



Lexicographic and terminographic exploration of neologisms and water-related concepts for environmental research

**Nosir Mirjonov^{1*}; Mokhitabon Komilova²; Sunnat Qosimov³;
Obidkul Sattorkulov⁴; Yoqubov Diyorbek⁵; Avazyazova Dilfuza⁶;
Latipjonova Malikakhon⁷; Jakhongir Kenjabaev⁸**

Received: 27 August 2025; Revised: 19 October 2025; Accepted: 17 November 2025; Published: 20 December 2025

Abstract

The purpose of this document is to study the use of neologisms, particularly with respect to the environment, and specifically, water. New, complex scenarios of water governance and conservation, combined with global water scarcity, climate change, and sustainability issues, call for new concepts. This study employs neologism addressing and terminography to identify, analyze, and assess these new concepts. This study focuses on the terms water-energy nexus, hydro politics, and blue economy, and analyzes how they entered and assimilated new environmental discourses and gained prominence in policy-making. The study examines the existing academic literature, policy documents, and popular discourses to illustrate how their language adapts to changing and emerging environmental issues. The results indicate that discourse and policy-making shifted to incorporate new neologisms, suggesting that these are no longer purely academic or technical constructs and have instead entered policy-making discourse and broader society. The neologisms introduced into the lexicon of environmental policy show that new, more integrated, or holistic approaches to water management are needed. Also, the study reveals gaps in the current terminological landscape, which can be addressed to provide coherence and consistency in environmental communication. The study is an

1*- Bukhara State Pedagogical Institute, Bukhara, Uzbekistan.

Email: nosirmirjonov8@gmail.com, ORCID: <https://orcid.org/0009-0007-6966-1922>

2- Fergana State University, Fergana, Uzbekistan.

Email: komilovam2991@gmail.com, ORCID: <https://orcid.org/0009-0008-6167-4136>

3- Lecturer, Jizzakh State Pedagogical University, Uzbekistan.

Email: diplomatic.uz@gmail.com, ORCID: <https://orcid.org/0000-0001-6946-0388>

4- Acting Professor, Candidate of Economic Sciences, Head of the Department of Economics, Gulistan State University, Uzbekistan. Email: obidkul_2011@mail.ru, ORCID: <https://orcid.org/0009-0005-4835-7214>

5- Teacher, Department of Fruits and Vegetables, Urgench State University, Uzbekistan.

Email: ykbvdiyor1@gmail.com, ORCID: <https://orcid.org/0009-0006-2829-5922>

6- Mamun University, Urgench City, Uzbekistan.

Email: dilfuzaavazyazova@gmail.com, ORCID: <https://orcid.org/0009-0009-8386-6822>

7- Andijan State University, Andijan, Uzbekistan.

Email: latifjonova96@mail.ru, ORCID: <https://orcid.org/0009-0002-7524-9364>

8- Associate Professor, Faculty of Foreign Philology, Termez State University, Uzbekistan.

Email: jahongirkenjaboyev1@gmail.com, ORCID: <https://orcid.org/0009-0007-9986-0594>

*Corresponding author

DOI: 10.70102/IJARES/V5I2/5-2-76

addition to the expanding field of ecological linguistics by offering insights into the dynamics between language and environmental action, which serve as a basis for future research on the role of language in supporting the global water governance and sustainability endeavor.

Keywords Neologisms, Water management, Environmental discourse, Lexicography, Terminography, Sustainability, Water governance

Introduction

Neologisms are simply new words or phrases that are formed to describe a concept, technology, or phenomenon that the pre-existing vocabulary could not sufficiently explain. Such terms are commonly used in environmental studies to address new ecological issues or scientific, technological, and policy developments. For example, terms such as carbon footprint and climate resilience were initially neologisms but have become common ways to explain critical environmental concepts. On the other hand, water-related concepts refer to terms specifically related to water resources, their management, conservation, pollution, and sustainability (Mishra *et al.*, 2021; Alqadi *et al.*, 2025). Not only do these words imply the use of technical terminology accessible only to a few experts in fields such as hydrology and water management, but they also affect the rest of society, shaping generalized knowledge and guiding the policy-making process (Radhakrishnan *et al.*, 2024).

