Infrastructure discourse in Indonesian media: An ecolinguistic perspective[1]

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Abstract

Infrastructure development marks a country's progress and growth. However, there are concerns regarding the potential environmental threats posed by extensive infrastructure development, including issues such as biodiversity loss, reduction in food supply, and ecosystem imbalances. Specifically, by taking the example of Jogja-Solo toll roads (JSTR) in Indonesian mass media, this article addresses exclusion and inclusion strategies of environmental impacts in an infrastructure discourse. Using AntConc 4.2.0, we examined the 410 news media articles, collected from December 2019 to June 2023, and investigated the representation of social actors based on van Leeuwen's socio-semantics framework. The analysis showed that Indonesian mass media constructed the institutionalisation of infrastructure discourse through inclusion and nomination strategies identified from proper names and their position titles in the company. The JSTR project is also narrated as a national strategic agenda to benefit the country's economic growth by categorising the government and construction companies into one group. On the other hand, the exclusion of environmental impacts in the JSTR is identified from the categorisation strategies shown by the lexemes 'land' and 'resident' and their juxtaposition with collocates of 'monetary compensation'. This paper concludes that the repetition and rewording of particular lexico-grammatical choices and social actors are used by news

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media to construct infrastructure discourse merely from the anthropocentric interest.

Keywords
Ecolinguistics, discourse construction, exclusion, inclusion, infrastructure, mass media, social actor.

Introduction
Infrastructure is a key indicator of a government's success in fostering national development. While economic growth, as quantified by the annual Gross Domestic Product (GDP), remains a significant metric, the extent of investment in infrastructure development stands out as another prominent indicator. However, recent scholarly publications have shifted their focus towards the ecological ramifications of extensive infrastructure projects. These repercussions include biodiversity loss, water and air pollution, increased risk of droughts, urbanisation, urban heat, and increased erosion (Ersoy Mirici, 2022; Marschke, & Rousseau, 2022). Although infrastructure development undeniably drives economic progress and fuels population expansion, ultimately giving rise to urban sprawl (Menteşe, & Tezer, 2021; Spencer et al, 2023), the broader implications of this growth, including increased food demand, escalating conflicts, and ecological degradation, have yet to garner adequate attention from scholars, particularly when viewed through the linguistic lens. As rooted in the integral relationship between language and ecological systems, ecolinguistics is interested in mass media discourse and how it influences public beliefs, preferences, and perceptions toward infrastructure development.

Ecolinguistics is defined as an approach to examining (non)ecological discourse that may promote or threaten the environment (Stibbe, 2015). The conceptual underpinnings of ecolinguistics have been developed since the 19th century through the studies of interconnectedness between nature / ecological systems and the society (Poole, 2022). The advancement of critical discourse studies and corpus linguistics as methodologies in linguistics also contributes to the development of ecolinguistics. Hence, in recent studies, the term 'corpus-assisted ecolinguistics' has emerged as a means of analyzing diverse discourses that impact our environment and future generations (Poole, 2016; Alexander, 2017; Poole, & Micalay-Hurtado, 2022).

A good example of infrastructure development is the construction of toll roads, which aims to expedite travel time, enhance product distribution, and improve overall traffic efficiency (Kleist, & Doll, 2005). In the Indonesian

context, a recent toll road project aims to connect three cities: Yogyakarta, Solo, and Semarang (hereinafter shortened as JSTR, or Jogja Solo Toll Road). The construction is projected to be completed by 2024. However, the success of infrastructure is invariably contested due to its cultural and environmental impacts. The JSTR construction, despite its seemingly minor consequences, has significantly impacted over 15 archaeological sites in Yogyakarta, leading to the loss of valuable contextual data (Prariyadiyani, Kurniawan, & Baiquni, 2021).

From an ecological perspective, this infrastructure development has also resulted in the degradation of soil functionality, depletion of water resources, disruption of staple food supply, and a decline in agricultural production (Awad et al, 2023). Notably, the JSTR project's effects extend to Klaten, a city situated between Yogyakarta and Solo, where approximately 39 hectares of rice fields have been cleared, causing an annual loss of 330 tons of rice (Assidiq, 2023). The repercussions of reduced agricultural output encompass more than human sustenance; they encompass the entire ecosystem, including non-human species and their habitats, which collectively support our existence (Stibbe, 2015; Menteşe, & Tezer, 2021).

The merits and demerits of toll roads are reflected through discursive strategies within mass media. This discourse warrants comprehensive analysis, given that mass media wield substantial influence over public discussions concerning social issues, thereby shaping public perceptions and behavioural intentions (Keller et al, 2020). Nevertheless, a hypothesis is posited suggesting that Indonesian mass media tend to emphasise monetary compensation and incentives for those affected by the project, often neglecting the inseparable relationship between land, rice fields, and the ecosystem. The pivotal role of lands and rice fields as integral ecosystem components receives inadequate attention in the media's discourse. To substantiate this hypothesis, it is imperative to examine the discursive representations of the JSTR project, focusing on discernible patterns of discursive strategies prevalent in mass media. The discourse evolves through recurrent patterns, whose cumulative impact shapes individuals' perceptions of the world around them (Baker, 2006; Fajri, 2017).

