Journal of Environmental Management 392 (2025) 126718

Contents lists available at ScienceDirect

Journal of Environmental Management

journal homepage: www.elsevier.com/locate/jenvman

Research article

'The green, green grass of home'; an eco linguistic analysis of the environmental responsibility urban discourse of Europe's most polluted cities

Silvia Florea

Lucian Blaga University of Sibiu, Romania, Victoriei Bvd Nr 10, 550024, Sibiu, Romania

ARTICLE INFO

Keywords:
Eco linguistic analysis
Environmental responsibility
Urban discourse
Public communication
Environment

ABSTRACT

Ever-growing urbanization, unsustainable consumption, and industrialization continue to cause severe environmental effects and accelerate ecological degradation. In response, cities have increasingly started utilizing green-economy focused initiatives to enhance their urban image and appeal to a growing number of environmentally conscious visitors. Therefore, discourses of environmental responsibility and ecological modernization remain critical in counteracting ineffective passive environmental protection and societal attitudes. This study aims to identify and scrutinize the eco-linguistic aspects of such 'environmental responsibility' urban discourse in several polluted European cities. In particular, it seeks to examine the discourse construction of environmental responsibility appeals and determine whether individual or collective environmental action is legitimated thereby. Results show environmental responsibility urban discourse as progressively transitioning from focusing on effects and consequences to emphasizing opportunities and solutions. The study is important in providing mitigation strategies to foster global discourses of sustainability and translate environmental responsibility discourses into local programs of action to effectively address urban pollution and the challenges of civic environmentalism.

1. Introduction

Ongoing growing urbanization, unsustainable consumption, and industrialization continue to cause severe environmental issues and accelerate ecological degradation. As a result of the recent worldwide environmental effects (such as global warming, climate change, energy crises), concerns over environmental protection and sustainable development have inherently promoted a more eco-centric social reality, begetting advanced theoretical research themes in an age of greater ecological awareness (Bobiec et al., 2021; Calculli et al., 2021). Such is the increased urban environmental responsibility, along with green developments, technological innovations, and sustainability, which deserves more theoretical discussion. Extant discourses of environmental responsibility are apt to mobilize engagement of urban residents in environmental behaviour and hence *Responsibility, Ecological, Green*, *Organic* and *Sustainability* have become buzzwords and recurrent themes of appeal for the audience (Fowles, 1996) across geometric urban spaces. And yet, while navigating in the enactment of their assumed responsibilities, many cities find themselves struggling between modernity and development, pollution and environmental responsibility which calls for a more thorough examination of public urban discourse apt to discern whether environmental discourses legitimate individual or collective environmental action.

This study sets out to identify and scrutinize eco-linguistic aspects of urban discourse as presented in city websites and advertised ecological programs of Europe's most polluted cities (Statista, 2023). Examining polluted cities is crucial for comprehending their environmental discourse, as it elucidates how these cities articulate, confront, or possibly disguise their contribution to environmental deterioration. Likewise, determining whether their policies and communication correspond with genuine environmental practices and sustainability commitments remains essential for ensuring stakeholder accountability and directing more transparent and effective environmental measures. Our central argument in the current research is that the positive environmental attitudes toward fundamental concerns, such as material production, waste management and material sourcing, may be ambivalent, appearing at face value to reconcile environmental problems while striving to downplay undergoing ecological deterioration and environmental waste. In our approach, communicative strategies for the selective use of positive environmental information between the major

E-mail address: silvia.florea@ulbsibiu.ro.

https://doi.org/10.1016/j.jenvman.2025.126718
Received 28 January 2025; Received in revised form 15 July 2025; Accepted 22 July 2025
Available online 28 July 2025

players (institutions, city residents) across public urban discourses will be pursued. The results of our study can be then utilized to advance current scholarly research and debates on understudied urban discourses related to environmental responsibility, as well as raise awareness, and inform and guide public policy communication strategies.

The study is structured as follows: first, a brief overview of eco-linguistic research will introduce the area of study (Subsection 1.1) followed by a conceptualization of environmental responsibility urban discourses, which define the object of our analysis (Subsection 1.2). Next, the outline of the method of the study and the corpus are presented in Section 2. In the results section (3), the main eco-linguistic elements and strategies of environmental responsibility urban discourses are discussed, including the ways in which the identified themes – environmental responsibility drivers, growth, and consequences – contribute to environmental responsibility discourse construction overall. Finally, Section 4 presents the conclusions and their implications for policy makers and further research.

1.1. A brief overview of eco-linguistic research

At the intersection of natural and social science, eco-linguistics encompasses the two disciplines of "ecology" and "linguistics". A major contribution to the advancement of theories and methodologies in ecological discourse analysis (EDA) has been recently made by Arran Stibbe (2015; 2021) who, by analyzing language characteristics and narratives (including prominence, ideology and frames), and by revealing their beneficial or destructive impacts, contributes to the multi/interdisciplinary collaboration among human ecologists, linguists and discourse analysts. According to Stibbe (2015), eco-linguistics is susceptible to numerous interpretations, primarily due to varying interpretations of the key term "ecology". However, the prevailing understanding of eco-linguistics is that it is an academic discipline concerned with investigating the correlation between ecology and language. Various other perspectives regarding the purpose, positioning, and nature of eco-linguistics are currently guiding the discipline in a variety of converging directions (Huang and Yang, 2017). Worth mentioning in this respect is the development of the ecosophy-based EDA (He, 2021) as a self-contained framework in which the assessment of the ecological orientation of discourse can expose the effects of language use on the environment to improve collective ecological behaviour. Other prior research has investigated the relationship of language relative to climate change and sustainability (Abbamonte, 2021; Kowalski, 2013), news media (Cheng and He, 2021), veganism and animal protection (Zhdanava et al., 2021), advertising (Grabowski, 2007; Stibbe, 2023), the ecological values of COVID-19 (Misiaszek, 2021) and nonhuman animals (Stibbe, 2015) among many others.

