

Unpacking the Discursive Construction of Air Pollution in Official Chinese English-language Press: A Corpus-Assisted Analysis of China Daily News Reports (2016-2022)

Guangyuan Yao

Guangyuan Yao, University of Macau, China ✉ 

<https://dx.doi.org/10.5209/clac.90099>

Received: 24 June 2023 • Accepted: 21 November 2023

ENG Abstract: China has been grappling with an air pollution crisis for several years, causing significant impacts on public health and the environment. As the official English-language publication in China, China Daily serves as an essential medium for disseminating the Chinese government's messaging to the international community regarding environmental governance and policy. This study aims to examine the discourse on air pollution in the official English-language newspaper, China Daily, between 2016 and 2022. The research seeks to answer questions about how China Daily constructs the discourse on pollution, how it shapes public perception of China's environmental governance, and what sociopolitical factors influence China's response to environmental challenges. The study suggests that China's commitment to addressing environmental issues through policy measures and sound governance offers a promising outlook for a cleaner and sustainable future.

Keywords: air pollution; China Daily; critical discourse analysis; media discourse

CH 中国官方英文媒体对空气污染的话语建构： 基于《中国日报》新闻报道的语料库辅助分析（2016-2022）

摘要：中国多年来一直面临着空气污染危机，对公共健康和环境造成了重大影响。作为中国官方的英文媒体，《中国日报》发挥着向国际社会传播中国政府关于环境治理和政策信息的重要作用。本研究旨在分析《中国日报》从2016年至2022年间有关空气污染的报道和评论，深入了解其中话语和论述的构建方式，探讨《中国日报》在形塑公众对中国环境治理的看法方面所发挥的作用，以及社会政治因素对中国应对环境挑战的影响。研究表明，中国政府致力于通过政策措施和良好治理来应对环境问题，并为我们创造更加清洁和可持续的未来展现了出色的前景。

Index: 1. Introduction. 2. Data and Methodology. 2.1. Corpus-based approach 2.2. Critical discourse analysis 2.3. Corpora building 3. Results 3.1. Results of the high-frequency words in the corpora. 3.2. Results of the collocation of high-frequency words in the corpora. 4. Discussion about environmental issues. 4.1. Air pollution. 4.2. Major/Severe pollution. 5. Discussion about actors. 5.1. Government. 5.2. Company. 5.3. People. 6. Discussion about socio-political factors. 6.1. Development. 6.2. Technology. 7. Conclusion. Acknowledgements. References.

How to cite: Yao, G. (2025). Unpacking the Discursive Construction of Air Pollution in Official Chinese English-language Press: A Corpus-Assisted Analysis of China Daily News Reports (2016-2022). *Círculo de Lingüística Aplicada a la Comunicación* 104 (2025): 139-153. <https://dx.doi.org/10.5209/clac.90099>

1. Introduction

China, an overpopulated region, prioritized economic advancement over the past thirty years, successfully emerging as one of the globe's most rapidly expanding marketplaces. Disturbingly, this unparalleled financial growth has begun to erode the environment in recent times, resulting in a deterioration that is evident in China's surging environmental problems including air pollution, water pollution, sandstorms, and deforestation. (Zhang, 2013; Wang, 2016; Wang, 2020).

The role of news media is widely recognized as pivotal and irreplaceable in matters concerning contemporary environmental issues (Hajer, 1995; Lester, 2010). This is particularly true when it comes to shaping public perception of issues which are unfamiliar to them. However, news discourse is not simply a reflection of environmental problems that occur in everyday life, but is produced, fabricated, or otherwise constructed within society (Hansen, 1991, 2010). This body of social constructivist thought on environmental news bolstered the necessity of examining the representations of a particular environmental issue by news media from various sources. Ascertaining that discrepant or contradictory exegeses pertaining to matters of environment may bear notable repercussions on determinations and measures. (Fløttum and Dahl, 2012), it is critical to understanding the potential impact of different conceptualizations of environmental issues by news media.

Over the past twenty years, there has been extensive scrutiny of environmental communication in China due to the nation's increasingly pressing environmental challenges, as noted by multiple scholars (Day, 2005; Tilt, 2006; Yao, 2008; Tilt and Xiao, 2010; Xu, 2012; Tong, 2014; Ma, 2015; Shapiro, 2016; Liu and Li, 2017; Wang, 2018). According to Wang's (2018) research, China Daily utilizes particular linguistic tactics to create news articles that are in accordance with the goals and policies of the Chinese central authorities. While the severity of China's smog is openly acknowledged by the publication, its primary function remains constructing a favorable image of the Chinese government in a strategically nuanced manner, thereby enacting both political correctness and journalistic objectivity in its environmental communication (Liu and Li, 2018). These studies have highlighted the distinctiveness of environmental communication in China's media system.

Air pollution is considered one of the pressing and complex environmental issues in China, which not only affects the nation's stability but also its global reputation, making it a crucial topic in terms of communication. There has been some scholarly inquiry into its depiction in Chinese media, with researchers such as Xu (2012), Chen (2014), Wang (2018) investigating this matter. However, the utilization of the data in their studies appears to be significantly outdated in light of the recent policy and plan implemented by the Chinese government, thus warranting a comprehensive analysis of the most current discourse on the subject matter. In 2016, the commencement of China's thirteenth year-plan has been accompanied by the Chinese government's increased focus on air pollution concerns. The purpose of this study is to address an existing void using the latest data (2016-2022) in the current media discussion, as represented in China Daily, the official English-language publication in China, by evaluating following questions.

- (1) How was pollution constructed in official Chinese English-language press China Daily's discourse between 2016 and 2022?
- (2) In what ways did the official Chinese press serve to discursively construct the image and intent of the Chinese central government and the Chinese company and Chinese people as the three main social actors relative to the growing concern about air pollution?
- (3) From the perspective of China Daily, what sociopolitical factors that have influenced China's response to environmental challenges?

By answering these questions, this study aims to examine the construction of pollution discourse in the official Chinese English-language press, China Daily, between 2016 and 2022. Using discourse analysis, this research examines how pollution is portrayed, framed and constructed in the context of China's environmental challenges within China Daily's discourse. This research seeks to explore how the official Chinese press, represented by China Daily, discursively constructs the image and intent of the Chinese central government, Chinese companies, and the Chinese people as the primary social actors concerning air pollution. Through discourse analysis, this study examines how China Daily's representations of these social actors contribute to the overall construction of the discourse on air pollution in China and how it shapes the public's perception of China's environmental governance. This study also examines the sociopolitical factors that influence China's response to environmental challenges from the perspective of China Daily. Through analysis of China Daily's discourse, this research aims to identify and examine the factors that have influenced China's approach to sustainable development and environmental governance. This study explores the complexities of development as constructed in China Daily and how the publication presents a balanced and inclusive approach towards economic progress, environmental protection, and social welfare.

