلاثة معايير هي: *tenor*, *mode*, *field*. وتشير النتائج إلى أن العبارة الاسمية هي أكثر السمات اللغوية وروداً في النص المختار، إلا أن التحليل السياقي يحدد سياق النص، الذي يتمحور حول تلوث المحيطات. بالإضافة إلى ذلك، تستخدم هذه الاتفاقية الإلكترونية لغةً رسميةً في صياغتها. الكلمات المفتاحية: التنوع اللغوي، علم البيئة، منهج Halliday، التحليل السياقي

1. Introduction

Language is what people in a certain group speak. Even though speech can be very different in almost any society, it will be seen that it can be hard to figure out what kind of language a society speaks. Language, as an intrinsically human trait, might be viewed as a simple indication of how special human beings are and how far we've advanced technologically, leaving nature far behind (Luu, 2019).

Hence, the use of language may have the effect of making thinking about environmental problems more serious. If we think about language, we might say that a society can be multilingual, which means that many people speak more than one language. Language and society aren't two separate things, so we should also point out that our definitions aren't. The definition of language has a reference to society in it (Wardhaugh, 2006).

Sociolinguistics, according to (Warhaugh, 2006) is obviously united in his concern for how individuals use language to form and express identities, relate to one another in groups, and resist, protect, or strengthen various forms of power. Holmes (2001) argues that sociolinguistics is the study of the link between language and society. They were interested in figuring out why humans communicate in different ways in different social situations, as well as identifying language functions and how it was utilized to express social meaning.

It is worth noting that sociolinguistics was a branch of science closely allied to sociology, concerned with the relationship between language and social elements in a speech society, as well as the study of language variety (register). (Trudgill, 2000)

In general, registers are collections of linguistic items connected with certain occupational or social groupings. Biber and Conrad (2003, as cited in Wardhaugh & Fuller 2015) distinguish register work from other forms of discourse analysis by stating that it is concerned with the situational elements that define the communication situation. Speakers acquire a variety of registers through socialization with members of various cultural groups within their culture (Wardhaugh & Fuller 2015). How the register is represented in the environmental discourse, how the context of situation characterize register and what are the semantic meanings employed in this kind of discourse is the core of this study.

2. Literature Review

2.1 Linguistic and Social Variation

Horvath (2018), discusses that the study of sociolinguistics is founded on the intrinsic diversity of language and the social and linguistic interpretations it allows. Given this broad foundation, it should come as no surprise that sociolinguistics research covers a wide range of issues and is influenced by a number of social science disciplines, particularly geography, sociology, and anthropology, but also history and psychology.

It can be looked at the impact of other social sciences on linguistic variation research in two different ways. The social sciences give the descriptive categories that have been shown to be crucial in the construction of society and that play a major part in the social distribution of income, education, power, and influence in the social hierarchy.

As linguists, we've taken a lot of our terminology and methods from the social sciences, such geography and sociology. Examples of this include regional studies, maps, and the notion of place, as well as sociology's community studies, social survey methodologies, and social network analyses.

Most importantly, sociolinguists have largely relied on socioeconomic class, gender, age, and ethnicity to represent the social structure of linguistic variety within a geographic region (Horvath, 2018). Moreover, "language is a powerful tool. It can be applied in a variety of ways to enhance and manipulate a message. The printed media is a linguistic medium, making it one of the most significant channels for the spreading of ideas". (Khudiar, 2023, p.3)

2.2 Register

Halliday (1958) defines register as a variation of language that corresponds to a range of contexts. It is defined as a group of ideas that are often connected with a specific field, mode, and tenor arrangement in a given context. However, because it is a meaning configuration, a register must be retained as well. The first issue of register variation provides indications of register approaches in contexts and behaviors that have regarded register as per a linguistic truth necessary for linguistic theory, description, and analysis (Matthiessen, 2019).

Registers, rather than being tiny differences in language, cover the entire range of our linguistic activity, according to Halliday et al (2007). Because two examples of language activity from what will be considered distinct situation types on non-linguistic grounds exhibit no dissimilarities in grammar and lexis, since they are allocated to the equivalent register. Consequently, there is only one situation type here, not two, registers are recognised by official rather than situational circumstances.