In line with the current work in the eco-linguistic landscape, this study adopts EDA in its approach and interpretation seeking to demonstrate the immense discourse potential in construing the overall understanding of ecology. Furthermore, a deeper understanding of the eco-linguistic aspects of environmental responsibility urban discourses will facilitate critical language awareness by exposing the techniques that often make urban discourse highly contested or, alternatively, highly effective in fostering both individual and collective environment-enhancing actions.

1.2. Urban discourses, green talk and environmental responsibility

Contending for the position of the prevailing interpretation framework (Giddens, 1979), urban discourses are social constructions attempting to assimilate into the prevailing mode of thought by focusing on particular city facets while ignoring other aspects of reality. In doing so, they mobilize legitimation for urban interventions (Hajer, 1989; Terlinden, 2003) and contribute significantly to the ideal for urban reconstruction (Venturini, 2013) which often makes them highly contested. Generally, it is the city institutions that regulate what constitutes legitimate urban discourses and what may or should be within the formulation (discourse) line to represent the voice of all (Shirazi, 2023). Such diversity of autonomous discursive practices allows for interconnected forms of discourse manifest in the communicative space of a city whether institutional and/or individual-centered: cultural, tourism, urban development, architecture, economics, administration, mass media, etc., and allows for an urban discourse emerging from the interaction processes that relate to the mainstream-dominant narrative. For the past decade the capacity of urban areas to collaboratively address environmental issues has increased, hence urban discourses have become ever more reflective of urban responses to climate change determining which environmental policies are most suitable to be perceived (Bernstein, 2002; Bäckstrand and Lövbrand, 2006; Wanner, 2014).

According to de Wit (2021), environmental urban discourses have emerged from the intersection of a) technocratic environmentalism, which promotes environmental impact evaluations and resource management instruments (Dryzek, 2022), b) civic environmentalism, which embraces a pragmatic approach to environmental issues (Fischer, 2000), c) neoliberal environmentalism which posits that market mechanisms can achieve public ends, including environmental protection (Lansing, 2011) and d) green radicalism, which aims to tackle the underlying political and economic factors that contribute to climate change (Partelow et al., 2020). Green radicalism, in particular, dovetails into a diversity of approaches that include, but are not limited to, social ecology, ecofeminism, deep ecology, green politics—considered to be the political acknowledgment of ecological boundaries—corporate environmental responsibility within the green movement (Xu et al., 2022) and green consciousness (Hysing et al., 2015), all of which empower people to coexist harmoniously with the natural world thereby ensuring the protection of rights for both humans and the environment and involving citizens in environmental decision making (Partelow et al., 2020; Schlosberg, 2007).

A particular intersectional approach to environmental urban discourse is represented by the environmental responsibility (ER) discourse which positions climate change in relation to cities and individuals affected by the repercussions of climate change (Fischer, 2011; Gonda, 2021). Within social science disciplines, research and perceptions of ER in relation to the challenges of climate change are aimed at balancing individual, group, city, and government responsibility to take action and reduce greenhouse gas emissions (see more recently, Sardo, 2020; Mikulewicz et al., 2023). Other strands of climate change research have shown that individuals' capacity to react to climate change can be determined by their socioeconomic status, age, urban location, and gender, can be acquired through situated proximal and distant experiences (Massey, 2004) and can take often overlooked collective forms (Newell et al., 2021). Consequently, responsibility plays a central role because it deconstructs perspectives regarding the fair allocation of accountability within the framework of broader societal interactions (Kallio, 2016) and, in a larger perspective, it provides a dual viewpoint of retrospective efforts to ascertain personal accountability while re-articulating responsibility as a forward-looking notion. At a time when evaluations of the environmental responsibility (or lack of it) of social organizations have intensified, ER urban discourse can take a wide variety of approaches that address both individual and collective obligations in an attempt to motivate individuals to align to state and metropolitan interests and thus become more responsible citizens (Ilcan, 2009). The implication is that cities will experience significant improvements in their social standing, environmental performance, and popularity if they commit themselves to assuming more "green" responsibilities. Amongst the diversity of approaches, this study examines the understudied type of environmental responsibility urban discourse as distinguished from corporate environmental responsibility (Sharpe et al., 2022) discourse and climate governance discourses (for an overview of it, see Stripple and Bulkeley, 2018). Within this approach, our focus is aligned with the taxonomy proposed by Gammelgaard

Ballantyne et al. (2021) who identify three types of responsibility discourses (political, industrial, and consumer), and whose findings maintain that, in general, individual consumer responsibility discourses are more prevalent than industry/political responsibility discourses, even though industries and legislators have more money, power, and specialized knowledge to resolve this issue.

2. Materials and method

The purpose of the study is twofold: a) to analyze language patterns in urban eco-sensitive content and b) to examine how these patterns featured in urban discourse help to construct the issue of environmental responsibility. The former adopts an in-depth analysis on discourse-pragmatic and lexical-semantic levels with discourse analysis instruments (Wodak, 2011) whereas the latter applies an instrumental methodology (Gammelgaard Ballantyne et al., 2021) which permits a detailed description of ER-related urban communication. Such discourse analysis allows us to acknowledge the complexity of environmental concerns and the participation of various actors with divergent interests and viewpoints.