In light of the context presented above, this paper aims to examine the mass media's discursive construction of the Jogja-Solo toll road as a case exemplifying infrastructure development, utilising empirical data sourced through corpus linguistics. Situating JSTR news within the realm of social practice and social action is crucial, as media wield the power to include or exclude specific social actors through language. This inclusion or exclusion, in turn, perpetuates influential social institutions that shape and constrain knowledge dissemination

on the subject (Mayr, 2008; Bernard, 2018). Within an ecological framework, the act of including or excluding social actors holds ideological significance because language plays a pivotal role in moulding our perceptions regarding the interplay between humanity and nature, the dynamics of economic growth, and the trajectory of technological progress. These perceptions, in turn, determine our behavioural patterns towards the environment (Stibbe, 2015; Fernández-Vázquez, & Sancho-Rodríguez, 2020). Thus, this paper seeks to address how infrastructure discourse, specifically JSTR, is represented in Indonesian mass media.

Literature review

Media narratives in ecolinguistics

Mass media, including newspapers, are considered authoritative sources of information due to their ability to shape public perception, influence public opinion, and impact readers' actions (Garlitos, 2020; Atabek, & Atabek, 2023; Lobodenko et al, 2023). Newspapers can emphasise or downplay particular subjects or perspectives on a matter, such as one pertaining to the environment. The foregrounding frames, or salience, can be determined by analysing the prevalence of words, as demonstrated by Liu and Huang (2022), who found that climate change in the US is predominantly presented as a scientific discourse. Conversely, the erasure of topics or frames is seen in discussions surrounding COVID-19, where news regarding food scarcity, clean water, and sanitation in UK newspapers is deliberately excluded (Chau et al, 2022). In ecolinguistics, the concepts of erasure and salience in mass media are considered narratives that shape our cognitive framework for perceiving, discussing, and interacting with our environment (Stibbe, 2015).

A recent study on salience is evident in multimodal strategies used by Nigerian newspapers (Ndinojuo, & Ikems, 2023). By involving two newspapers examined from May 1, 2019 to July 31, 2020, the study found that most news reports foreground the environment's stories, while emphasizing business and educational environment matters less. The study found that images accompanied most news stories in the environmental news, even though many of them lacked proper attribution and captions. The Nigerian newspapers featured a range of images depicting different environmental situations, encompassing water, air, land, biodiversity, and climate change. Nevertheless, the health topic stood out as the most prominent narrative, illustrating the interdependence between the environment and human well-being. This study emphasizes the significance of comprehending the visual representations of environmental reporting in Nigerian media (ibid).

Erasure demonstrates that "an area of life is irrelevant, marginal or unimportant through systematic absence, backgrounding or distortion in texts" (Stibbe, 2015: 146). In relation to infrastructure discourse, the working class and environment are often excluded. A notable piece of evidence is presented by Everett and Neu (2000) in the discourse of modernisation where indegenous, poor people, and the local are erased in the discourse. One of linguistic strategies to identify erasure is in the form of nominalisation, as shown in the phrases 'habitat degradation' and 'the introduction of exotic species' that suppress the expression of agency (Schleppegrell, 1997). In the neo-classical economy, the use of finance discourse that foregrounds 'futures', 'indexes', 'shares', and 'securities' eventually excludes the physical goods, physical matter, muscular work, material production, and the earth (Eisenstein, 2011). Eventually, that erasure creates a digital-financial hyperabstraction that liquidates the planet and the workers' community (Berardi, 2012).

The utilisation of corpus tools within (critical) discourse analysis significantly impacts corpus-assisted ecolinguistics, enabling the exploration of how specific discourse influences the ecosystem and future generations. Basically, corpus-assisted ecolinguistics is mutually influenced by critical discourse studies and corpus linguistics, aiming to map the discourse construction in big data proven in empirical linguistic analysis (Poole, 2022). Despite dichotomising the qualitative-quantitative data, corpus-ecolinguistics integrates the quantitative data analysis in further qualitative analysis aided by linguistic studies. Doing so will keep the role of linguistics as the foundation of analysis. For example, in discussing the discourse surrounding the copper mining industry in Arizona, Poole (2016) categorised the semantic domains of the keywords in the mining discourse corpora. The semantic categorisation helped analyse the interpretation of the mining company's strategies in legitimising the mining activities.

Social actors: Exclusion and inclusion
In critical discourse studies, an ample theoretical framework in linguistics has demonstrated the inextricable link between language, social cognition, and social practice. Within a socio-semantic framework, van Leeuwen (2008) emphasises the necessity of social practice from a social cognition viewpoint. Even though van Dijk (1998) also uses a socio-cognitive framework by emphasising the experience, memory, and knowledge of individuals and society, van Leeuwen (2008) pays more attention to the role of the social actor that is not always explicitly included or excluded in a discourse. In this way, the starting point of social actor identification is not from linguistic labels, such as Actor or

Goal, but the examination of actors or participants involved in the discourse. Participants have particular roles, but not all participants are social actors. The social actors are not always mentioned in a clause, as evident in news media that do not include readers and journalists explicitly.