2. Data and Methodology

2.1. Corpus-based approach in CDA

Sinclair (1991) defines "corpus" as a purposely constructed aggregation of natural language texts for a specific research purpose. The corpus-based approach involves analyzing authentic text and uncovering previously unknown linguistic characteristics (Biber et al., 1999), providing a new perspective on linguistic nature. Language researchers can utilize software to process and analyze data, revealing language use patterns, word lists, concordance lines, collocates and lexical bundles in the corpus. Through the corpus-based approach, researchers can objectively observe linguistic item regularities in language usage. The corpus-based analysis of search items, lexical bundles, and collocations offers a comprehensive and reliable qualitative analysis. Furthermore, applying the corpus-based approach to discourse analysis minimizes researcher bias due to the natural language data and comparatively objective judgment based on a vast amount of data (Baker, 2006). For this reason, corpus-based analysis is frequently coupled with discourse analysis to investigate language use in describing social events. This study applies the corpus-based approach to extract the wordlist data of news texts, obtain high-frequency word concordance lines, and scrutinize the linguistic context of high-frequency words for discourse analysis.

2.2. Critical discourse analysis

Critical Discourse Analysis (CDA) is a form of discourse analysis that adopts a critical stance towards language use by scrutinizing the underlying ideology and values present in various discourse types (Richards and Schmidt, 2010). Fairclough (1992) presents a three-dimensional framework for CDA that analyzes discourse as text, discourse practice (text production, distribution, and consumption), and social practice to highlight that text analysis should not occur in isolation. This framework is further elucidated as the analysis of language texts, discourse practices, and discursive events-as socio-cultural practice (Fairclough, 2010). This framework considers every utilization of language as a communication event containing elements of text, discourse practice, and social and cultural practice. Consequently, the analysis should delineate linguistic qualities, the execution and utilization process, and the broader social practices from the audience's viewpoint.

CDA can uncover interests and power relations present in any socio-historical and institutional context by analyzing how language is used. CDA is considered a trans-disciplinary, text-based approach to critical social research that systematically explores language to unveil its role in power and ideology in society, emphasizing investigating power imbalances in language use (Fairclough, 2010). This framework establishes connections between discourse analysis and sociology and politics, and serves as a means of investigating the relationships between language and social-institutional practices, and the close links between language as discourse and broader social and political structures.

News reports are of interest to CDA, as they relate to social issues and events. Corpus-based studies can withdraw search items exhaustively and analyze language use with the linguistic context of the given items and contribute to a more comprehensive and accurate understanding of language phenomena and support evidence-based conclusions in linguistic research. Research has shown that the combination of CDA and corpus analysis can prove to be a useful method for analyzing news texts (Baker and McEnery, 2005; Xin and Gao, 2021; Wang, 2022).

The three-dimensional framework proposed by Fairclough (1992) was utilized in this study for further analysis based on the results of the corpus-based analysis. The "text" dimension concerns the analysis of language in the texts. The "discourse practice" dimension addresses the production and consumption of the news texts, and analyzes the strategies employed by news media. The "social practice" dimension explains the relationship between discourse practices and the social context by analyzing the social and cultural context of the reporting events.

2.3. Appraisal theory in CDA

SFL, also known as Systemic Functional Linguistics, was formulated by Michael Halliday (Halliday, 1978, 1985) with the purpose of facilitating the examination of language as a semiotic mechanism. This approach considers language as a system that encompasses both the generation and interpretation of meanings. Consequently, SFL acknowledges the interdependent connection between social context and linguistic representation.

According to Martin and White (2005), the development of an appraisal framework aimed to go beyond traditional accounts of speaker/writer evaluation, certainty, commitment, and knowledge. It also sought to explore how the voice in a text positions itself in relation to other voices and perspectives within the discourse. This theoretical approach focuses on analyzing "meanings in context" and the rhetorical effects of language, rather than simply grammatical structures. In this perspective, grammar and discourse are seen as resources that create meaning, rather than strict rules for organizing structure (Martin and Rose, 2008).

The appraisal theory, situated within the framework of systematic functional linguistics, examines how speakers or authors express their subjective attitudes through language. Similar to other theories in systemic functional linguistics, the appraisal theory emphasizes the rhetorical choices made in language use. It investigates how language users assign meaning to language objects and construct their own positions or tones in discourse. The analysis of interpersonal meaning through appraisal helps the listener or reader better understand the speaker's or author's position, viewpoint, and attitude, facilitating interpersonal interaction. The appraisal theory consists of three main systems: attitude, engagement, and graduation.

To comprehensively analyze discourse and uncover the underlying attitudes and ideologies conveyed in the text, this study adopts Martin and White's (2005) appraisal analysis framework. According to their framework, segments of text that imply instances of appraisal, such as noun phrases, verb phrases, or clauses, are referred to as appraisal groups. Each instance of appraisal involves two primary actors: the appraiser and the object of appraisal. Within these instances, three key aspects of appraisal, as recognized by Martin and White, are examined: Attitude: Attitude represents the emotional essence expressed by the appraiser toward the object. Various emotions or attitudes, such as love, anger, fear, jealousy, excitement, hostility, or satisfaction, can be conveyed within appraisal groups. Graduation: Graduation pertains to the strength or intensity of the emotion and attitude within each appraisal group. The choice of words used to express attitude may also indicate a particular level of graduation. Engagement: Speakers or writers can express sentiments directly, indirectly, or attribute them to another source. Engagement refers to how individuals express their appraisal or participate in the argument.

2.4. Corpora building and procedure

The present study starts with the extraction of news articles featuring the keywords "air pollution" and "China" from the China Daily publication, spanning the year 2016 to 2022. Data was sourced from the electronic

database Factiva and subsequently compiled into corpora, following a meticulous manual culling of extraneous information, including copyright, load date, and byline. The corpus comprises a total of 2895 news articles, encompassing an extensive volume of 821,898 words.

For the purposes of this study, the integrated suite of programs, Wordsmith8, has been utilized as a tool for the examination of the behavior of words within texts. This suite of programs enables researchers to investigate how words are utilized in their own texts, as well as those of others. The WordList tool facilitates the generation of a comprehensive list of all the words or word-clusters contained within a given text, which can be presented in either alphabetical or frequency order. Moreover, the Concord tool offers researchers the opportunity to scrutinize a particular word or phrase in context, thereby allowing for an improved understanding of the lexical company it keeps. Lastly, the KeyWords feature enables users to determine the most significant words within a given text.

3. Results

3.1. Results of the high-frequency words in the corpora

Table 1 presents a record of the 43 most potent keywords utilized in the study's dataset, as obtained through the wordlist function in Wordsmith. The table displays the appearance of keywords related to the search term, including China, air, and pollution. These keywords can be classified into distinct groups, such as environmental issues, actors, development, and energy and power. The environmental issues group includes keywords such as pollution, environmental, emission, environment, and protection, indicating a focus on environmental concerns. The actors group comprises terms like government, national, city, province, region, area, Beijing, company, and people, which signifies the involvement of various stakeholders in addressing air pollution in China. The development group features keywords such as development, new, plan, system, increase, improve, level, work, economic, industry, market, world, and global, pointing towards a new development model that considers environmental issues. The energy and power group includes terms like energy, coal, power, gas, technology, control, carbon, and vehicle, suggesting that new energy and technology could aid in resolving air pollution in China. By examining collocates of each group's keywords, this study aims to investigate the discursive construction of China Daily's reporting on air pollution in China.