2.1. Data

Our primary source of data comes from archival of public websites articles. A database search has been conducted on the public websites of all cities ranked as Europe's most polluted cities in 2021–2022. It was thus assumed that urban discourse of polluted cities displays, in general, a different "sense" of the environment along with different temporal and local variations as well as measures that can be implemented individually and/or collectively to mitigate this concern. Within the current energy transition and phase out of fossil fuels which serve as major contributors to greenhouse gases and air pollutants, our main research parameter was the combustion release of fine particles (PM2.5) which is considered to be a major pollution challenge nowadays. Thus, the classification of cities by pollution was made on the basis of data (Statista, 2023) compiled by Toute L'Europe using data on the average exposure of city population to fine particles (PM2.5) from the European Environment Agency (https://www.statista.com/chart/31399/most-air-polluted-cities-in-the-eu/). Our dataset covered two years, from 2021 to 2022, and included all the public city communication posted on the city websites as front-page information, city administration, news, EU projects, waste management regulations, open/smart city, reports, presentations of nature endorsing activities, etc. Our methodology prioritizes the analysis of textual material only, disregarding social media posts and any supplementary visual elements such as maps, drawings, and photographs, despite their apparent significance. The dataset was screened for language (English wherever provided and Google-translated into English where not), for urban text type, and for relevancy to ensure a focus on *Environment* and via its obtained related terms *Responsibility, Ecological, Green, Organic, and Sustainability*. The final dataset totaled a number of 327 articles, organized by 10 data sources, with the distribution per environmental communication type shown in Table 2. To avoid political sensitivity over city policy and regional pollution, urban discourse subsets were subsequently anonymized and coded. Additionally, to guarantee coding reliability, 20 % of the data was separately analyzed by two different researchers and the evaluation of inter-coder reliability (Cohen's Kappa) resulted in a value of 0.78, signifying substantial agreement.

2.2. Data analyses

The analytical process started on a descriptive level and gradually allowed for the data to be organized into a coherent pattern. When mining urban discourse data, deliberate choices had to limit what could have otherwise become an endless stream of information. To this purpose, a general assessment concerning the environmental indicators was first made to validate the eco-sensitive content terminology under linguistic scrutiny. These indicators were obtained by accessing the WRDS database (https://wrds-www.wharton.upenn.edu/) which is a globally accessible web service that provides researchers with access to verified and accurate data (Wharton Research Data Services-WRDS). The green terms we found to be related to the environment were 123. Then, using the Catpac Pony computer-assisted content analysis, the obtained terms were subsequently searched across our dataset for occurrence and distribution. Each run of word in each data source produced four file types: the cluster analysis, the labels file, the coordinate file, and the synaptic weights of the most significant terms. Finally, with the help of the Big Galileo Viewer, the coordinate files were plotted for each data set, an operation that allowed us to shortlist *Environment, Responsibility, Ecological, Green, Organic* and *Sustainability* (their varieties included thereof) as the key (six) most frequent green terms per occurrence. Next, the green urban discourse was further analyzed in terms of discursive strategies, such as patterns of grammar and vocabulary, followed by the interpretation stage which analyzed the salient themes of appeal for the audience seeking to understand how ER is constructed in urban discourse by a dynamic between environmental responsibility drivers, growth, and consequences.

3. Findings

On a descriptive level of analysis, we could see that the city with the highest pollution level in the European Union (EU) during our examination timeframe was one where "the average exposure to PM2.5 reached nearly six times the recommended maximum level, at 28 μg/m^{3}," (Fleck and Richter, 2023). According to the same Statista source (2023), a significant number of cities experiencing high levels of PM2.5 are situated in Poland, a nation that continues to rely heavily on coal, resulting in substantial emissions of fine particles during combustion. The Po Valley region of Italy, characterized by its unique geography and significant industrial activity, stands out as one of Europe's most polluted areas concerning fine particulate matter, with two cities in the region notably ranking among the highest in pollution levels (Table 1).

Next, on a qualitative interpretive level, we pursued the dual purpose of the study: to identify the language patterns used in urban eco-sensitive material and then to investigate how these patterns, as featured in urban discourse, contribute to shaping the concept of ER. To offer organization and a comprehensive view, the six most frequent green terms, obtained with the help of Catpac Pony, are listed below per occurrence and text type (Table 2.)

This operation has enabled us to determine a preliminary construction of environmental narratives in the corpus by utilizing the six most common green phrases as language indicators of environmental values and objectives. Such identification is particularly significant since our analysis was predicated on the notion that urban communication should be regarded as an expression of institutional discourse, which is distinct from political discourse, media discourse, and other forms of discourse.

Table 1
Top 10 Most Polluted Cities in the EU (2021–2022) per average PM2.5 concentration in μg/m^{3} *Source:* https://www.statista.com/chart/31399/most-air-polluted-cities-in-the-eu/.

City	Country	PM2.5 (μg/m^{3}) 2021–2022
Slavonski Brod	Croatia	28.0
Nowy Sącz	Poland	27.9
Piotrków Trybunalski	Poland	25.2
Crémone	Italy	25.1
Łomża	Poland	24.6
Żory	Poland	24.3
Cracovie	Poland	24.0
Gliwice	Poland	21.9
Padoue	Italy	21.5
Zgierz	Poland	21.4

Table 2
Top 6 most frequent green terms per occurrence and text type *Source:* Author.

Nr	Green term	Text type	Occurrence
1.	ENVIRONMENT	newspaper articles, news	20.39 %
2.	RESPONSIBILITY	briefs, news, public statements, debates, policy documents, press releases	17.43 %
3.	ECOLOGICAL	reports, debates, policy documents	12.26 %
4.	GREEN	news, press releases	11.36 %
5.	ORGANIC	newspaper articles, news	10.83 %
6.	SUSTAINABILITY	news, public statements, debates, policy documents, press releases	10.7 %

This type of discourse is distinguished by its dynamic and influential nature, representing a unified entity, despite the fact that it is emerging as an outcome of a negotiation between numerous perspectives. In this context, the frequent use of specific green terms is indicative of institutions' strategic construction of environmental narratives which reinforce their identity and values within the broader communicative landscape of urban governance.