The identification of inclusion and exclusion roles in representing social actors is facilitated through some strategies. Notwithstanding van Leeuwen's rigid categorisation (2008), this paper focuses on exclusion and inclusion strategies in representing social actors in Indonesian mass media about JSTR. The exclusion role is identified from backgrounding and suppression, while the inclusion strategy is examined from the nomination and categorisation. Radical exclusion is seen in the discourse by excluding social actors and their activities. van Leeuwen (2008) highlights the interconnectedness of social cognition and social practice, specifically examining how social cognition contributes to understanding how social practices are utilised for expressing social practices in texts. Social cognition is represented linguistically through particular patterns that have been taken for granted as social beliefs (van Dijk, 1998). Concerning social actor exclusion, Stibbe (2015) mentions that passives, metonymy, nominalisations, and hyponyms are often used to exclude discourse's social actors. In line with van Leeuwen's exclusion roles, Stibbe (2015) divides three erasure categories: the void, the mask, and the trace. In infrastructure discourse, questions about erasure are shown in the context of making 'goods' produced by 'services' without mentioning what is destroyed, harmed, or disturbed to make the goods (ibid). The term 'production' is also questioned in the way it erases the natural world without a trace. The total exclusion of ecological aspects in infrastructure and economic discourse becomes the concern of ecolinguistics in how language or linguistic patterns have a powerful ability to shape our perception towards the natural world. The (re)production of erasure in varied discourse eventually construct our mental and behavioural view towards the world with significant implications for how the world is treated and exploited.

Previous studies on ecolinguistics

Ecolinguistics has been applied to discuss infrastructure discourse in diverse contexts. One of the most notable examples is company social responsibility reports (CSRs), which aim to communicate the corporates' regulations on social and environmental impacts (Sheehy, & Farneti, 2021). In the European context, research on CSR in Spanish and Swedish corporates shows remarkable findings (Lischinsky, 2015; Fernández-Vázquez, & Sancho-Rodríguez, 2020). The CSRs exploit keywords, word classes, and transitivity patterns to articulate

an ecomodernist viewpoint that constructs environmental impacts as challenges solvable through technology. The dichotomy between the environment and humans / corporates is presented by excluding the environment in CSR discourse. The environment is also backgrounded or excluded in the form of object and carrier-attribute in relational processes, while humans/ corporates are shown through their agentive roles in the negotiation process and responsibility to stakeholders. The use of nominalisation was also exploited to obfuscate people's involvement in the degradation of the environment resulting from corporate activity. Notably, the interpretation CSRs in both the Malaysian and South African contexts is comparable, as evidenced by the works of Rajandran (2016) and Bernard (2018). The other recent studies on CSRs have been found in the Chinese, American, and Italian contexts during 2013-2017 (Yu, 2020).

In addition to examining infrastructure discourse, ecolinguistics has been integrated into studies on media narratives. In mass media, ecolinguistics is evident in Saudi Green Initiative (SGI) discourse (Almaghlouth, 2022), climate change in North Belgium from 2012 to 2014 (Moernaut, Mast, & Temmerman, 2019), and the representation of trees and forests in the US discourse from 1820-2019 (Poole, & Micalay-Hurtado, 2022). These studies uncover that linguistic choice in media shows the dynamic relationship between humans and the environment. People's experiences constructed through language show the inextricable association of human actions to sustain or threat the environment. In a closer study, Horsbøl (2020) exemplifies how the infrastructure discourse of wind turbines in Denmark is problematised due to 'green conflicts', such as climate change mitigation, landscape values, and local residents' life quality. Notwithstanding the thorough explanation of social context motivating the topoi strategies, the data were not presented empirically regarding statistical frequency and co-occurrences between the keywords (Horsbøl, 2020).

On the other hand, the promotional genre, as shown in hotel websites, articulates a more ecological way by involving the readers as responsible agents in the environment (Ruffolo, 2015). However, promotional discourse is often criticised for its greenwashing, as evidenced by the metaphor and metonymy of environmental advertising. Advertisers tend to involve experts' validation strategy to switch the environmental responsibility from companies to consumers (Mühlhäusler, 1999). The inclusion and exclusion of humans / nature are also evident in digital stimulation games (Poole, & Spangler, 2020). Even though the game seems to promote harmony between humans and the environment, the dichotomy between humans and natural spaces eventually eliminates ecological well-being. The human characters, represented in avatars, are persuaded to buy /

consume particular goods and facilities to store data, gain more points, and access additional features.

Studies mentioned above share some commonalities and differences regarding environmental issues and theoretical basis that contribute to data analysis ecologically. Even though the present paper takes a different issue, the infrastructure of toll road development, the global issue addressed here highlights a similar trajectory: how discourse around us constructs human-environment relationships.

Method

The corpus

This study employed a corpus-assisted methodology to identify frequent and salient language patterns within the discourse on infrastructure development, which often operates subtly beyond our conscious awareness (Poole, 2022). We constructed a specialised monolingual corpus comprised of newspaper articles tagged under the label "tol jogja solo" (Baker, 2012). At first, we examined seven newspapers by searching for articles related to "tol jogja solo" during a specific time period, as shown in *Table 1*. Each gathered article had varying quantities of tokens, which refer to the smallest units in a corpus that can be in the form of words, punctuations, or abbreviations. Nevertheless, *Jawa Pos, Suara Merdeka,* and *Solo Pos* included limited articles regarding the subject matter. Hence, four Indonesian newspapers, i.e., *Kedaulatan Rakyat, Tribun Jogja, Kompas*, and *Antara*, were selected for analysis because they had published the highest number of articles about the JSTR project.