Table 1. High-frequency words in the corpus

Rank	Word	Freq.	%
1	CHINA	6,417	0.76
2	AIR	4,333	0.51
3	POLLUTION	4,121	0.49
4	ENERGY	2,896	0.34
5	DEVELOPMENT	2,750	0.33
6	CITY	2,729	0.32
7	ENVIRONMENTAL	2,643	0.31
8	NEW	2,407	0.29
9	BEIJING	2,317	0.27
10	GOVERNMENT	2,148	0.25
11	COUNTRY	2,146	0.25
12	AREA	1,735	0.21
13	USE	1,734	0.21
14	HIGH	1,687	0.20
15	PEOPLE	1,666	0.20
16	EMISSION	1,628	0.19
17	QUALITY	1,610	0.19
18	PLAN	1,598	0.19
19	NATIONAL	1,557	0.18
20	COAL	1,544	0.18
21	PROVINCE	1,521	0.18
22	ENVIRONMENT	1,512	0.18

Rank	Word	Freq.	%
23	POWER	1,507	0.18
24	GAS	1,437	0.17
25	COMPANY	1,431	0.17
26	REGION	1,418	0.17
27	SYSTEM	1,329	0.16
28	PROTECTION	1,328	0.16
29	VEHICLE	1,327	0.16
30	IMPROVE	1,317	0.16
31	GOOD	1,316	0.16
32	LEVEL	1,308	0.15
33	WORK	1,298	0.15
34	INCREASE	1,253	0.15
35	TECHNOLOGY	1,248	0.15
36	CONTROL	1,239	0.15
37	REDUCE	1,218	0.14
38	ECONOMIC	1,206	0.14
39	INDUSTRY	1,204	0.14
40	MARKET	1,189	0.14
41	WORLD	1,173	0.14
42	GLOBAL	1,148	0.14
43	CARBON	1,140	0.14

3.2. Results of the collocation of high-frequency words in the corpora

Table 2. Collocates of pollution in the corpus

Rank	Collocate	Frequency
1	air	2376
2	control	598
3	reduce	207
4	heavy	195
5	water	191
6	china	164
7	prevention	146
8	environmental	145
9	severe	142
10	will	139
11	against	125
12	efforts	119
13	measures	111
14	soil	110
15	major	108
16	cities	103

Table 2 displays the collocates of the term pollution, which have been sorted into the following categories: types of pollution, including air, water, soil, and environmental; severity of pollution, with major and severe; attitudes towards pollution, encompassing against and will; as well as measures taken towards pollution, such as prevention, measures, and efforts.

Table 3. Collocates of government in the corpus

Rank	Collocate	Frequency
1	local	1983
2	central	245
3	has	217
4	will	165
5	should	82

Table 3 presents a categorical arrangement of the collocates associated with the term government, with a particular focus on differentiating between local and central governmental entities. Furthermore, the table classifies surrounding attitudes towards the government in relation to the collocates as has, will, and should. This analytical approach offers a comprehensive understanding of the semantic connections between the term government and its collocates.

Table 4. Collocates of company in the corpus

Rank	Collocate	Frequency
1	chinese	92
2	will	81
3	polluting	64
4	energy	43
5	power	39

In a similar vein, Table 4 employs a categorical arrangement to present the collocates of the term company. The lexical categories and semantic meanings of the words have been classified to effectively group them under distinct categories. The adjective Chinese specifically pertains to companies associated with China, while nouns such as polluting, energy, and power are linked by a recurring environmental theme. Additionally, will, a modal auxiliary verb indicating future actions or predictions, reinforces the potential for growth and change.

Table 5. Collocates of people in the corpus

Rank	Collocate	Frequency
1	chinese	131
2	will	71
3	china	66
4	young	56
5	development	45

Table 5 categorizes the collocates of the term people by organizing the words based on their distinct lexical categories and semantic meanings. The descriptor Chinese denotes individuals of Chinese origin or nationality, while the adjective young describes the age of a person. The noun will signifies determination, and the term China refers to the country and its culture. Notably, development refers to the process of improvement, emphasizing the importance of progressing towards positive change. This analytical approach sheds light on the complexity and interconnectivity of the term people and its various components.

Table 6. Collocates of development in the corpus

Rank	Collocate	Frequency
1	economic	264
2	sustainable	258
3	green	248
4	national	138
5	energy	121

Table 6 provides a categorical arrangement of the collocates associated with the term development. The table classifies the collocates into distinct lexical categories and semantic meanings, highlighting the cohesive themes that surround the term. The adjective economic pertains to the financial aspect of development, while sustainable denotes the importance of environmentally conscious growth. The term green is linked to sustainability, emphasizing its significance in the development process. National is an adjective that refers to growth on a larger, country-wide scale, while energy denotes the importance of energy generation and consumption in the development process. This comprehensive analysis of the collocates associated with the term development offers insight into the multidimensionality of the concept, particularly in relation to economic growth, sustainability, environmentalism, national development, and energy consumption.

Table 7. Collocates of technology in the corpus

Rank	Collocate	Frequency
1	science	123
2	information	55
3	innovation	53
4	energy	42
5	industry	36

Table 7 furnishes the collocation associated with the term technology, encompassing the scientific, informational, innovative, and industrial facets of the energy sector. The lexical items science, information, innovation, and energy industry denote the knowledge, research, data management, continuous development of new and creative solutions, and the various sectors involved in the production, distribution, and consumption of energy, respectively. In their confluence, the collocation underscores the crucial significance of science, information, innovation, and industrial applications in the energy sector, where the effective and sustainable use of energy is of paramount importance. It suggests that the introduction of cutting-edge technologies, data analytics, and extensive research on renewable energy sources are indispensable in addressing the escalating energy demand and the environmental issues linked to energy consumption.

4. Discussion about environmental issues

4.1. Air pollution

Air pollution in China has been a persistent problem that has caused significant negative impacts on both public health and social welfare (Jin, 2016). This issue has garnered immense attention and has become a prioritized concern on the political agenda. Beginning in the late 1990s, the public's concern regarding the deteriorating air quality in China gradually escalated. By the impending 2008 Beijing Olympics, this concern had spread to the international community. The Chinese government saw the global event as an opportunity to showcase a positive national image, but the problem of air pollution emerged as a challenging obstacle to overcome. In response to growing public concern, China has undertaken specific policy measures. The government launched the *Air Pollution Prevention and Control Action Plan* in the fall of 2013, setting specific targets for improving air quality through the end of 2017.