Thus, the initial examination of the term-text type correlation has revealed two actor-based orientations of the urban discourse: on the one hand, a) the discussions surrounding social and environmental responsibility were generally combined with economic, political, and financial discussions and integrated into the aims and strategies of various organizations to create distinct interpretations of the environment that are aligned with the organization's own narratives. In particular, a large segment of urban discourse presenting environmental/ecological concerns evinces an institutional focus which frequently presents *the organization* and its activities as financially, economically, politically and commercially viable, capable of achieving predetermined goals, and primarily benefiting city community and constituencies. This cluster is hereinafter referenced in our discussions as organization-oriented urban discourse (OOUD).

> e.g. *The city signatories will coordinate […] the interventions to be adopted to reduce emissions of pollutants, responsible for fine particles (PM10 and PM2, 5), produced mainly from the combustion of woody biomass for civil heating, transport and agriculture*.

On the other hand, b) there is an identifiable orientation that focuses on individuals and groups presenting the *individual/collective* response to both imminent/immediate environmental concerns and engaging environment-enhancing actions. This cluster is hereinafter referred to as individual/collective-oriented urban discourse (ICOUD).

> e.g. *Residents […] with environmentally friendly attitudes are raising awareness of how much influence everyone has on the condition and future of our planet*.

Lexically, both divisions are commonly characterized by the use of standard green terms such as "climate change", "environmental conservation", "eco", "bio", "ecofriendly", "environmentally friendly", "eco store", "eco cars", "eco transport", "organic", "green", "bio/environmentally compatible", "greenhouse gasses", "greenhouse effect", "carbon emissions", "ozone depletion" in a diversity of prefixed varieties. Generally, common nouns are profiled by adjectives and the resulting noun phrases reflect specialized meaning. A general term such as "waste" for example is an invariant in the text, however with an adjective (e.g. *ecological, public, sustainable*) specialized meaning is created and mobilized in the discourse. Our examination revealed that, with OOUD, technical green terms are predominantly used in collocations with adjectives such as "uncertain", "sensitive", "unstable", "dangerous", "noisy", "competitive", "hostile", "extreme", "harsh", etc. to build authoritative institutional self-image, as in e.g. *The population can unintentionally harm the sensitive ecosystem in which these local bird species dwell.* Other adjective fixes such as "political", "business", "commercial" and "corporate" help in building a register that provides a clear description of both the actors and arrangements that are at stake. Institutional correction was also detected and found to react to individual neglect when "remedial", "regulating" and "obligation" structures occur alongside "dumping", "thoughtless" and "tossing" individuals in both OOUD and ICOUD scrutinized discourse segments. Action-wise, OOUD is characterized by the prevailing use of positive verbs such as "preserve", "protect", "safeguard" which helps build resilience and assert a position of leadership when institutions are faced with environmental problems. e.g. *The City Hall of X must do more to protect the environment*. Somewhat distinctly but predictably, ICOUD was found to make use of green terms that collocate with mild(er) adjectives such as "friendly", "pleasant", "clean", "healthy" maximizing the effort to build green behaviour and raise ER in town individuals and groups. e.g. *Children, side by side with their families, can contribute to a friendly environment […]*. Likewise, ICOUD makes greater use of verbs of action such as "create", "provide", "adapt", "improve", etc., that highlight the proactive attitude of the city dwellers in addressing environmental issues to attain well-being gain. In both categories however, the verbs and nouns "to reinforce", "to react", "to improve", "response" and "action" suggest taking initiatives to facilitate transformative processes, formulating a particular type of discourse that proximizes the preparedness – as well as course of action – for the imminent and devastating consequences of environmental degradation. Such a preparedness is also mobilized by present-tense verbs such as "is fast approaching", "rapidly changes", "is", "hits", telling the story that ER is a real, current, and critical issue which needs addressing immediately by city inhabitants.

An interesting finding concerns the grammatical agency in the two identified strands under scrutiny. Taking erasure and nominalization as posited by Schleppegrell (1997) and Stibbe (2015), we have detected nominalization strategies prevalent with OOUD. The process allows nominal forms to derive from verb forms as these constructions do not typically involve an agent. "To deplete", "to overcrowd" and "to pollute", for example, can be converted into their corresponding nouns "depletion", "overcrowding", and "pollution" and safely used in discourses to avert responsibility of institutions and create a sense of responsibility-sharing amongst city actors and dwellers alike. (e.g. "the overcrowding of recreational parks"; "the depletion of groundwater resources"). We found that nominalizations operate as powerful linguistic strategies of erasure typically ridding the OOUD of agent, but that the same effect is achieved in both environmental discourse categories by using the passive voice which marginalizes the agent responsible for environment degradation. Several instances (e.g. "*[…] the animal habitats are being destroyed*" *[…]* , *The pro-ecological or pro-climate initiatives implemented by the city in one place have not yet been documented.*" or *The environmental protection program has not been completed […]*) illustrate this tendency and fixate the narratives on collective environmental responsibility. The prevalence of erasure strategies in urban discourse is shown in Table 3 below.

The subsequent chi-square test of independence that we conducted revealed a statistically significant difference between the two discourse types in the use of these strategies, χ^2 (1, N = 308) = 12.58, p = 0.00,039. This outcome indicates that the nature of discourse substantially affects the prevalence of erasure strategies utilized. The passive voice is significantly more common in OOUD than in ICOUD, suggesting a heightened inclination to obscure agency in organization-oriented contexts. At the same time, the fact that such strategies are used by both groups, yet to varying degrees, suggests the presence of

Table 3
Frequency of erasure strategies in urban discourse per occurrence and orientation type *Source:* Author.

Erasure Strategy	OOUD (n = 1000 words)	ICOUD (n = 1000 words)	Total
Nominalization	105	78	183
Passive Voice	97	28	125
Total	202	106	308

environmental responsibility conveyed by way of shared accountability among city actors and residents.