Despite the fact that only a small amount of hypothetically conceivable sets of linguistic traits would remain observed to arise in practice, Halliday (2007) emphasizes that the term "register" is just a handy shorthand for continuing variation along numerous linguistic dimensions. The conflict between the register of a count noun and the register of a mass noun recognised at specific locations on a map persists throughout Halliday's writing.

2.3 Register in Systemic Functional Linguistics

This section analyses how Hallidayan operationalizes register in analysis, or how they deploy the concept of register as a semantic configuration and a collection of possibilities in the semantics. Because each study interprets register as being activated by Field, Tenor, and Mode parameters, yet register is positioned on a lower stratum, the following studies are instances of this technique (Moore, 2017).

Moreover, Halliday (1978) states that "the environment of language, or social context, of language is structured as a field of significant social action, a tenor of role relationships, and a mode of symbolic organization" (p.143). Taken collectively, these make up a text's situation, or context of situation (Halliday, 1987).

It is possible to investigate how semantic arrangements change inside and among different contexts by holding one term continual while fluctuating another, or at very least, detecting what occurs when variation and constancy are found on these diverse stages to the extent potential given the apparatus' recent state of development. Language can and does vary inside and between contexts, as other register theories are capable of demonstrating (Moore, 2017).

In a nutshell, for Systemic Functional Linguistics, register is viewed as a fundamental aspect of language as an intrinsically changing system.

2.4 Environmental Discourse

Recent studies have reported that comprehending and managing the environment and its challenges does not require a single environmental language, but rather a variety of complimentary and conflicting discourses. Because of the way the oceans circulate, it's difficult to pinpoint pollution sources in the North Pacific Gyre. Land-based sources of marine pollution (LBSMP) emerge since a variety of micro-point sources along the Pacific Rim, stream circular toward Asia, and twirl to the centre of the gyre, in which debris gathers (Moore & Weisberg, 2001 as quoted in Chang, 2011). (Moore & Weisberg, 2001 as cited in Chang, 2011).

The language of sustainable development conflates various environmental concerns into a single global issue of how to achieve global sustainable growth. This raises issues such as how to employ science and technology to sustainably equalize global living standards. In this context, the discourse on ecological modernity is concerned with establishing sustainable growth inside already industrialized states in order to develop the most efficient technologies and maximize natural resource utilization (Irwin, 2001).

Because of the amplified propagation of plastics over the last half-century, plastic contamination produced ecological concerns in worldly and maritime settings with no obvious solutions. Combating marine plastic pollution at the local, regional, and international levels has generally failed due to a lack of coordination among the various stakeholders involved in finding solutions.

Despite efforts to promote international and regional activity in this area, there is currently no global policy framework in place to handle marine plastic trash (Hassan, 2006).

3. Methodology

3.1 Research Design

This study employs a qualitative descriptive design rooted in Systemic Functional Linguistics (SFL). The research adopts a sociolinguistic lens to examine how institutional discourse regarding maritime pollution is constructed. By utilizing Halliday's framework, the design allows for an exploration of how lexico-grammatical choices reflect ingrained political intentions and influence environmental policy.

3.2 Data Collection and Description

The data for this study consists of the "G20 Implementation Framework for Actions on Marine Plastic Litter" (2019), specifically the official Joint Statement. The document was selected based on its status as a seminal international agreement marking a shift toward a global "life-cycle approach" to plastic pollution. The unit of analysis is domain-specific terminology (neologisms, abbreviations, and noun phrases). The Sampling included a total of key extracts were purposively sampled. These extracts were chosen because they contain high densities of technical and persuasive language related to "ocean plastic pollution."