Environmental research requires the study of neologisms and water-related concepts because language mediates the vision of ideas, policymakers, and grounded actions (Sochacka *et al.*, 2024). As ecological problems such as climate change, water scarcity, and pollution grow, new terms have emerged to

describe the challenges and potential solutions (Jafari and Shokrzadeh, 2013). These words play a vital role in making communication among environmental scientists, policymakers, and the general population more accurate. The phrases ‘water resilience’ and ‘green infrastructure’ speak to and help elevate sustainable water management discourse (Qiao *et al.*, 2022). The phrases explain in detail how to reliably study the history of the threads in the environment to craft a narrative that energizes the audience and addresses the problems.

The objective of this study is to characterize the elements of water and the new expressions in the environment to describe how lexical formation corresponds to their occurrences (Dong, 2024). The primary objective is to understand to what extent new phrases are coined, how they shape public discourse on the environment, and how this impacts the accessibility of decision-making frameworks and policies related to water management and conservation (Pozo-Muñoz *et al.*, 2023). The study will also assess the potential of coined phrases to foster new relationships through communication strategies focused on water management and conservation (Patano and Camarda, 2023). The study thus aims to extend the frontiers of environmental linguistics, focusing on the intricate ways in which language can

be used to bring about environmental change.

Key Contribution

- This research will uncover, describe, and analyze, from a lexicographic and terminographic perspective, newly developed vocabulary about water and its ecosystems over the last few years. It will examine how the vocabulary evolves to address issues of water crises, the environmental impact of climate change, and pollution. Adapting vocabulary to respond to evolving issues will be the focus of the research.
- The purpose of the research is to analyze the newly coined vocabulary and its influence on the environmental policy landscape and the frameworks for Discussion. The study will focus on the impact of language in creating environmental awareness and on its advocacy for water management and sustainability, through terminology and neologisms that address the identified challenges.
- The results will provide background for future studies of the changing language of environmental discourse. Such comparisons help identify areas that require further development in language, and, eventually, this research will inform future studies on the impact of language on environmental policy and citizens' attitudes.

This study is divided into six major sections. To begin with, the Introduction defines neologisms and water-related concepts, highlighting their applicability

in the environmental context and the research's purpose. The Literature Review reviews past research on neologisms in environmental language and on terminology analysis in water management, and identifies gaps in the literature. The Methodology provides information about the data collection process and how sources are selected and examined through lexicographic and terminographic analyses. New terms introduced by water-related phenomena are gathered in the Results section and compared with existing terms to assess their frequency and importance. These findings are discussed in the Discussion, with reference to existing environmental issues and their implications for policy-making and for communicating these findings to the public. Lastly, the Conclusion summarizes the main findings and recommendations on the use of these terms in environmental discourse, thereby contributing to the field of ecological linguistics (Matthews and Popovich, 2025).

Literature Review

The study of neologisms in environmental speech has shown how new words appear in response to changes in environmental problems, such as climate change or water shortages (Imaduddin and Eilks, 2025). These combinations of new terms are used to respond to phenomena that lacked a specific language before or that represent a new development in environmental science and policy. For example, terms such as carbon footprint and greenwashing have become widely used in the context of climate change (Ismail and Ahmad, 2026). Nevertheless, it still lacks a systematic analysis of how new

terms, particularly those related to water, emerge and enter academic and popular discourse (Yang *et al.*, 2023). To enhance communication and develop successful environmental policies, it is essential to understand the development and adoption of these neologisms.