Additionally, our examination of urban environmental discourse relative to additional spatial characteristics—particularly city size and density (Table 4)—confirms that spatial variables do influence the linguistic framing of environmental issues, including how agency, responsibility, and accountability are expressed or obscured.

In line with the identified features above, mid-to-large metropolitan centers, such as Kraków and Padova, characterized by high population densities, were found to use more abstract or formalized discourses in environmental communication, in initiatives such as "air quality improvement programs" or "transport modernization, etc. In contrast but somewhat expectedly, smaller cities (such as Żory, Łomża, and Zgierz) despite experiencing significant pollution, articulate environmental concerns in more community-focused terms (e.g. *The residents planted trees in the park to reduce heat.*; *Homeowners are encouraged to install solar panels."*), highlighting local initiatives and civic duty. This discourse variation signifies not only institutional capability, but also a series of discourse strategies determined by geographical closeness to, and community involvement in, environmental issues.

Finally, we managed to also establish a connection between the structure and style of environmental discourse and the governance models of the scrutinized cities in which they are embedded. The most polluted EU cities are all located in Eastern and Southern Europe, and, in so being, are marked to various extents by post-socialist legacies, centralized governance, and transitional policy frameworks. Hence, the environmental discourse tends to be more reflective of a top-down, institutionally distant approach. Public communication in these cities was found to employ passive constructions and technical nominalizations (e.g. *Air monitoring is being conducted […]*; "*[…] pollution reduction programs have been launched.*) which tend to obscure clear agency and designated responsibility. Such linguistic choices observably align with governance contexts where policy decisions may lack transparency or public involvement, and where institutional actors dominate the communicative space.

The next stage of our analysis sought to identify the salient themes of discourse appeal to facilitate an understanding of ER construction in urban discourse. The main obstacle in doing this was primarily due to the lack of current methodology regarding models that posit the accountability of entities—be they cities, collectives, or individuals—as reciprocally absolvable. Scholars generally contend that such models facilitate "blame swapping" - which redirects emphasis toward feelings of righteousness and remorse rather than confronting the underlying factors that contribute to injustice (Young, 2011) - exposing the heterogeneous ways in which individuals are affected by (Sardo, 2020) and capable of addressing the repercussions of climate change and environment degradation (van Holstein and Walker, 2023). Likewise, confronting responsibility for environmental deterioration is all the more difficult as the manifestation of detrimental outcomes can span several decades and therefore the damaging results are not immediately attributable to present time-specific actions. Despite these challenges however, our Catpac Pony cluster and plotted data analysis, corroborated with the identified ER discourse linguistic features, allowed us to look more closely into the content of ER urban discourse and establish a set of themes – namely, environmental responsibility drivers, growth, and consequences – that were found to be consistent with environmental responsibility.

Table 4
Spatial determinants and their influence on environmental urban discourse
Source: Author.

Spatial Factor	Discursive Features	Linguistic Markers
Mid to Large City	Institutional, abstract, systemic focus	Nominalization, passive constructions
Small City	Personal, concrete, community-focused	Active voice, explicit agents
High Density	Technocratic, policy-driven, spatial conflict	Planning jargon, erased agency
Low Density	Lifestyle/environmental preservation tones	Individual responsibility, local actors

3.1. Environmental responsibility drivers

Environmental Responsibility Drivers (hereinafter referred to as ERDs) are typically the main sources of environmental degradation, climate change, air pollution, energy waste, etc. Our examination has revealed that city development needs flash out oppositional discourse content that alternates between identified individual/collective necessity and need, excess and moderation, preservation, and deterioration. The underlying assertion is that environment protection can still be propelled towards a trajectory of resilience and sustainability, provided that critical "triggers" of change are appropriately engaged. To activate them, however, strategic policy options will need to "outsmart" vested interests, concealed agendas, and competing objectives, while sacrificing longer-term sustainability, resilience, and inclusivity for short-term unsustainable gains. We found that ER urban discourse tends to cluster "consumption" and "need" as the two central, intangible ERDs which call for a paradigm shift in awareness concerning the interconnectedness of energy provision and resource utilization. Qualifying adjectives such as "industrial", "excessive", "sustainable", "organic", "municipal", "industrial" and compound adjectives like "better-off", "pro-environmental" and "eco-beneficial" support the recalibration of the ER as a concept that positions itself in our analysis as a necessary, by all means collective, engagement with environmentalism. If urban discourse responsibilisation is generally deemed to occur in distributed ways, we argue that there is a strong degree of convergence across our corpus that fixes ER into the dialectic of *individual consumption* and *industry*, describing ER as an issue that rests with both private and industrial consumption practices. Therefrom emerges the discursive transfer of knowledge as a dynamic process that is aimed at disrupting environmental business as usual damage. Notwithstanding the transitional processes, the examined ER urban discourse in the present study shows ER as a new element driven by the societal pressure for more environment protection and responsible action, trading-off between immediate, unsustainable successes and long-term sustainability and resilience.

3.2. Growth

Growth is another ER dominant theme that we found to be embedded in the urban narratives that influence environmental policy action. Seen as "extension", "expansion", "increase" or "development", it typically shows progression based on observable changes. While certain documents discuss particular boundary measures, other urban discourses present growth by denoting limits. However, all growth seems to be imposed by economic resources, the present technological and social infrastructure as well as the city's capacity to assimilate the impacts of environmentally harmful human activities. Size-wise, when predetermined by "enormous", "exponential", "fast", and "steady" adjectives, growth denotes positive action or alternative negative overtones when used in collocations with "dramatic", "excessive" and "unprecedented". Only one instance was found when the sustainability of the "growth" idea was understood as a trajectory of consumption that does not decrease with time (e.g. *Ignoring reckless consumption in our resource-based city environment does not mean that we are pursuing the sustainable development […]*). Generally, the construction of ER discourse relative to growth shows a systemic approach to problems, in which each individual action is evaluated in relation to the growth/size of the environmental consequences (and its associated civic responsibility) it may have on the collective/city system in which it occurs, rather than on an individual basis. The theme of growth in ER discourse legitimizes thus specific types of expert knowledge to uphold ER discursive authority while simultaneously establishing normative objectives for the

municipality to achieve. In other words, growth operates both as a driver and trigger in ER urban discourse due to the high risk of irreversibility associated with the depletion of natural resources, the unpredictability surrounding ecosystem functioning, and the loss aversion that many cities' dwellers experience when environmental degradation processes become apparent.