Table 1

Comparison of articles and tokens in Indonesian newspapers

Newspapers	Number of articles	Number of tokens
Jawa Pos	3	1,047
Suara Merdeka	6	1,867
Solo Pos	19	8,170
Antara	30	13,218
Kompas	76	37,476
Kedaulatan Rakyat	88	38,540
Tribun Jogja	216	120,353

Source: Authors, 2024

The timeframe for data collection spanned from December 2019 to June 2023, aligning with the JSTR proposal at the end of 2019. JSTR played a role in the national strategic plans 2022, and the government allocated 1.98 trillion

rupiahs to implement the plan. Prior to the realisation, mass media had been broadcasting the news on JSTR, a programme slated to conclude in 2024. To ensure the quality of the data collected and minimise potential noise, we manually downloaded articles from each newspaper, saved them in Microsoft Word format, and subsequently removed hyperlinks. Manual data collection was chosen over automatic language processing tools due to their potential to introduce typographical, orthographical, and syntactic errors (Grouin, 2008).

After excluding the three newspapers with the lowest token count, we ultimately chose four newspapers, as shown in *Table 2*. Following the corpus's curation, 410 news articles were uploaded to Antconc 4.2.0 for a comprehensive linguistic analysis of keywords, collocations, and concordances (Anthony, 2023).

Table 2

General information about the selected corpora

Newspapers	Tribun Jogja	Kedaulatan Rakyat	Kompas	Antara	Total
Tokens	120,353	38,540	37,476	13,218	209,587
Numbers of articles	216	88	76	30	410

Source: Authors, 2024

Data analysis

This content analysis article is based on actual data that has been statistically demonstrated using corpus analysis results. The quantitative data served as evidence for the prominent characteristics of mass media. However, the analysis and inferences were mainly focused on the qualitative data provided in the context, as demonstrated in the concordances. The primary data analysis steps involved identifying corpus keywords through a comparative analysis between the target corpus and the reference corpus, Indonesian News 2020, which was acquired from the Leipzig Corpora website[3]. A reference corpus is a more extensive and comprehensive corpus utilised to identify keywords within the target corpus. The term "target corpus" in this study refers explicitly to the JSTR corpus. The reference corpus consisted of 1,551,427 tokens extracted from the Indonesian news corpus compiled from 2020 materials. By comparing the target and reference corpus, we may identify the terms in the target corpus that illustrate how vocabularies define a particular corpus (Baker, 2006; Subtirelu, & Baker, 2018). Statistical tests and effect size measurements were conducted, utilising keyness scores to quantify the prominence of specific words (Adamou, 2019).

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[3] https://corpora.uni-leipzig.de

Once the keywords were identified, further investigation delved into the recurring co-occurrences of these keywords with specific terms, revealing patterns that transcend random chance, known as collocations (Brezina, 2018). Collocations show the habitual pairing of two words, contributing to the naturalisation of these combinations within the cognition of community language users (Poole, & Micalay-Hurtado, 2022). The LL ratio was adopted as a measurement to rank keyness and determine the statistical significance of these associations (Potts et al, 2015). The window span for detecting collocates was set at five words to the left and five words to the right (5L-5R), a widely employed configuration in collocation analysis. Besides keywords and collocations, this article also relies on concordance lines to show the contextual use of the identified lexemes and the natural phenomena of the holistic and dynamic interactions of the wordings (Frayne, 2021). In general, the method applied in this paper mainly adopted studies by Liu and Zhang (2018) and Kramar (2023), which investigated the discourse of (un)certainty about China's air pollution and agency of climate change in English media.

Results and discussion

This section presents the analysis of keywords used in Indonesian mass media to portray the JSTR project, and categorises the discursive constructions based on the shared meanings of these keywords. Out of the initial 100 keywords obtained after removing city names, personal names, and newspaper contributors, we identified 59 lexical keywords that could be grouped into distinct discursive categories. As described in the methodology section, we conducted a comparative analysis between the target corpus and a more extensive dataset to identify frequently significant words that characterise the specialised corpus we developed. Additionally, keywords offer insights into the 'aboutness' or core subject of a corpus (Subtirelu, & Baker, 2018).

Table 3

Keyword categories of JSTR corpus

Mass media constructions of JSTR	Token types	Frequency	Token samples
JSTR as a national project	31	14,660	*development, project, acquisition, execution*
Environmental impacts of JSTR	15	8,551	*village, land, field*
Monetary compensation of JSTR	13	5,871	*compensation, settlement, loss*

Source: Authors, 2024

JSTR discourses in Indonesian mass media

Thirty-one keyword types refer to JSTR as a national project. Examined from the keyness value, the first five keywords found are 'toll', 'road', 'construction', 'project', and 'section'. Since the words 'toll', 'road', and 'construction' refer directly to the chosen topic, we decided to examine the word 'project' further from its collocations. The most frequent collocates of the keyword proyek 'project' are tol (n) 'toll' (682), strategis (adj) 'strategic' (135), nasional (adj) 'national' (151), psn (proyek strategis nasional) (n) 'national strategic project' (92), and pembangunan (n) 'construction' (227). It demonstrates that Indonesian mass media tends to entail the toll road construction as the Indonesian government's agenda that has been legalised. The institutional agency demonstrates the process of rationalisation and legitimation, which allows journalists to present infrastructure discourse as a valid agenda associated with the government (Van Leeuwen, 2008. The repetition and rewording of 'project' and 'national' in the discourse portrays the salience of infrastructure construction as the government's primary goal to accelerate the country's growth. Below is an example of the concordance lines in which the word proyek 'project' is used in the corpus.