3.3 Procedures of Analysis

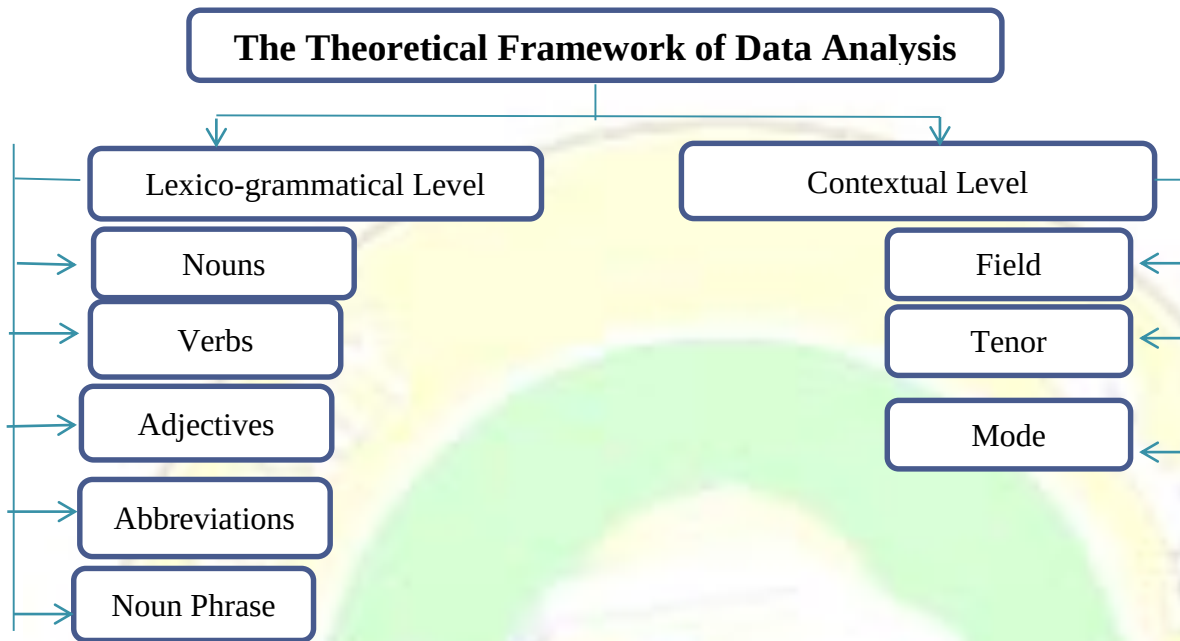
The researcher follows a two-tiered analytical procedure based on Halliday's levels of meaning:

1. **Lexico-Grammatical Analysis:** Following Lock (1996), the researcher identifies specific word choices (nouns, verbs, adjectives) and their functions. This step investigates how the "semantic network" (Hasan et al., 2007) operates within the precise sociological environment of international diplomacy.
2. **Contextual Analysis (Register):** The analysis applies the **Field, Tenor, and Mode** framework (Halliday, 1978). The context of a situation, according to Halliday (1978), comprises of three constituents; the primary social activity that takes place, the individuals who are participating in (along with their relationships), as well as the roles and functions of the manuscript in this social movement, which are identified in Halliday's systemic functional approach as field, tenor, and mode.

Two levels of data analysis will be illustrated in the accompanying figure:

Figure 1

The Model of Data Analysis [Adapted from Halliday, 1978]



4. Data Analysis

Numerous word forms are associated with the environment pollution discourse. Regarding the lexical analysis, nouns, verbs, adjectives and noun phrases are collected from the selected data. To identify the linguistic forms of register used in environmental discourse, it will be started with the content nouns, such as *climate*, *species*, *ecosystems*, *livelihoods*, *fishers*, *tourism*, *economies*, *the ocean*, *plastics*, *leakage* and *planet* as follows:

1. *The ocean is vital to our planet's health and to our well-being and prosperity. It regulates the climate, sustains an estimated 2.2 million species, provides critical protein to 3.3 billion people, and supports tens of millions of jobs. However, marine plastic pollution is increasing rapidly, as expanding plastic production and use exceed our ability to manage them appropriately....., ecosystems, livelihoods, fisheries, maritime transport, recreation and tourism, and local societies and economies.* (United Nations Environment Assembly, 2019, p.1)