- (1) Li also highlighted the significant contributions from scientific research to the air quality improvement, especially the research conducted under the banner of the National Joint Research Center for Tackling Key Problems in Air Pollution Control, which was launched in 2017. (*Achievements made in reducing air pollution, 2022-11-25*)

Example 1 expresses a positive attitude towards the contributions of scientific research to air quality improvement. The mention of "significant contributions" and "especially the research conducted under the banner of the National Joint Research Center for Tackling Key Problems in Air Pollution Control" indicates a favorable view towards these efforts.

It indicates that China has been proactively taking measures, such as conducting scientific research, to address its air quality issue. The National Joint Research Center for Tackling Key Problems in Air Pollution Control was created in 2017. This center brought together over 2,000 scientists and researchers to investigate the root causes of severe air pollution and provide solutions for the 28 cities in Beijing-Tianjin-Hebei and surrounding areas. In order to execute a customized strategy for each city, 28 expert teams carried out investigations in the “2+26” cities. Moreover, a comprehensive mechanism to respond to heavy pollution was established, which included a system of air quality forecasts, joint meetings with experts, heavy pollution warnings, instant emission reduction, and supervised enforcement. These measures significantly enhanced the ability of the local governments to address the severe pollution problem in the Beijing-Tianjin-Hebei region (Liu, 2020).

- (2) Local authorities should press ahead with efforts to reduce carbon emissions while tackling air pollution, the plan said, urging them to improve the industrial structure, energy consumption and modes of transportation. (*Policy Digest*, 2022-11-23)

Example 2 expresses a positive attitude towards the idea of local authorities taking action to reduce carbon emissions and tackle air pollution. It emphasizes the need for improvement in industrial structure, energy consumption, and modes of transportation. The overall attitude conveyed is one of support and encouragement towards these efforts.

It demonstrates a comprehensive three-fold approach tackling air pollution in China. This approach aims to address issues related to the industrial sector, energy consumption, and transportation modes. These topics correlate with keyword groups of development, energy, and power. In 2002, China's economy began a new phase of growth. However, from the perspective of industrialization, China's industrialization process was not yet complete. As the consumption structure upgraded, there was a quick shift in the industrial structure, with an increased emphasis on heavy industry. This shift magnified the energy supply and demand mismatch that China was already experiencing. The fast-paced economic development of China was reliant on the extensive consumption of natural resources, which fueled China's economic boom and simultaneously posed a threat to future sustainable development (Zheng&Walsh, 2019).

4.2. Major/Severe pollution

- (3) However, as super-sized conurbations with serious cases of “big city disease” —severe air pollution and a lack of housing and public services— Beijing and Shanghai have already set targets for population control and the upgrading of their industrial structures. (*Winners and losers*, 2016-12-23)
- (4) Air pollution is fallout of development mode, economic structure and consumption pattern. The solution is to focus on major pollution sources and reduce emission with determination. (*How Beijing turns its sky blue*, 2019-09-23)

Example 3 expresses an attitude towards the cities of Beijing and Shanghai. The emotional essence conveyed is negative, as indicated by the phrase “super-sized conurbations with serious cases of ‘big city disease’ —severe air pollution and a lack of housing and public services.” The author's choice of words, such as “severe” and “lack,” reinforces the negative attitude. Regarding graduation, the strength or intensity of the negative attitude is apparent in the description of the cities' problems, such as “severe air pollution” and “lack of housing and public services.” These terms suggest a high level of intensity in the appraiser's negative perception. In terms of engagement, the author directly attributes the negative sentiment to the cities by describing them as having “big city disease.” This indicates that the author is directly expressing their appraisal or participating in the argument.

Example 4 expresses the attitude towards air pollution is negative, as it is described as a “fallout” of development mode, economic structure, and consumption pattern. The choice of words such as “fallout” conveys a sense of concern or dissatisfaction. The graduation or intensity of the attitude is moderate, as the statement suggests that the solution is to focus on major pollution sources and reduce emissions with determination. This indicates a call for action and a recognition of the seriousness of the issue, but it does not express extreme emotions or urgency. Regarding engagement, the speaker or writer directly expresses their appraisal of the situation by stating that air pollution is a result of certain factors and provides a solution to address it. There is no attribution of sentiments to another source.

Example 3 and 4 demonstrate that the Chinese government has acknowledged the serious issue of air pollution and has taken significant measures to address it. In fact, the year 2018 marked the initial stage of the implementation of China's strategic vision of “accelerating the reform of the ecological civilization system and building a beautiful China,” as set forth during the 19th National Congress of the Communist Party of China. It was also the first year of exploring the modernization of the national governance system, following the reform of national institutions. Given the numerous environmental challenges that China has faced, each significant transformation has injected new vigor into the country's environmental protection efforts, propelling them towards deeper reform (Teets, 2018).

In May 2018, the National Ecological Environment Protection Conference convened in Beijing, with the attendance of high-ranking officials, including President Xi Jinping. Delivering an important speech, President Jinping outlined six key principles that must be upheld in promoting the construction of ecological civilization in the new era. These principles include harmonious coexistence between man and nature, prioritizing ecologically friendly environments, understanding that good ecological environments lead to the greatest

livelihood welfare, recognizing the community of life that are mountains, waters, forests, fields, lakes, and grasses, using rigorous regulatory frameworks and the rule of law to protect the environment, and contributing to the global ecological civilization construction (Xie, 2020). Following the conference, China has continued to advance the battle for pollution prevention and control, as well as address ecological environment weaknesses and build a sound governance system of ecological civilization. With the realization path of “ecological environment is important for economic growth” explored, environmental protection inspection has been comprehensively launched, and the quality of the ecological environment continues to improve. Green development has become the fundamental characteristic of high-quality development in the new era (Heng, 2018).

5. Discussion about actors

5.1. Government

- (5) Under the country's new law on environmental protection, which puts in place an explicit responsibility and accountability mechanism, the responsibility for local enterprises refusing to fulfill their environmental protection duties now mainly lies with the local government. (*No environmental shortcuts, 2016-11-11*)

In Example 5, the appraiser's attitude can be identified as positive or supportive towards the new law on environmental protection. This can be inferred from the use of phrases such as “puts in place an explicit responsibility and accountability mechanism” and “responsibility for local enterprises refusing to fulfill their environmental protection duties now mainly lies with the local government.” These phrases indicate an appreciation for the law and its provisions. The intensity of the attitude expressed in this statement can be considered moderate. Although the appraiser shows support for the new law, the language used is not overly enthusiastic or strongly emotional. The statement presents the information objectively, without intense emotional language.

As Wang (2022) noted, Chinese local governments have exhibited the tendency to adopt an environmental priority strategy, while the central government has leaned towards implementing a loose supervision strategy to promote coordinated development through enhanced phased planning, judicious elevation of dedicated governance funds, and by appropriately adjusting local penalty standards. The interrelation between the responsibilities of local and central government for safeguarding the environment is made evident through the discourse that has been constructed in China Daily.