On the other hand, the theme of growth is also present within a neoliberal "green growth" narrative which frames environmental sustainability as compatible with continued economic expansion. Across the scrutinized urban discourse of the most polluted Eastern European cities, we found that environmental policy action emphasizes compliance with EU standards, modernization of infrastructure, and, in general, alignment with green investment frameworks (e.g. *The success of our sustainable mobility agenda reflects our role as an urban innovator, responding proactively to climate challenges at the local level.*). However, while this suggests progress, the discourse being technocratic and centering on institutional actions and external funders, such as European Union (e.g. *As a municipality, we are committed to leading the transition toward a greener, more resilient city by embedding sustainability at the core of our planning and investment decisions.*), the local citizens seem to be positioned as passive beneficiaries rather than active agents (e.g. *The* funds *provided will enable us for a short period to build infrastructure with great environmental impact, improving the quality of life of our citizens*.). This enables us to posit that the green growth discourse in these contexts functions as a legitimizing tool—used to attract foreign investment and signal modernization—with top-down "eco-modernization" but no apparent participatory rhetoric, consumer behaviour, lifestyle optimization and systemic change. Such emerging discursive tensions help reveal the extent to which the ER urban discourse supports transformative sustainability or simply repackages growth in green terms.

3.3. Consequences

Most of the urban discourse text types discuss or imply potential *consequences* associated with environmental pollution whether loss of green spaces or damage caused by pet littering, wastewater, solid waste, energy, air pollution or traffic noise. Consequences are presented as impacting individuals, city communities, and regional populations and environmental policies and regulations to leverage the individual's sense of accountability (in his various capacities as a citizen, consumer, or taxpayer) so as to motivate him to contribute personally to the resolution of societal problems. The consequences of environmental neglect and degradation, whether "imminent", "inevitable" and harmful" or "disastrous", "adverse" and "catastrophic", come with "an environmental price" and center on the seriousness of their impact on the city population ranging from "harmless" to "damaging". Interestingly, weather is presented in its twofold capacity to significantly influence human actions and the environment. On the one hand, although consistent mild and sunny weather patterns serve as evident climate change consequences, our analysis finds that they are predominantly portrayed in a positive light in ER urban discourse. For example, in 14 subsets, "pleasant" and "sunny" weather is conventionally linked to summer vacations, family outings, outdoor swimming and sunbathing which somewhat comes in contradiction to the global warming effect as a result of rising greenhouse gas concentrations (e.g. *Happy citizens unleash the excitement of springtime activities […] while hiking, cycling, and mountain biking […]*). Higher temperatures, on the other hand, are presented as worsening many types of disasters, including droughts, floods, and storms (e.g. *Record-breaking heat scorches our […] community […]*). Our examined corpus has also found that urban environmental initiatives are the result of both mandatory regulations and a process that involves information campaigns, city council efforts and technical measures (such as green urban zoning, restricted traffic zones and roads, air protocols, better public transport, greenery, etc.). Such an interdependence between spatial, temporal, and sectoral factors is closely associated with environmental concerns and their deriving ER. The driving force of foreseeable consequences builds different aspects of individual and collective responsibility discourse which is embedded in a type of coherence between ecological values and actions alike. This synergy urges the city dweller to act instantaneously on a problem affecting the neighborhood/city/region and to benefit collectively within a dynamic co-responsibility partnership.

4. Conclusions

Cities represent the primary catalyst and carrier of environmental transformations at the local and regional levels. Their growing capacity to address environmental concerns makes it imperative to examine how urban discourses reflect climate change and influence the perception of environmental policies whether facilitating or impeding climate action. Urban discourses are hence complex and palimpsestic as they encompass the viewpoints of experts, stakeholders, and residents alike seeking to gain economic, credibility and reputational benefits for their city and enhance its social value. Since language can promote eco-centric worldviews (Zhdanava et al., 2021), ER represents a dynamic that facilitates urban renewal. The present research was conducted to identify and scrutinize eco-linguistic aspects of ER urban discourse in several polluted European cities assumed to address environmental concerns more markedly and forcefully than other less polluted cities. The purpose of the study was to analyze language patterns in urban eco-sensitive content on the one hand, and to assess how these language patterns contribute to constructing the notion of environmental responsibility. We found that urban discourse on ER is patterned on different actor orientations, namely institutional (authoritative) and individual (city residents) respectively, and that the way they address ER is by several strategies—such as nominalizations, lexical collocations of standard green terms, proximizing nouns and verbs along with an identifiable perception and dialectics— which show ER urban discourse as progressively transitioning from focusing on difficulties and issues to emphasizing opportunities and solutions. We have also determined that the spatial characteristics of urban environments—size and density—do influence the linguistic construction of ER discourse. Specifically, more densely populated cities tend to exhibit discourses that deflect agency through nominalizations and passive constructions, whereas smaller, less crowded cities typically preserve clearer, agentive narratives. Such a feature is also somewhat aligned with the historical legacy of the scrutinized polluted cities, situated in Eastern and Southern Europe and reflective of post-socialist, centralized governance models, whose environmental rhetoric tends to be top-down, less agentive and institutionally distant.