Although many studies have been conducted on water terminology, earlier studies focused on the well-established technical terms used by experts in hydrology and water management. Terms such as aquifer or watershed are highly vital to professionals' work. Still, they may not always be appealing to a broader audience and may not even indicate a more recent environmental issue. As water-related problems such as water scarcity, pollution, and the blue economy become increasingly acute, new terms are needed to capture their dynamic nature. For example, terms such as virtual water and water footprint have originated to refer to the global water movement and the ecological costs of water use, respectively (Rebelo *et al.*, 2021). Nevertheless, few studies have examined the impact of these neologisms on both general conceptualizations and policy decisions.

The literature available does not pay much attention to the fact that terminography, or the study of the definition, classification, and standardization of terms, is a crucial aspect. Although several studies have focused on terminological clarity in particular practices related to water management, the definition of new neologisms in this field is not widely considered across regions and fields. Notions such as hydropolitics and water resilience can be interpreted differently

across cultural or political contexts. These terms could be better explained through a systematic approach to terminography to establish their influence on the Discussion of global water governance. This research gap offers an opportunity to examine how new water-related terms can be adopted and adapted across different regions globally to influence local and international policy.

Lastly, although environmental policy has already received extensive research, little is known about how neologisms have affected the policy-making process, especially in the water sector. New terms are essential to the development of the policy, yet little has been done to examine how they are incorporated into legal and regulatory documents. An example of this is the way language is applied to policy, e.g., the use of terms such as climate-water nexus or sustainable water management, which may provide clues on the effect of language on decision-making and governance (Gurudiwan and Mire, 2024). Examining the implications of integrating new vocabulary for understanding policy implementation also elucidates how language can motivate the implementation of policies related to urgent environmental concerns.

Methodology

The Methodology employed in the research is detailed lexicographic and terminographic analyses of neologisms and water-related terminology in the environmental discourse. To start with, the relevant sources will be chosen based on their role in contributing to the scientific Discussion and to the Discussion among the population regarding environmental issues. These

sources will include academic publications, governmental and legal reports, and ecological periodicals that encompass diverse perspectives on water. Special attention will be paid to identifying recently coined terms related to water scarcity, sustainability, climate resilience, governance, and other water-related dimensions. The sources will be chosen based on their importance to current environmental concerns, their relevance to social systems, and their preeminence in the scholarly and policy fields.

Upon selecting the source, data will be gathered regarding instances of the coined terms and water-related terminology, after which the terms will be cataloged by the specific environmental concern they address. Data analysis procedures will be employed to quantify and distribute the terms above. This will entail frequency analysis to monitor the use of these terms across the chosen sources, and contextual analysis to examine the contexts in which they are applied and the roles they play in shaping environmental discourses. The comparative study will also be carried out, in which the newly coined terms will be contrasted with existing terms related to water to determine whether these neologisms are closing gaps in the current lexicon or redefining existing concepts.

The parameters used to assess the relevance of these neologisms will be based on several factors. They examine the topicality of the terms to contemporary environmental concerns, including water management systems and climate change, and their possible influence on the population and policy-making. These terms will also be

evaluated in their scientific, policy, and popular uses, with their use in high-profile reports or discussions noted. The clarity of these terms in enhancing a common understanding of environmental issues, particularly in articulating complex scientific products to non-experts, will be another important criterion. Finally, this Methodology will provide information on how the new terms define discourse and the actions taken on water-related environmental issues.

Figure 1 demonstrates the systematic procedure for recognizing, examining, and appraising new water-related words (neologisms) in environmental research. It describes an extensive workflow with the Source Selection of academic, governmental, and public media documents. It gives rise to Data Collection, in which neologisms such as 'water footprint' and 'climate-resilient infrastructure' are isolated and divided along environmental lines. The Data Analysis stage uses methods such as frequency and contextual analysis to compare new terms with existing terminology. The next step is Evaluation Criteria, which reviews these terms to assess their relevance, impact, adoption, and clarity in fields such as water management and climate change. The results lead to Results and Insights that will reveal how the new terminology will influence environmental discourse and policy, and to a critical feedback loop that will guide future research and policy implementation. The diagram focuses on the sequence of steps that logically follow, providing a clear visual representation of this interdisciplinary research method.