- (6) Thanks to President Xi Jinping's remark that “green hills and clear waters are golden and silver mountains”, emission control and environmental protection have been prioritized in the work agendas of the central government down up to those of city governments. (*On way to building a green, healthy future, 2018-03-16*)

Example 6 expresses a positive attitude towards President Xi Jinping's remark and the resulting prioritization of emission control and environmental protection. The emotional essence conveyed is one of approval and satisfaction, as indicated by the use of phrases such as “green hills and clear waters are golden and silver mountains.” This suggests a sense of admiration and appreciation for the emphasis on environmental issues. The strength or intensity of the emotion and attitude is high, reflecting a strong endorsement of the actions taken. The engagement is direct, as the appraiser directly attributes the positive sentiment to President Xi Jinping's remark and its impact on government agendas.

- (7) The government will reform and refine its systems to facilitate the country's pursuit of high-quality development and environmental protection, Premier Li Keqiang pledged as he delivered the Government Work Report at the opening of the second session of the 13th National People's Congress on Tuesday. (*Refined systems aid green development, 2019-03-06*)

Example 7 expresses a positive attitude towards the government's commitment to reform and refine its systems for the pursuit of high-quality development and environmental protection. The emotional essence conveyed is one of approval and satisfaction, as indicated by the use of phrases such as “pledged” and “commitment to environmental protection.” This suggests a sense of support and endorsement for the government's actions. The strength or intensity of the emotion and attitude is high, reflecting a strong endorsement of the proposed reforms. The engagement is direct, as the appraiser directly attributes the positive sentiment to Premier Li Keqiang's pledge and the Government Work Report.

- (8) The government should focus on transforming suggestions and proposals into real policies and plans. (*Government takes action on key issues, 2019-03-03*)

Example 8 expresses a neutral or pragmatic attitude towards the government's actions. The emotional essence conveyed is one of practicality and expectation, as indicated by the use of phrases such as “focus on transforming suggestions and proposals into real policies and plans.” This suggests a sense of urgency and a call for action rather than a strong emotional stance. The strength or intensity of the emotion and attitude is moderate, reflecting a measured and practical approach. The engagement is direct, as the appraiser directly addresses the government's need to act on the suggestions and proposals.

Overall, China Daily examines the interdependence between the Chinese government at the local and central levels concerning environmental protection. It portrays how the central government entrusts the duty

of environmental protection to local authorities, resulting in a hierarchical approach to environmental problem-solving. The government has committed to reinforcing and revamping its systems to facilitate environmental protection and to achieve high-quality development. Simultaneously, China Daily stresses the significance of prioritizing practical implementation and the translation of feedback and suggestions into formal policies and plans.

5.2. Company

- (9) The shift toward investment in environmental protection could also allow many Chinese companies to gain a first-mover advantage in many innovative products that will be needed to improve the environment worldwide. (*Pushing for green development and lifestyles, 2020-04-10*)

The attitude expressed in Example 9 is positive and hopeful. The appraiser seems to convey a sense of optimism and enthusiasm towards the shift towards investment in environmental protection. The use of words such as “gain a first-mover advantage” and “innovative products” suggests a positive emotional essence towards the potential outcomes of this shift. In terms of graduation, the intensity of the emotion and attitude is high, as indicated by the use of words like “gain a first-mover advantage” and “innovative products.” These words convey a strong sense of positivity and confidence in the potential benefits of investing in environmental protection. In terms of engagement, the sentiment is expressed directly by the appraiser, who is actively participating in the argument by presenting the potential benefits of the shift towards environmental protection and its impact on Chinese companies.

Through allocating resources to the development of novel and advanced products that can aid in improving the environment, Chinese companies have the potential to emerge as pioneers in this domain. This leading position may afford them a “first-mover advantage”, characterized by their ability to be the initial entrant into an emerging market or industry, consequently giving them a competitive edge over their rivals. The expansion of the global market for environmental solutions reinforces the potential for Chinese companies that have invested in innovative products to occupy a robust position in meeting the demand and advancing their commercial enterprise. In fact, as Song (2021) noted, a lack of independent environmental reports notwithstanding, implementing environmental management measures can enhance corporate value; one effective measure involves producing environmentally friendly goods, which can secure recognition and significantly elevate the corporate value.

- (10) Taking heavy hits were polluting companies and irresponsible government officials, the ministry's data show. (*5,763 officials accountable for pollution, 2017-09-19*)

In Example 10, it expresses a negative attitude towards “polluting companies and irresponsible government officials.” This attitude can be characterized as one of criticism or disapproval. The appraiser believes that these entities are facing negative consequences, as indicated by the phrase “taking heavy hits.” The use of the word “polluting” implies a sense of anger or dissatisfaction towards the actions of these companies. Similarly, the term “irresponsible” suggests a negative judgment towards the government officials. In terms of graduation, the phrase “taking heavy hits” suggests a strong intensity of the negative emotion or attitude expressed by the appraiser. The use of the word “heavy” intensifies the impact of the hits, indicating a significant negative consequence for the polluting companies and irresponsible government officials.

Example 10 means that the ministry's data indicates that polluting companies and irresponsible government officials were being severely criticized or punished. They faced severe consequences due to their irresponsible actions that contributed to environmental pollution. The new environmental protection law in China has resulted in an elevation of both the probability and expenditure of violation charges against industrial entities for their contribution towards environmental degradation (Fang et al., 2021). The revisions have included the adoption of daily penalties and other measures intended to exert a deterrent influence upon corporate entities engaging in environmental malpractices. The discourse presented by China Daily demonstrates a direct targeting of corporations engaging in environmentally hazardous practices.

- (11) In February last year, one of the leading renewable energy companies in China, Sunshine Kaidi New Energy Group, announced its plan to invest up to 1 billion euros in the construction of a biorefinery in Kemi in northern Finland. (*Renewable energy work to expand, 2017-04-06*)
- (12) Consequently, allocations given to power companies have been relatively generous, and are tied to power output rather than being set at absolute levels. (*Carbon market could drive climate action, 2021-07-20*)

The common theme between examples 11 and 12 is the intersection of environmental concerns and the energy industry. In example 11, Sunshine Kaidi New Energy Group is investing in a biorefinery, which is a step towards renewable and sustainable energy sources. In example 12, power companies are given allocations in a way that incentivizes higher power output, which could be seen as a push towards more efficient and sustainable energy production. Both examples highlight the efforts being made to balance the need for energy with the need for environmental protection.

In fact, China's renewable energy industry has enjoyed a rapid and robust development in recent times. Despite coal-based power plants currently dominating China's energy structure and presenting a formidable obstacle to the reduction of greenhouse gas emissions, this situation also emphasizes the considerable prospective developmental potential that the country's renewable energy industry affords; as such, by

harnessing this potential, the sector can contribute sustainably and constructively to China's response to climate change (Wei, 2020). The China Daily discourse expounds upon the initiatives being undertaken by energy companies towards environmental conservation.