In terms of appeal themes in ER (de)construction, the present research found that, at discourse level, environmental responsibility drivers, growth and consequences are the predominant appeal themes in ER urban discourse and that they mobilize an understanding of individual responsibility that represents a collective effort within which a curative perspective must be replaced by a future preventive approach.

Emerging from all the above findings, our research has significant policy implications for improving the effectiveness and transparency of green urban discourse. The reliance on abstract or nominalized terms, such as "sustainability" or "resilience," in public communication may dilute institutional accountability and obscure actionable commitments. Policymakers should therefore prioritize the use of active and concrete language that explicitly connects goals to specific interventions, enhancing the tangibility and credibility of ER communication. As cities increasingly present ecological initiatives as economic opportunities, it is crucial to recognize the inherent tensions between growth and environmental constraints. This necessitates a clear(er) expression of participatory mechanisms that enable communities to collaboratively define local priorities. Likewise, it is essential for urban policymakers to adjust institutional discourse—that frequently conceals internal negotiations under a singular voice—to more discursive diversity by incorporating various stakeholder perspectives, particularly those of

marginalized communities, into the environmental narrative. Such recommendations can enhance the transparency, inclusiveness, grounding, and action-orientation of urban sustainability discourse. From a still larger perspective, the environmental responsibilities of stakeholders remain essential for advancing effective environmental governance. And although the identification of the underlying causes of environmental issues remains a critical initial step, substantive progress can only be contingent upon the active engagement and accountability of all parties involved, particularly those with the most significant environmental influence. Our study suggests the necessity of fostering a sense of collective ownership and responsibility, which is essential for the development of effective and sustainable collaboration.

And finally, the results of our study can be utilized to advance current scholarly research and debates on the yet understudied urban discourse on ER thereby confirming the strong discursive power of ER to improve urban livelihoods and support a narrative that reconnects urban policy with everyday urban life.

Declaration of competing interest

I confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere.

I have no conflicts of interest to disclose.

Acknowledgment

Project financed by Lucian Blaga University of Sibiu through the research grant LBUS-IRG-2023.

Data availability

Data will be made available on request.

References

Abbamonte, L., 2021. The 'sustainable' video-narratives of greenpeace – an ecolinguistic investigation. Forum Mod. Lang. Stud. 57 (2), 145–185. https://doi.org/10.1093/fmls/cqab005.

Bernstein, S., 2002. Liberal environmentalism and global environmental governance. Glob. Environ. Polit. 2 (3), 1–16. https://doi.org/10.1162/152638002320310509.

Bobiec, A., Paderewski, J., Gajdek, A., 2021. Urbanisation and globalised environmental discourse do not help to protect the bio-cultural legacy of rural landscapes. Landsc. Urban Plann. 208, 104038. https://doi.org/10.1016/j.landurbplan.2021.104038.

Bäckstrand, K., Lövbrand, E., 2006. Planting trees to mitigate climate change: contested discourses of ecological modernization, green governmentality and civic environmentalism. Glob. Environ. Polit. 6 (1), 50–75. https://doi.org/10.1162/glep.2006.6.1.50.

Calculli, C., D'Uggento, A.M., Labarile, A., Ribecco, N., 2021. Evaluating people's awareness about climate changes and environmental issues: a case study. J. Clean. Prod. 324, 129244. https://doi.org/10.1016/j.jclepro.2021.129244.

Cheng, M., He, W., 2021. News reports about the Sino-US trade war: an ecolinguistic approach. Journal of World Languages 7 (3), 428–460. https://doi.org/10.1515/jwl-2021-0021.

de Wit, S., 2021. The Power of Discourse in Shaping Urban Environmental Governance: a Discourse Analysis of Climate Adaptation and Mitigation Policies Shared on the Urban Sustainability Exchange Platform. MSc Thesis. n.d. https://edepot.wur.nl/546104.

Dryzek, J.S., 2022. The Politics of the Earth: Environmental Discourses. Oxford University Press.

Fischer, F., 2011. Discursive planning, social justice as discourse. In: Marcuse, P., Steil, J., Connolly, J., Novy, J., Olivo, I., Potter, C., Steil, J. (Eds.), Searching for the Just City: Debates in Urban Theory and Practice. Routledge, essay, pp. 52–71.

Fischer, F., 2000. Citizens, Experts, and the Environment: the Politics of Local Knowledge. Duke Univ. Press.

Fleck, A., Richter, F., 2023. Infographic: the 10 most polluted cities in the European Union. Statista Daily Data. https://www.statista.com/chart/31399/most-air-polluted-cities-in-the-eu/.

Fowles, J., 1996. Advertising and Popular Culture. Sage Publications.

Gammelgaard Ballantyne, A., Péronard, J.-P. de, Hansen, R. Aa, Gross, A., 2021. Media issue crystallization: the case of microplastic in Denmark. Environ. Commun. 15 (5), 610–624. https://doi.org/10.1080/17524032.2021.1877761.

Giddens, A., 1979. Central Problems in Social Theory. Macmillan Education.

Gonda, N., 2021. Re-negotiating rural masculinities as vulnerability: cattle ranchers in climate change affected rural Nicaragua. Men, Masculinities, and Earth 289–307. https://doi.org/10.1007/978-3-030-54486-7_13.

Grabowski, I., 2007. Consumed by consumerism: the persuasive discourse of financial institutions. Language & Ecology 2 (2), 1–15. https://pdfs.semanticscholar.org/2afa/7f45d26235f6d73daf212c055347dd1b8d12.pdf.

Hajer, M.A., 1989. City Politics: Hegemonic Projects and Discourse. Avebury.

He, W., 2021. Shengtai huayu fenxi: Hanlide moshi de zai fazhan ["Ecological discourse analysis": further development of the Hallidayan model]. Waiyu Jiaoxue [Foreign Language Education] 42 (1), 20–27.