(1) *Pembangunan dua Proyek Strategis Nasional (PSN) … bertujuan untuk menunjang konektivitas di tiga kota besar, … kawasan 'Segitiga Emas Joglosemar'.*

The construction of two National Strategic Projects (PSN), … aims to support connectivity in three big cities, … 'Joglosemar Golden Triangle' area.

The example above emphasises 'Joglosemar', denoting Yogyakarta-Solo-Semarang as the 'golden triangle' area. The necessity to accelerate the connectivity between the three cities is salient in the JSTR discourse. Of the keywords and collocates of the lexeme 'project' shown in *Table 3* and concordances presented in example 1, it can be inferred that Indonesian mass media underline the role of JSTR as the government's official project. The Indonesian President, Joko Widodo, regulated the NSP through Regulation № 3, 2016, about NSP acceleration to improve community welfare.

The present study's findings affirm that infrastructure construction is often articulated confidently to voice certainty and domination. Indonesian mass media take a similar move to construction companies by juxtaposing infrastructure with success, growth, and progress (Poole, 2016, 2018). While copper mining industries in the US legitimise the plan by offering education

and scholarship to society, JSTR discourse's optimism is identified from the national strategic project that is statistically salient in the news articles. Doing so exemplifies an ecomodernist viewpoint that locates technology and infrastructure as solutions to humans and ecological problems. Toll roads, as the realisation of infrastructure projects, illustrate the common practice of technology as a means and approach to human and environmental challenges (Fernández-Vázquez, & Sancho-Rodríguez, 2020).

The frequency of the collocates *terdampak* 'affected' and *terjang* 'ruin' is lower in comparison to the collocates *strategis* 'strategic', *nasional* 'national', and *proyek strategi nasional* 'national strategic projects'. This empirical data demonstrates that mass media commonly prioritise JSTR as an accelerating project to enhance the nation's economic vitality. The current findings illustrate the institutionalisation of toll road construction, highlighting the prominent role of the government and its agency. The word frequency referring to government and official institutions is prominent in the news articles about JSTR. The prevailing discursive patterns identified from the keywords and collocations depict the social cognition constructed by media (Poole, 2022). The exposure and involvement with lexemes pertaining to governmental and official entities in the media contribute to the dissemination of an anthropocentric perspective that prioritises human happiness and demands, such as economic growth and advancement. Similar perspectives are also evident in climate change discourse, which is less popularised by Indonesian mass media compared to issues of corruption, terrorism, election, and refugee (Wahyuni, 2020).

Another discourse constructed in the JSTR news is the environmental impacts. Fifteen keyword types refer to the environment, and the five with the highest keyness value are *tanah (n)* 'land', *desa (n)* 'village', and *sawah (n)* 'field'. These keywords do not consistently denote the environmental impacts, but some are mutually dependent on others to emphasise the monetary compensation. The most frequent collocates of the lexeme *tanah* 'land' are *bidang (n)* 'area' (477), *kas (n)* 'treasury' (236), *pengadaan (n)* procurement' (209), *milik (n)* 'ownership' (116), and *pengganti (n)* 'compensation' (72). Those collocates above demonstrate that the environmental impact of JSTR is not merely about the environment but the monetary compensation as shown by the words *kas* 'treasury', *milik* 'ownership', *pengganti* 'compensation', and *pembayaran* 'settlement'. Below are examples of the lexeme land used in context.

(2) Terakhir, ada lima belas bidang tanah warga dan **tanah kas desa** (TKD) ... menerima UGR tol hingga Rp 25 miliar.

> *Finally, there are fifteen plots of community land and **village treasury land (TKD)** … receiving toll settlement compensation (UGR) of up to IDR billion.*

Some of the lands affected by JSTR construction are owned by the village government, called *tanah kas desa* or village treasury land. Therefore, the word *kas* 'treasury' is collocated with 'land'. As seen in example 2, the government should compensate for the village treasury land through compensation settlement in billion rupiahs. This way is still closely connected to another collocate *pengganti* 'compensation' and *pembayaran* 'settlement'. The concordance analysis and collocations show that 'land' is closely associated with monetary compensation other than its function in producing staple food supply.

Lexemes of 'environment' are in conjunction with monetary compensation and land replacement settlement. The Indonesian mass media, statistically, has a greater inclination towards focusing on the settlement process of the land clearings instead of the role of the land itself in sustaining the environment. The findings of this study resonate with the study by Poole (2016). Corporations frequently employ the term 'compensation' to recover environmental impacts associated with infrastructure construction. Certain forms of compensation extend beyond monetary remuneration and encompass scholarship and educational resources, such as schools. In contrast to Horsb l's study (2020) that involves wildlife discourse in wind turbine construction, Indonesian mass media excludes the non-human species in JSTR discourse. As a social institution, mass media portray JSTR as a phenomenon that affects the society's land ownership instead of the non-human species and agricultural labourers working on the cleared lands. The mass media's perspective in portraying environmental externalities in infrastructure discourse needs to be reconsidered since news media has sway over public discourse and has the potential to shape people's views and behavioural intentions (Keller et al, 2020).