5.3. People

(13) After suffering environmental degradation for the several decades, the Chinese people long to see blue skies, green mountains, free-flowing rivers, and feel the fresh air. (*Changing forms of greetings signify the changes in Chinese society, 2020-09-15*)

Example 13 reflects a positive attitude towards the desired environmental conditions in China. The use of phrases such as “long to see,” “blue skies,” “green mountains,” “free-flowing rivers,” and “fresh air” conveys an emotional essence of hope, longing, and appreciation. The overall sentiment expressed is one of optimism and a desire for a better environment. The intensity of the emotion and attitude is moderate in this statement. While there is a clear expression of longing and desire, the language used does not convey an extreme or intense emotion. The choice of words like “long to see” suggests a strong desire, but the overall tone remains measured and controlled.

The presented discourse highlights the Chinese government's acknowledgment of the obligation to adopt a problem-oriented and people-centric methodology. In this vein, prioritizing critical ecological concerns emphasized by the general public remains a significant matter on the government's agenda (Li, 2018). Through consistent effort to tackle such issues, the public's sense of achievement, satisfaction, and security is augmented, resulting in tangible ecological conservation results conducive towards building public confidence.

(14) People should take positive measures to address the negative psychological impact of smoggy weather, as a negative mindset over a period of time can lead to depression. (*Authorities to ramp up smog research, 2017-01-09*)

Example 14 expresses a negative attitude towards smoggy weather, stating that people should take positive measures to address its negative psychological impact. The negative mindset associated with smoggy weather is emphasized, implying that it can lead to depression. The attitude conveyed here is one of concern and recognition of the potential harm caused by smoggy weather. The statement suggests that the negative psychological impact of smoggy weather can be significant over time, leading to depression. This indicates a strong or intense emotional response to the situation. By mentioning the potential long-term consequences, the statement emphasizes the seriousness of the issue and the need for immediate action.

The discourse presented by China Daily in discussing the role of the Chinese people in environmental protection reflects a theme of personal responsibility. Examples 13 and 14 highlight the importance of individuals in contributing to environmental conservation efforts, whether through vocalizing their concerns to the Chinese government or taking affirmative steps to mitigate the negative psychological impact of environmental pollution. These examples underscore how the Chinese government has adopted a people-centric approach to environmental conservation, recognizing that individuals play a significant role in promoting ecological well-being (Liu et al., 2022). The discourse also suggests a broad recognition that environmental pollution has had harmful impacts on individual well-being, emphasizing the need to holistically consider the physical, mental, and emotional burdens of environmental degradation. Overall, the discourse portrays a sense of shared responsibility between the Chinese government and individuals to work towards a cleaner, more sustainable environment.

6. Discussion about socio-political factors

6.1. Development

(15) In some cases, pursuing fast-paced GDP growth, the core indicator of economic growth, could be detrimental to quality economic development. (*GDP alone can't measure quality growth, 2018-01-29*)

Example 15 expresses a cautious or critical attitude towards pursuing fast-paced GDP growth as the core indicator of economic growth. It suggests that this approach may be detrimental to quality economic development. The attitude conveyed here can be seen as a concern for the potential negative consequences of prioritizing rapid GDP growth over other factors.

In fact, Chinese government has realized that green development has emerged as a pervasive trend, which is not only a pressing priority for Chinese citizens in the present era in their pursuit of a higher quality of life, but also an inherent requirement for sustainable socioeconomic growth, which serves as an essential benchmark for high-quality development. China's industrialization has occurred at an expedited pace, culminating in rapid economic growth that has engendered severe environmental pollution and degradation of ecosystems, thereby prompting a mounting demand among the populace for a healthy ecology. The rapid maturation of green, low-carbon technologies and China's augmented economic might have furnished the requisites for expediting the restoration of the imperilled ecological milieu. Towards this end, it is essential to stimulate the propounding of the green development perspective across society, hasten the formulation of policies, frameworks, and legislative measures that foster green development, invigorate the development of green finance, encourage the growth of green industries, including energy efficacy, environmental protection, and clean energy, promote green means of transportation and other eco-friendly consumption habits (Li et

al., 2019). Furthermore, it is imperative to institute a robust economic framework for the promotion of green, low-carbon, and circular development through concerted endeavours to bolster the universalization of green development and establish a modernization pattern founded on the harmonious development of humanity and nature (Su&Fan, 2022).

- (16) Previously, low-carbon transition was also highlighted at a group study session of the Political Bureau in April, on the topic of ecological civilization, a concept Xi has promoted for balanced and sustainable development that features the harmonious coexistence of mankind and nature. (*More actions urged to attain carbon goals, 2022-01-27*)
- (17) This may not be a coincidence, because a balanced and green development strategy that focuses on the protection of the environment will be the hallmark of the new area, and is an integral part of China's new economic growth model. (*Green development vital to new growth model's success, 2017-04-07*)

Examples 16 and 17 further elucidate the Chinese government's emphasis on achieving balanced, sustainable, and green development. For instance, Example 16 features a group study session of the Political Bureau in April, where low-carbon transition was a primary focus on the topic of ecological civilization. Notably, President Xi has progressively advocated for ecological civilization, an all-encompassing concept centered on achieving balanced and sustainable development that espouses the harmonious coexistence of mankind and nature (Zhou, 2021). Similarly, Example 17 emphasizes that China's new economic growth model highlights a balanced and green strategy that prioritizes environmental protection, thereby signifying a fundamental characteristic of the new era. By prioritizing green development, China's economic growth model seeks to consolidate economic progress by bundling environmental protection on a long-term basis, thereby underscoring the centrality of sustainability on a national level (Wang et al., 2020).

- (18) We have to transform the energy-development patterns from heavy-industry dominant to a service-dominated one. This transition is a must. (*Nuclear energy vital for China: experts, 2016-04-06*)

As elucidated before, energy companies are cognizant of the importance of maintaining equilibrium between the imperative for energy production and the imperative for safeguarding environmental integrity. With regards to the broader developmental perspective, the Chinese government's policy is centered on a transformative move towards a service-dominated economic model as opposed to an erstwhile heavy-industry oriented model (Gu et al., 2019). This shift is deemed an imperative to ensure sustainable economic growth and development in the foreseeable future.

These examples demonstrate the Chinese government's commitment to achieving sustainable, balanced, and green development. The government recognizes that rapid economic growth and heavy-industry dominated models may not guarantee true progress and can even be detrimental to the environment and society. Thus, they are promoting a shift towards quality economic development that prioritizes sustainability, equity, and social welfare. Through policies, frameworks, and legislative measures that foster green development and encourage the growth of green industries, China is working towards a more harmonious coexistence of mankind and nature. The pursuit of a service-dominated economic model and the promotion of low-carbon transition are further evidence of their vision for a brighter and more sustainable future for all.

6.2. Technology

- (19) Meanwhile, science and technology have also played a vital role. Beijing was the first city in China to establish an urban air quality prediction system, which can accurately analyze sources of PM2.5 and its transmissions. The system has provided a scientific foundation for control and prevention work. (*Beijing declares success in clearing the air, 2022-03-02*)

Example 19 primarily conveys a positive attitude towards the role of science and technology in addressing air quality issues. It mentions that Beijing established an urban air quality prediction system, highlighting the significance of this development. The use of terms like "vital role" and "scientific foundation" indicates a positive emotional essence towards the subject.