In the verb level, the text contains many verbs that indicate register, such as *recycled* and *composed*. Additionally, many adjectives have been discovered, including, *critical*, *plastic* and *maritime*. The following examples show these terms:

2. *"Designing all products and packaging—whether made of plastic or a substitute material—to be reused, recycled, or composted"* (United Nations Environment Assembly, 2019, p.1).
3. *"It regulates the climate, sustains an estimated 2.2 million species, provides critical protein to 3.3 billion people, and supports tens of millions of jobs"* (United Nations Environment Assembly, 2019, p.1)

4. *Now is not the time to move backward on eliminating plastic waste and pollution. Tackling ocean plastic pollution is also essential to achieving the Sustainable Development Goals—target 14.1 on marine pollution, goal 12 on responsible consumption and production, and more. (United Nations Environment Assembly, 2019, p.1)*

The register of this text exhibits another linguistic phenomenon: the frequent use of **abbreviations**. They exemplify the various global institutions, such as UNEP, UN and WWF's as shown below:

1. *As the United Nations Environment Assembly noted in Resolution UNEP/E.A.4/Res.9 in 2019, high and rapidly increasing levels of macro- and microplastic pollution represent a serious global environmental problem, adversely affecting marine biodiversity, ecosystems, livelihoods, fisheries, maritime transport, recreation and tourism. (United Nations Environment Assembly, 2019, p.1)*
2. *Increasing the number of participants and raising the ambition level of existing corporate commitment platforms such as the New Plastics Economy Global Commitment, led by the Ellen MacArthur Foundation in collaboration with the UN Environment Programme, while putting in place transparency measures—such as WWF's ReSource. (United Nations Environment Assembly, 2019, p.1)*

The first abbreviation refers to resolutions adopted by the United Nations Environment Assembly. The second is the UN, which represents the United Nations, and the WWF, one of the world's largest independent conservation groups, with over five million supporters and an international network working in over one hundred countries.

The data include noun phrases to be analysed according to the selected model, such as *critical protein, marine plastic pollution, macro plastic pollution, micro plastic pollution, marine biodiversity, plastic waste, marine pollution, annual plastic leakage, resilient environment, greenhouse gas emissions, refill systems, small-format flexible plastic items, virgin plastic inputs, recycling rates, formal-informal waste collectors, micro plastic release, micro plastic ingredients, maritime sources and toxic chemicals*. All these noun phrases will be explained with more details as follows:

1. **Critical Protein:** this phrase begins with an adjective and is followed by a noun without a modifier. Additionally, the word relates to medicinal food, which is essential to people's health worldwide, as indicated below:

“The ocean is vital to our planet’s health and to our well-being and prosperity. It regulates the climate, sustains an estimated 2.2 million species, provides critical protein to 3.3 billion people, and supports tens of millions of jobs” (United Nations Environment Assembly, 2019,p.1).

2. **Marine Plastic Pollution:** in fact, this noun phrase has two adjectives; the first, "marine," refers to the physical quality, as we are dealing with water body contamination. Additionally, the second adjective "plastic" refers to the substance constituting this pollution, as illustrated in the following extract:

“However, marine plastic pollution is increasing rapidly, as expanding plastic production and use exceed our ability to manage them appropriately” (United Nations Environment Assembly, 2019,p.2).

3. Microplastic Pollution: the phrase composes of one adjective attached to the noun “pollution” to indicate small parts of plastic waste that threatens human food and affects us whole as underlined below:

As the United Nations Environment Assembly noted in Resolution UNEP/E.A.4/Res.9 in 2019, high and rapidly increasing levels of macro- and microplastic pollution represent a serious global environmental problem, adversely affecting marine biodiversity, ecosystems, livelihoods, fisheries, maritime transport, recreation and tourism, and local societies and economies; costing billions of dollars annually; and posing health risks to people. (United Nations Environment Assembly, 2019,p.2)