The last discursive construction of JSTR is the monetary compensation. Seen from the keyness value, keywords referring to monetary compensation are *ganti* 'compensation', *uang ganti rugi (ugr)* 'compensation money', *rugi* 'loss', *pembayaran* 'settlement', *uang* 'money', *kas* 'treasury', *musyawarah* 'discussion', *dibayarkan* 'paid', *sudah* 'already', *kerugian (n)* 'loss', *apraisal* 'appraisal', *milyar* 'billion', and *rupiah* 'rupiahs'. Some notable concordances show that compensation is strongly associated with environmental lexemes. The foregrounding of *uang ganti rugi (ugr)* 'monetary compensation' identified from the interwoven collocations between environmental impacts is exemplified below.

(3) *"Hari ini terdapat   bidang tanah yang dibayarkan UGR-nya, nilainya Rp 29, miliar," ujar Kepala Seksi (Kasi) Pengadaan Tanah Badan Pertanahan Nasional (BPN) Klaten.*

"Today there are a total of 29 areas of land that are subject to tolls receiving compensation, worth as Rp. 29,8 billions", said the section chief of Klaten Land Office (BPN).

During the construction, monetary compensation to the landowners became the main attention Indonesian mass media provided. The monetary value and land area affected by toll construction are not always portrayed as a loss but also as profit. People who lost their land for the toll construction are located as participants who gain profit since they receive a particular amount of money, even some reach a very high value. Large numbers in monetary compensation serve at least one primary ideological function: associating infrastructure construction with monetary benefits directly to the land owners. The use of numbers has effectively created credible and balanced news that the media attempts to reach. Similar strategies are evident in the air pollution reports in China, where the journalists also used numbers to dramatise the health effects of the pollution (Liu, & Zhang, 2018).

The corpus analysis provided in the corpus analysis reveals that Indonesian mass media highlights the efficacy of the procurement process. The three significant discourses constructed in Indonesian mass media are not separate topics or frames, yet they concurrently shape the infrastructure discourse. The erasure of non-human species in the predominant keywords and collocations signifies the contestation between infrastructure projects and the environment (Ersoy Mirici, 2022; Awad et al, 2023). Despite narrating the agricultural workers and the ecosystem affected by the project, Indonesian mass media disproportionately focused on the compensation process to succeed in the national project. As a social institution responsible for presenting information to readers, mass media may take a different trajectory by voicing how agricultural workers find another job or their resilience in facing the massive construction. Stories about the environment can be promoted more thoroughly by discussing the types of lands affected by the toll construction. Doing so will give rise to a narrative that is better aligned with ecological principles within the societal context (Stibbe, 2015).

Social actors in JSTR discourse
Given the recurrent usage of specific lexemes, primarily to denote the JMM company, this study focuses on the JMM keyword to delve deeper into its

contextual usage. We argued that the prominence of the JMM keyword within the list implies a discourse of institutionalisation surrounding the development of JSTR infrastructure. By examining 100 instances of the keyword in context (KWIC), we identified that JMM frequently appears alongside specific social actors (Van Leeuwen, 2008). The analysis revealed that JSTR discourse excludes the voiceless agents and includes the company, officials, and government to regulate and succeed in the toll road construction.

Mass media can exclude or include particular social actors in the news they create to suit their interests and purposes concerning the readers for whom they are intended. Exclusion is divided into two main strategies: radical exclusion or suppression and backgrounding. Radical exclusion is marked by the erasure of social actors and their activities, while backgrounding is identified by not mentioning the actions or actors directly, but can be identified somewhere else in the context (Van Leeuwen, 2008). Some lexemes identified from the collocation analysis show exclusion: *milik* 'ownership', *terdampak* 'affected', *warga* 'residents', and *tanah* 'land'. In general, those words refer to the voiceless agents, ecosystem and agricultural labourers who do not own the land but those who work on the rice fields affected by the construction. Below are examples of concordances where the labourers are excluded from the news articles of JSTR.

(4) *Bidang tanah yang kena dampak tersebut semuanya merupakan persawahan. Baik milik warga maupun tanah kas desa.*

The areas of land affected are all rice fields. Both belong to residents and village treasury land.

(5) *"Lahan milik warga yang terkena dampak pembangunan jalan tol semuanya berupa persawahan dan bersertifikat hak milik," kata Ery.*

"The land belonging to residents affected by the toll road construction is all rice fields and has certified ownership rights," said Ery.

Example 4 shows the genericisation of 'areas of land' that exclude landowners, agricultural workers, and non-human species inhabiting the area. The collocation of 'land' and 'compensation' emphasises the co-occurrences between environment-related impacts and monetary compensation. The amount of money mentioned in the news shows another compensation foregrounding in the infrastructure project. A similar finding is shown in example 5, where the news media repeat and reword the monetary compensation and amount of money received by the landowners. The social actor identified in 'paddy fields' excludes the subsequent consequences of the spatial function shifts from land supplying food to toll roads.