- (20) In many ways, China is more advanced than the United States, with modern rail stations and bullet trains, smooth roads, robust electric and other noncombustion engines, and a drive toward sustainable energy and technology that permeates the most rural areas of the country. (*Foreign experts applaud China's new goals, 2017-10-30*)

Example 20 expresses a positive attitude towards China, highlighting its advancements and modern infrastructure compared to the United States. The use of words like "advanced," "smooth roads," "robust," "drive towards sustainable energy," and "technology that permeates the most rural areas" conveys a sense of admiration and approval. The overall attitude can be described as appreciative and impressed. It indicates a high level of graduation in the positive attitude expressed towards China. The use of superlatives like "more advanced," "smooth roads," and "robust" suggests a strong intensity of the emotions and attitudes associated with China's progress. The choice of words emphasizes the significant advancements and creates a sense of superiority in comparison to the United States.

The statement emphasizes that China's commitment to sustainable technology and energy is not limited to urban centers but extends to rural areas as well. This observation suggests that the country's focus on

sustainable development is comprehensive and aimed at equitable benefit-sharing. The statement also alludes to China's proactive role in promoting and investing in renewable energy, such as wind and solar power. Overall, the discourse of China Daily portrays China as a global leader in sustainable development, highlighting its achievements in infrastructure, technology, and renewable energy.

7. Conclusion

It could be posited that between 2016 and 2022, the portrayal of China's central government's public image regarding air pollution was discursively created. This construction selectively emphasized certain aspects of air pollution, such as the various forms of pollution (air, water, soil), the diverse actors' roles, as well as socio-political factors to present the government as a powerful entity that is responsible and accountable.

The discourse highlights how environmental issues in China have risen to prominence and been made a priority on the political agenda. The Chinese government has adopted a range of policy measures to address air, soil, and water pollution, including conducting scientific research, implementing laws and regulations focused on pollution prevention and control, and introducing penalties for non-compliance. China's recent focus on establishing an ecological civilization system has prioritized harmonious coexistence between humankind and nature, underpinned by the modernization of the national governance system and a concentration on green development as the hallmark of high-quality development. Although there is still much progress to be made, China's commitment to addressing environmental issues through sound governance and policy measures offers a promising outlook for a cleaner and more sustainable future.

The discourse presented by China Daily regarding the role of people in environmental protection underscores the importance of individuals' attitudes and actions in contributing to the country's environmental goals. The Chinese government recognizes the value of involving the public in ecological conservation efforts and prioritizes their concerns and well-being as a critical component of their agenda. Encouraging individuals to take positive steps towards mitigating negative environmental impacts can aid in building public confidence, promoting individual well-being, and contribute to the country's broader environmental goals.

The discourse portrays the Chinese government's commitment to achieving sustainable and green development by prioritizing sustainability, equity, and social welfare. It emphasizes that rapid economic growth and heavy-industry dominated models may not guarantee true progress and can even be detrimental to the environment and society. Rather, the Chinese government is promoting a shift towards quality economic development that prioritizes environmental protection, social welfare, and equity. The implementation of cutting-edge technologies, data analytics, and extensive research on renewable energy sources is seen as indispensable in addressing the escalating energy demand and environmental issues linked to energy consumption. Furthermore, the discourse highlights the Chinese government's emphasis on achieving balanced and sustainable development for a harmonious coexistence of humankind and nature. Overall, China is depicted as a global leader in sustainable development with its achievements in infrastructure, technology, and renewable energy.

The present study extends the existing research by investigating the discourse surrounding air pollution in the official English-language newspaper, China Daily, during the period from 2016 to 2022. The findings indicate that China's commitment to addressing environmental issues through effective policy measures and robust governance provides a promising outlook for a cleaner and more sustainable future. Future researchers may consider broadening the temporal scope of their data collection efforts and employing a discourse-historical methodology to analyze the resulting corpus. Additionally, conducting a diachronic linguistic examination of this expanded corpus would likely enhance the accuracy of their findings regarding the evolution of discourse on air pollution in China.

Acknowledgements

The authors wish to extend their heartfelt gratitude to two anonymous reviewers for their insightful comments.

There is no conflict of interest affecting the publication of the article in this Journal.

References

- Baker Paul. (2006). Using corpora in discourse analysis. Continuum.
- Baker Paul, and Tony McEnery. (2005). A corpus-based approach to discourses of refugees and asylum seekers in UN and newspaper texts. *Journal of language and politics*, 4(2), 197-226. <https://doi.org/10.1075/jlp.4.2.04bak>
- Biber Douglas, Johansson Stig, Leech Geoffrey, Conrad Susan, & Finegan Edward. (1999). Longman grammar of spoken and written English.
- Bin Xin, and Xiaoli Gao. (2021). Reported Speech in Chinese and English Newspapers: Textual and Pragmatic Functions. Routledge.
- Chen Yumin. (2014). Exploring the attitudinal variations in the Chinese English-language press on the 2013 air pollution incident. *Discourse & Communication*, 8(4), 331-349. <https://doi.org/10.1177/1750481314537574>
- Dahl Trine, & Fløttum Kjersti. (2014). A linguistic framework for studying voices and positions in the climate debate. *Text & Talk*, 34(4), 401-420. <https://doi.org/10.1515/text-2014-0009>
- Day, Kristen. (Ed.). (2005). China's environment and the challenge of sustainable development. ME Sharpe.
- Fairclough, Norman. (1992). *Discourse and Social Change*. Polity Press
- Fairclough, Norman. (2010). *Critical discourse analysis: The critical study of language*. Routledge.