Huang, G., Yang, C., 2017. Zuowei xinxing xueke de shengtai yuyanxue [Ecolinguistics as a new discipline]. Zhongguo Waiyu [Foreign Languages in China] 14 (5), 38–46.

Hysing, E., Olsson, J., Dahl, V., 2015. A radical public administration? Green radicalism and policy influence among local environmental officials in Sweden. Environ. Polit. 25 (3), 535–552. https://doi.org/10.1080/09644016.2015.1116679.

Ilcan, S., 2009. Privatizing responsibility: public sector reform under neoliberal government. Can. Rev. Sociol. 46 (3), 207–234. https://doi.org/10.1111/j.1755-618X.2009.01212.x.

Kallio, K.P., 2016. Shaping subjects in everyday encounters: intergenerational recognition in intersubjective socialisation. Environ. Plann. D Soc. Space 35 (1), 88–106. https://doi.org/10.1177/0263775816654916.

Kowalski, R., 2013. Sense and sustainability: the paradoxes that sustain. World Futures 69 (2), 75–88. https://doi.org/10.1080/02604027.2012.762199.

Lansing, D.M., 2011. Realizing carbon's value: discourse and calculation in the production of carbon forestry offsets in Costa Rica. Antipode 43 (3), 731–753. https://doi.org/10.1111/j.1467-8330.2011.00886.x.

Massey, D., 2004. Geographies of responsibility. Geogr. Ann. B Hum. Geogr. 86 (1), 5–18. https://doi.org/10.1111/j.0435-3684.2004.00150.x.

Mikulewicz, M., Caretta, M.A., Sultana, F., J. W. Crawford, N., 2023. Intersectionality & climate justice: a call for synergy in climate change scholarship. Environ. Polit. 32 (7), 1275–1286. https://doi.org/10.1080/09644016.2023.2172869.

Misiaszek, G.W., 2021. Ecopedagogical literacy of a pandemic: teaching to critically read the politics of covid-19 with environmental issues. J. Environ. Educ. 52 (5), 358–369. https://doi.org/10.1080/00958964.2021.1981206.

Newell, P., Twena, M., Daley, F., 2021. Scaling behaviour change for a 1.5-degree world: challenges and opportunities. Global Sustainability 1–25. https://doi.org/10.1017/sus.2021.23.

Partelow, S., Winkler, K.J., Thaler, G.M., 2020. Environmental non-governmental organizations and global environmental discourse. PLoS One 15 (5). https://doi.org/10.1371/journal.pone.0232945.

Sardo, M.C., 2020. Responsibility for climate justice: political not moral. Eur. J. Polit. Theor. 22 (1), 26–50. https://doi.org/10.1177/1474885120955148.

Schlosberg, D., 2007. Defining environmental justice. https://doi.org/10.1093/acprof:oso/9780199286294.001.0001.

Sharpe, E., Ruepert, A., van der Werff, E., Steg, L., 2022. Corporate environmental responsibility leads to more pro-environmental behavior at work by strengthening intrinsic pro-environmental motivation. One Earth 5 (7), 825–835. https://doi.org/10.1016/j.oneear.2022.06.006.

Shirazi, M.R., 2023. Discourse studies and urban research: methodological challenges, achievements, and future prospects. Urban Sci. 7 (2), 42. https://doi.org/10.3390/urbansci7020042.

Statista. https://www.statista.com/chart/31399/most-air-polluted-cities-in-the-eu/.

Stibbe, A., 2021. Ecolinguistics as a transdisciplinary movement and a way of life. In: Burkette, A., Warhol, T. (Eds.), Crossing Borders, Making Connections: Interdisciplinarity in Linguistics. Mouton, essay, pp. 71–88.

Stibbe, A., 2015. Ecolinguistics: Language, Ecology and the Stories we Live by. Routledge, Taylor & Francis Group.

Stibbe, A., 2023. Taste the feeling: an ecolinguistic analysis of coca-cola advertising. J. World Languages. https://doi.org/10.1515/jwl-2023-0027, 0(0).

Stripple, J., Bulkeley, H., 2018. Governing the Climate New Approaches to Rationality, Power and Politics. Cambridge University Press.

Terlinden, U., 2003. City and Gender: International Discourse on Gender, Urbanism, and Architecture. Leske + Budrich.

van Holstein, E., Walker, C., 2023. Reframing environmental responsibility at the intersections of cultural and generational difference: learning from migrant families in Manchester and Melbourne. Geoforum 146, 103869. https://doi.org/10.1016/j.geoforum.2023.103869.

Venturini, M.C., 2013. Urban discourse: textualities and materialities. Acta Sci. Lang. Cult. 35 (2), 153–160. https://doi.org/10.4025/actascilangcult.v35i2.17277.

Wanner, T., 2014. The new 'passive revolution' of the green economy and growth discourse: maintaining the 'Sustainable Development' of neoliberal capitalism. New Polit. Econ. 20 (1), 21–41. https://doi.org/10.1080/13563467.2013.866081.

Wodak, R., 2011. Complex texts: analysing, understanding, explaining and interpreting meanings. Discourse Stud. 13 (5), 623–633. https://doi.org/10.1177/1461445611412745.

Xu, P., Xu, X., Bai, G., 2022. Corporate environmental responsibility, CEO's tenure and innovation legitimacy: evidence from Chinese listed companies. Technol. Soc. 70, 102056. https://doi.org/10.1016/j.techsoc.2022.102056.

Young, I., 2011. Responsibility for Justice. Oxford University Press.

Zhdanava, A., Kaur, S., Rajandran, K., 2021. Representing nonhuman animals as equals: an ecolinguistic analysis of vegan campaigns. J. World Languages 7 (1), 26–57. https://doi.org/10.1515/jwl-2021-0003.