The term 'residents' is genericised to exclude those working on agricultural lands. The residents are associated with landowners as the foregrounding participants affected by the toll road development. In addition, the ecosystem affected by clearings during the JSTR construction is also reduced into 'land'. The exclusion of land functions and non-human beings as part of the ecosystem reflects an anthropocentric perspective. Other keywords, such as 'village', 'field', and 'land area', seem to pertain to the environment, yet the terms surrounding these lexemes also refer to the land's role and status, as exemplified by 'rice fields' with ownership certificates. The legal documentation of rice fields anticipates landowners' concerns about monetary compensation resulting from infrastructure development. Therefore, it can be understood that the environmental impacts are not merely about the ecosystem but also humans' land possessions.

The analysis suggests that the environment is partially involved as a social actor in JSTR discourse. The words like 'land', 'field', and 'land area', are mentioned in the discourse in terms of their ownership instead of functions. The backgrounding of land functions that support the citizens' staple food articulate the media's exclusion strategies of the environment. In an ecolinguistic lens, the hyponym of 'land', 'field', and 'land area' shows the 'mask' as an erasure strategy (Stibbe, 2015) to omit the land functions that provide staple food supply and jobs for the agricultural labourers. The collocation of the environment with land ownership also activates the economic frame of land functions. The word 'ownership' eventually shifts the role of land as a part of the ecosystem into economic assets that can be sold and substituted into monetary compensation.

There is interdiscursivity between the erasure of environmental impacts in infrastructure and other discourses. For example, in different genres, the environment is also excluded in how politicians' discourse is loaded with words referring to finance, industry, and economy in mitigating climate change (Willis, 2017; Cunningham et al, 2022). The interdiscursivity of finance and monetary compensation in mass media and political debate reflects the backgrounding of environmental problems. Human stewardship in the ecosystem still dominates the discourse around us. In conclusion, it can be argued that Indonesian mass media articulate an ambivalent discourse by excluding environmental impacts in JSTR discourse.

On the one hand, the mass media capture infrastructure discourse's contribution to the country's wealth, but on the other hand, the stories about vulnerable actors such as agricultural labourers are excluded from the news. The statistical findings of keywords and collocations presented in the preceding

section provide empirical evidence supporting the absence of discussions on environmental repercussions within the JSTR discourse. The salience of land ownership and monetary compensation eventually transforms the ecological functions of the cleared lands into an economic frame.

The inclusion of social actors in JSTR discourse by Indonesian mass media is identified in some different strategies. Through categorisation and nomination, particular institutions and position titles are identified in JSTR discourse. Our analysis has revealed a notable prevalence of nomination (55 instances) as opposed to categorisation (45 instances). In the realm of news media, the choice of nomination highlights distinct positions, whereas categorisation establishes the JMM company in a broader sense.

The findings highlight the institutionalisation of the JSTR project, specifically through the recurrent appearance of certain nominal keywords: 'jogja solo marga makmur (JMM)', 'Indonesian land office', 'location permit', 'national strategic project', and 'makmur (JMM)'. These keywords collectively refer to a common discursive category – the government and JMM as the responsible company for the construction. The co-occurrence patterns of JMM (PT Jogja-Solo Marga Makmur) with specific proper names are evident from the collocation and concordance analysis. For instance, consider the following excerpt:

(6) *"Fokus pengerjaan fisik tol saat ini ...," ujar General Manager Lahan dan Utilitas PT Jogja-Solo Marga Makmur (JMM), Muhammad Tilawatil Amin*

"The focus on the physical construction of the toll road ...," said General Manager of Land and Utilities of PT Jogja-Solo Marga Makmur (JMM), Muhammad Tilawatil Amin on TribunJogja.com

The nomination strategy shown in example 6 is identified from the proper noun "Muhammad Tilawatil Amin" and the person's professional position as general manager of land and utilities. However, in different concordance lines, the position of the same proper name is repeated and reworded as *manajer* 'manager' (3), *general manajer* 'general manager' (17) and *direktur lahan dan utilitas* 'director of land and utilities' (6).

This categorisation further solidifies the JMM company's position and aligns it with the Ministry of Public Works and Public Housing of the Republic of Indonesia, representing the government's involvement. The evidence for this institutionalisation discourse is underscored by the lexemes referring to

the government-affiliated agency responsible for infrastructure development. In addition, JMM is also collocated with the lexemes 'strategic', 'project', and 'national', as shown in the example below.

(7) *PT Jogjasolo Marga Makmur (JMM) adalah Badan Usaha Pengelola Jalan Tol … Proyek Strategis Nasional berdasarkan Perpres No   tahun   .*
PT Jogjasolo Marga Makmur (JMM) is the Solo – Yogyakarta – YIA Kulon Progo Toll Road …National Strategic Project based on Presidential Decree No. 109 of 2020.

The specific term 'JMM' designates the company as the authorised institution responsible for the construction. Rather than choosing words associated with the company's sustainable practices during land clearing, Indonesian news media tend to portray JMM as the entity that determines the success of the government's national project. This 'nationalisation' of government-sanctioned infrastructure development underscores an ecological modernisation perspective, highlighting government entities, privileged institutions, and administrative structures as the predominant subjects in news media (Pascoe, Brincat, & Croucher, 2019). The prevailing discourse emphasises innovation and infrastructure progress to achieve economic growth.