- Fang Zhenming, Kong Xiaoran, Sensoy Ahmet, Cui Xin, & Cheng Feiyang. (2021). Government's awareness of environmental protection and corporate green innovation: A natural experiment from the new environmental protection law in China. *Economic Analysis and Policy*, 70, 294-312. <https://doi.org/10.1016/j.eap.2021.03.003>
- Gu Shuzhong, Xie Meie, & Zhang Xinhua. (2019). *Green transformation and development*. Palgrave Macmillan.
- Hajer, Maarten. (1995). *The politics of environmental discourse: Ecological modernization and the policy process*. Clarendon Press.
- Hang Song, & Zhao Chunguang. (2015). Does environmental management improve enterprise's value? An empirical research based on Chinese listed companies. *Ecological indicators*, 51, 191-196. <https://doi.org/10.1016/j.ecolind.2014.08.020>
- Hansen Anders. (1991). The media and the social construction of the environment. *Media, Culture & Society*, 13(4), 443-458. <https://doi.org/10.1177/016344391013004002>
- Hansen Anders. (2018). *Environment, media and communication*. Routledge.
- Heng Quan. (2018). Navigating China's economic development in the new era: From high-speed to high-quality growth. *China Quarterly of International Strategic Studies*, 4(02), 177-192. <https://doi.org/10.1142/S237740018500161>
- Jin Yana, Andersson Henrik, & Zhang Shiqiu. (2016). Air pollution control policies in China: a retrospective and prospects. *International journal of environmental research and public health*, 13(12), 1219. <https://doi.org/10.3390/ijerph13121219>
- Lester Libby. (2010). *Media and environment: Conflict, politics and the news*. Polity.
- Liu Ming, & Li Chaoyuan. (2017). Competing discursive constructions of China's smog in Chinese and Anglo-American English-language newspapers: A corpus-assisted discourse study. *Discourse & Communication*, 11(4), 386-403. <https://doi.org/10.1177/1750481317707379>
- Li Xingwei, Du Jianguo, & Long Hongyu. (2019). Theoretical framework and formation mechanism of the green development system model in China. *Environmental Development*, 32, 100465. <https://doi.org/10.1016/j.envdev.2019.100465>
- Li Yang. (2018). Study of the effect of environmental education on environmental awareness and environmental attitude based on environmental protection law of the People's Republic of China. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(6), 2277-2285. <https://doi.org/10.29333/ejms-te/105639>
- Liu Shijie, Chu Yangxi., & Hu Jingnan. (2020). Clean air actions and air quality improvements—Beijing-Tianjin-Hebei and surrounding areas, China, 2013– 2019. *China CDC Weekly*, 2(23), 418. <https://doi.org/10.46234/ccdcw2020.107>
- Liu Ye, Xiao Tong, & Wu Wenjie. (2022). Can multiple pathways link urban residential greenspace to subjective well-being among middle-aged and older Chinese adults? *Landscape and Urban Planning*, 223, 104405. <https://doi.org/10.1016/j.landurbplan.2022.104405>
- Ma, Ting, et al. (2020). China's improving inland surface water quality since 2003. *Science advances*, 6(1), eaau3798. <https://doi.org/10.1126/sciadv.aau3798>
- Murakami Akira, Thompson Paul, Hunston Susan, & Vajn Dominik. (2017). 'What is this corpus about?': Using topic modelling to explore a specialised corpus. *Corpora*, 12(2), 243-277. <https://doi.org/10.3366/cor.2017.0118>
- Richards Jack, & Schmidt Richard. (2010). *Longman dictionary of language teaching and applied linguistics*. Longman.
- Shapiro Judith. (2016). *China's environmental challenges*. John Wiley & Sons.
- Sinclair John. (1991). *Corpus, concordance, collocation*. Oxford University Press.
- Song Malin, Xie Qianjiao, & Shen Zhiyang. (2021). Impact of green credit on high-efficiency utilization of energy in China considering environmental constraints. *Energy Policy*, 153, 112267. <https://doi.org/10.1016/j.enpol.2021.112267>
- Su Yi, & Fan Qiming. (2022). Renewable energy technology innovation, industrial structure upgrading and green development from the perspective of China's provinces. *Technological Forecasting and Social Change*, 180, 121727. <https://doi.org/10.1016/j.techfore.2022.121727>
- Teets Jessica. (2018). The power of policy networks in authoritarian regimes: Changing environmental policy in China. *Governance*, 31(1), 125-141. <https://doi.org/10.1111/gove.12280>
- Tilt Bryan. (2006). Perceptions of risk from industrial pollution in China: a comparison of occupational groups. *Human Organization*, 65(2), 115-127. <https://doi.org/10.17730/humo.65.2.69dufcr1hatnpu5v>
- Tilt Bryan, & Xiao Qing. (2010). Media coverage of environmental pollution in the People's Republic of China: responsibility, cover-up and state control. *Media, Culture & Society*, 32(2), 225-245. <https://doi.org/10.1177/0163443709355608>
- Tong Jingrong. (2014). Environmental risks in newspaper coverage: A framing analysis of investigative reports on environmental problems in 10 Chinese newspapers. *Environmental Communication*, 8(3), 345-367. <https://doi.org/10.1080/17524032.2014.898675>
- Wang Guofeng. (2018). A corpus-assisted critical discourse analysis of news reporting on China's air pollution in the official Chinese English-language press. *Discourse & Communication*, 12(6), 645-662. <https://doi.org/10.1177/1750481318771431>
- Wang Guofeng, Wu Xiuzhen, & Li Qiao. (2022). A bibliometric study of news discourse analysis (1988-2020). *Discourse & Communication*, 16(1), 110-128. <https://doi.org/10.1177/17504813211043725>

- Wang Keliang, Ding Lili, Wang Jianmin, & Yang Mian. (2020). Analysis of provincial total-factor air pollution efficiency in China by using context-dependent slacks-based measure considering undesirable outputs. *Natural Hazards*, 104, 1899-1921. <https://doi.org/10.1007/s11069-020-04253-9>
- Wang Lin, Pan Feng, & Li Yingjie. (2022). Evolutionary Game Strategies Analysis of Economic Development and Environmental Protection between Local Governments under Central Supervision Mechanism in China. *Sustainability*, 14(19), 12498. <https://doi.org/10.3390/su141912498>
- Wang Qing, & Yang Zhiming. (2016). Industrial water pollution, water environment treatment, and health risks in China. *Environmental pollution*, 218, 358-365. <https://doi.org/10.1016/j.envpol.2016.07.011>
- Wang Xiaoxiao, Shi Ruiting, & Zhou Ying. (2020). Dynamics of urban sprawl and sustainable development in China. *Socio-Economic Planning Sciences*, 70, 100736. <https://doi.org/10.1016/j.seps.2019.100736>
- Wei, Xinyang, et al. (2020). Research on the Development Status of China's Renewable Energy Industry-The Impact of Capital Structure on Company Performance. *Frontiers in Energy Research*, 8, 71. <https://doi.org/10.3389/fenrg.2020.00071>
- Xie Zhenhua. (2020). China's historical evolution of environmental protection along with the forty years' reform and opening-up. *Environmental Science and Ecotechnology*, 1, 100001. <https://doi.org/10.1016/j.ese.2019.100001>
- Xu Janice Hua. (2012). Online news reports of air quality issues in Beijing. *Telematics and Informatics*, 29(4), 409-417. <https://doi.org/10.1016/j.tele.2011.01.001>
- Yao Qingjiang. (2008). Media use, postmaterialist values, and political interest: The making of Chinese environmentalists and their views on their social environment. *Asian Journal of Communication*, 18(3), 264-279. <https://doi.org/10.1080/01292980802207363>
- Zhang Zhongxiang. (2013). Energy, climate and environmental policy in China: introduction to the special double issue. *Energy & Environment*, 24(7-8), 1201-1207. <https://doi.org/10.1260/0958-305X.24.7-8.1201>
- Zheng Wei, & Walsh Paul Patrick. (2019). Economic growth, urbanization and energy consumption—A provincial level analysis of China. *Energy Economics*, 80, 153-162. <https://doi.org/10.1016/j.eneco.2019.01.004>
- Zhou Xin. (2021). Ecological civilization in China: challenges and strategies. *Capitalism Nature Socialism*, 32(3), 84-99.