4. Micro plastic release and micro plastic ingredients are analysed the same way. It is a noun phrase with initial adjectives attached to the nouns to symbolize the terms that denote the danger of this pollution as shown below:

Tackling microplastic pollution by using alternative materials and developing improved standards and capture technologies to reduce microplastic release from tyres and textiles, setting mandatory supply chain standards to prevent pellet loss, and eliminating microplastic ingredients in products that might be released into the environment. (United Nations Environment Assembly, 2019,p.2)

5. Marine biodiversity: the phrase is consisted of an adjective and noun that refer to environmental terms. The term "biodiversity," which was coined about three decades ago as a derivative of "biological diversity" (Wilson, 1985, 1988 as cited in Mea, 2016), is now one of the most commonly used concepts in ecological research, as well as environmental management and conservation. The selected noun phrase is illustrated below:

As the United Nations Environment Assembly noted in Resolution UNEP/E.A.4/Res.9 in 2019, high and rapidly increasing levels of macro- and microplastic pollution represent a serious global environmental problem, adversely affecting marine biodiversity. (United Nations Environment Assembly, 2019, p.2)

6. Maritime Sources: this phrase is included as a reference to the chemical trash that cause damage to the aquatic environment and affects the health of living organisms as displayed beneath:

“Eliminating maritime sources and other sector-specific sources of plastic pollution (e.g., agriculture and construction) through policy interventions and incentives that minimize waste and increase collection and recycling rates at end of life” (United Nations Environment Assembly, 2019, p.2).

7. Resilient Environment: the noun phrase refers to the goal of some societies to make renovations in their environment, society and economy. The phrase is mentioned below:

“As societies around the world adapt to new economic realities amid the COVID-19 pandemic, they have an opportunity to build a more resilient environment, economy, and society” (United Nations Environment Assembly, 2019, p.2).

8. Plastic Waste: the phrase contains one adjective as a head and a noun to indicate the danger of plastic pollution in our countries as illustrated below:

“In addition, eliminating exports of dirty and contaminated plastic waste to developing countries” (United Nations Environment Assembly, 2019, p. 2).

9. Annual Plastic Leakage: the first adjective indicates the time zone of this leakage while the other adjective refers to the material adjective that constitutes the quality of this pollution. The next example shows this noun phrase:

“Furthermore, even if all current major industry and government commitments are met, these measures are likely to reduce annual plastic leakage to the ocean by only around 7 per cent in 2040 relative to the current trajectory” (United Nations Environment Assembly, 2019, p.2).

10. Greenhouse Gas Emissions: three nouns that compose a noun phrase as an object to emphasize the core idea of air pollution, which is gas emissions as follows;

“Reaching the goal of near-zero plastic pollution entering the ocean by 2040 and reducing overall greenhouse gas emissions from plastics throughout their life cycle requires systemic change, with a concurrent, timely focus on six areas” (United Nations Environment Assembly, 2019, p. 2).

11. Virgin Plastic Inputs: the phrase consists of two modifiers; “virgin” which means “raw material” that invades oceans and “plastic” that refers to the quality of those inputs which are plastic materials as shown below:

Designing all products and packaging—whether made of plastic or a substitute material—to be reused, recycled, or composted in environmentally benign systems that are practical to implement at scale, with a focus on finding alternatives or solutions for multimaterial and small-format flexible plastic items that disproportionately contribute to macroplastic pollution and are not recyclable economically, addressing hazardous substances in plastics, and reducing virgin plastic inputs. (United Nations Environment Assembly, 2019, p.2)

12. Formal and Informal Collectors: the noun phrase involves two conflicting adjectives and two nouns indicating the idea of striving to protect the aquatic environment. The next extract shows the phrase:

Improving and creating new waste management services, with a focus on increasing collection, reuse, and recycling rates; providing long-term funding; developing circular systems; securing livelihoods, fair payment, and safe working conditions for formal and informal waste collectors. (United Nations Environment Assembly, 2019, p.2)

13. Toxic Chemicals: the adjective “toxic” refers to the poisonous substances in the oceans as a result of chemical pollution as follows:

Developing and applying rigorous design and labelling standards that ensure harmonization, elimination of avoidable plastic use, removal of toxic chemicals, achievement of ambitious recycled content targets, and enhanced effectiveness and economics of reuse, refill, and recycling systems. (United Nations Environment Assembly, 2019, p.2)

According to Halliday’s theory, three parameters are introduced to determine the context of situation, such as field, tenor and mode. He believes that **field** is the social action that produces the text, while the subject is its particular embodiment (Halliday, 1994). The overall issue results in

the adoption of a United Declaration on the Prevention of Ocean Plastic Contamination by 16 organisations.

Regarding **mode**, it refers to the text's function in the event, which encompasses both the language's channel – spoken or written, extempore or planned – and its [genre], or rhetorical mode, such as narrative, didactic, persuasive, or 'phatic communion,' and so on (Halliday 1994).

In this regard, the formal written form is employed in this agreement since we have 16 groups agree about six points that are needed to be done to solve the world's plastic problem. Actually, this text has been taken from online media.

Furthermore, according to Halliday, tone refers to the type of role interaction, the collection of significant social relationships, both permanent and temporary, between the participants (Halliday 1994). This is a formal agreement, as the urgency of halting the rapid growth of plastic pollution and establishing a "circular economy," a closed-loop system in which resources are reused rather than discarded, was emphasised by organisations representing businesses, non-governmental organisations, and civil society.

3. Findings and Discussion

The qualitative data collected from the "G20 Implementation Framework for Actions on Marine Plastic Litter" reveals significant sociolinguistic mechanisms that dictate how environmental crises are institutionally managed and achieved. To comprehend this, the researcher draws on two levels to analyse meaning; lexico-grammatical and contextual.

The first level reveals that the selected text involve various nouns, verbs, adjectives, abbreviations and noun phrases. The most typical expressions to indicate the meaning of register in this text are noun phrases. In such specialized registers, complex ecological processes are often condensed into "technical taxonomies" through nominalization. By utilizing complex noun phrases (e.g., "*transboundary plastic movement*" or "*life-cycle management*"), the text transforms transient actions into stable, measurable concepts. Terms like "*virgin plastic inputs*" and "*circular systems*" establish a specialized, institutional taxonomy. This creates a high barrier of entrance for the discourse, shifting the ecological narrative from a primitive and emotive public alarm to a professionalized negotiation handled exclusively by worldwide leaders (G20 stakeholders).

In addition, the acronyms used compress vast geopolitical and scientific frameworks into brief, authoritative linguistic indications. This satisfies the economical demands of modern digital registers while signaling to the reader that the text is supported by legal and scientific consensus. When it comes to the context, the text comprises experiential ecological descriptions of nature, such as "*sustains an estimated 2.2 million species*" in order to validate the urgency. Nevertheless, the field rapidly shifts into economic and governmental actions by using expressions like "*policy interventions*", "*incentives*", and "*recycled content targets*". This shows that in environmental registers, nature is discussed through the lens of economic appraisal and industrial management.

The text demonstrates the use of passive voice and various adjectives, such as "*rigorous standards*", "*mandatory supply chain standards*" projects a voice of undeniable expertise, establishing a psychological distance between the policy-makers and the people who must implement these behavioral changes. The register used in this type of text seeks to protect the

natural ecosystem, but it uses a highly professional and commercial linguistic register that separates man as an active agent from the environment he is trying to save.

Eventually, we cannot rely just on the meanings available in dictionaries because literal translations of words are insufficient; therefore, we used contextual meaning to achieve our purpose, which was to better grasp and clarify this type of material.

5. Concluding Remarks

As noted earlier, the register of environmental discourse can be determined at two different levels of analysis. Linguistically, the lexico-grammatical level describes the fundamental aspects of the text that refer to the new terminology and the most common aspect used in this text “the noun phrase”, whereas the contextual level describes the situational domain in which these terms are used. These expressions depict the risk of water pollution, which reflects the threat to people's health as well as the future of water bodies' ecosystems.

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