Journalists also cite the company officials' statements as an accreditation strategy to establish the news credibility. This practice of recurrently citing the opinions of influential individuals forms a hierarchy of credibility in journalism (Baker, 2023). This strategy is prevalent in news media as journalists prioritise reporting events and capturing people's viewpoints and perspectives. It is important to note the variations and repetitions in referring to JMM officials in the context of reporting infrastructure development progress. These variations emphasise the significance of ensuring the project's success through the viewpoints of JMM officials. In addition to the aforementioned roles, other position titles that appear in the collocations with JMM include manajer humas 'manager of public relations' (4), direktorat jenderal bina marga 'Directorate General of Bina Marga' (2), direktur teknis 'technical director' (5), president direktur 'president director' (16), humas 'public relations officers' (2), and menteri pekerjaan umum dan perumahan rakyat 'the Ministry of Public Works and Public Housing of the Republic of Indonesia' (2).

Our analysis found that the corpus keywords are used interchangeably to construct JSTR as a national strategic project. During the infrastructure construction, particular societies and the environment are affected by land

clearings, but the company and government, through its officials, can succeed in the acquisition process. This optimistic voice is also evident from the keywords, such as 'location permit', 'completed', 'execution', and 'phase'. The other keywords refer to the description of the toll roads, including the length and acquisition processes. Referring to the social actors' analysis, we can sum up that the news media's selection of nominations and proper names aims to maintain the power and dominance associated with the success of infrastructure development. The media also tend to obscure the erasure of environmental impacts by constructing responsible leadership by 'overwording' the company officials and the government (Ainsworth, 2021).

During the infrastructure construction, particular societies and the environment are affected by land clearings, but the company and government, through its officials, can succeed in the acquisition process. This optimistic voice is also evident from the keywords, such as 'location permit', 'completed', 'execution', and 'phase'. The other keywords refer to the description of the toll roads, including the length and acquisition processes. Referring to the social actors' analysis, we can sum up that the news media's selection of nominations and proper names aims to maintain the power and dominance associated with the success of infrastructure development. Indonesian mass media build the authorisation discourse by foregrounding the company's success in acquiring the land (Van Leeuwen, 2008). This approach articulates media's legitimation in broadcasting the infrastructure discourse.

Ecologically, the findings of this paper show an anthropocentric viewpoint within Indonesian mass media's portrayal of the JSTR discourse. As a platform with the capacity to shape people's perceptions and behaviours toward the environment, the news media continues to emphasise the achievements of infrastructure development. The endorsement of both corporate and governmental authorities underscores the perceived necessity of the toll road project, as sanctioned by the government. On the other hand, the genericisation of land and resident excludes the voiceless agents affected by the infrastructure development, such as the agricultural workers and non-human species. Furthermore, the discourse omits specific details about the types of lands being cleared for infrastructure construction, diminishing the comprehensive understanding of the land's functions. In summary, the discourse observed in the JSTR articles demonstrates an ecomodernist perspective propagated by Indonesian news media, which prioritises expediting the nation's growth and progress.

Conclusion

This paper addresses the discursive construction of toll roads in the Indonesian context. The corpus investigation demonstrates that Indonesian mass media constructs the institutionalisation of infrastructure discourse by foregrounding the national project and its responsible names and companies. The repetition and rewording of specific lexemes are exploited in news media to frame toll roads as the national agenda that benefits the country. Ecologically, the Indonesian mass media voices anthropocentric and growthism viewpoints. The erasure of the voiceless agents, such as the environment and agricultural labourers, articulates an eco-ambivalent discourse. Notwithstanding the monetary compensation success, the environment, types of agricultural land, and water supply due to land clearings are backgrounded in the discourse.

The mass media legitimises and legalises the toll road project by nominating company officials. Though the environment-related lexemes are evident in the mass media, their co-occurrences with monetary compensation foreground the landowners and settlement paid by the government. This approach inadvertently omits the voices of marginalised agents, including agricultural labourers and non-human species that inhabit the affected land areas. This paper demonstrates how news media, as social institutions, construct anthropocentric ideology in infrastructure construction discourse. The interdiscursivity of social actor strategies between mass media, corporate social responsibility reports, and politicians' discourse articulates that human stewardship is still prevalent in discourses around us.

The current investigation was limited by the number of data and a sample scope of infrastructure discourse taken. However, this paper demonstrates a practical example of corpus-assisted ecolinguistic studies in mass media. Notwithstanding the regional topics this study exemplifies, the empirical data from corpus analysis demonstrates that the taken-for-granted discourse in mass media in portraying infrastructure construction proves that corpus discourse analysis and ecolinguistics are inextricably connected in questioning how (non)environment discourse is constructed. This research has thrown up many questions in need of further investigation. Further research regarding broader infrastructure projects in national or global contexts will provide a more thorough analysis of how diverse mass media portray the social actors in succeeding the projects. In conclusion, this research provides a concrete illustration of the application of corpus-assisted ecolinguistics in mass media.

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