Lexicographic & Terminographic Exploration: Water-Related Neologisms for Environmental Research

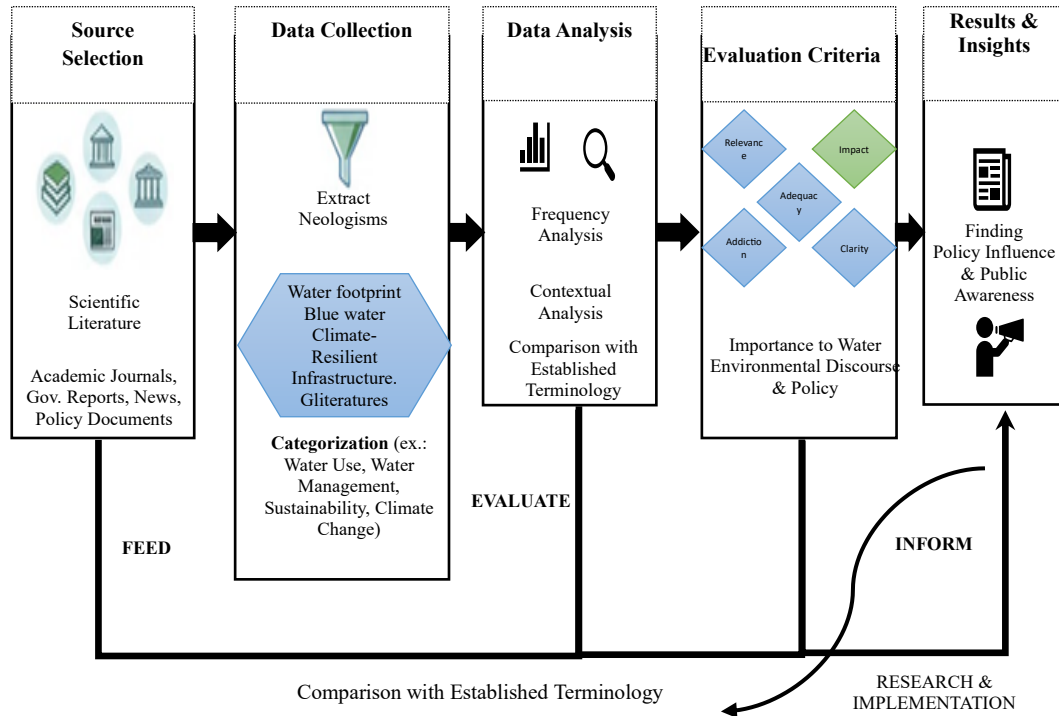


Figure 1: Lexicographic & terminographic exploration: water-related neologisms for environmental research.

Frequency of Occurrence of Terms

$$f_i = \sum_{j=1}^m \text{Occurrences of } t_i \text{ in source } j \quad (1)$$

This equation (1) represents the frequency of a term t_i in the selected sources, where m is the total number of sources, and the sum calculates how often term t_i appears across all sources.

Adoption Rate (Logistic Growth Model)

$$A_i(t) = \frac{L}{1 + e^{-k(t-t_0)}} \quad (2)$$

This equation (2) models the adoption rate of a term t_i over time t using a logistic growth curve, where L is the maximum adoption limit, k is the growth rate, and t_0 is the inflection point when the term starts gaining significant adoption.

Impact Evaluation of Terms

$$I_i = w_1 R_i + w_2 C_i + w_3 f_i \quad (3)$$

This equation (3) calculates the impact I_i of a term t_i , considering its relevance R_i , clarity C_i , and frequency of use f_i , each weighted by w_1, w_2, w_3 to assess how much influence the term has on environmental discourse.

Results & Discussions

The research will present its results section by starting with the listing of new terms that have been coined in reference to water and the environment. A list of neologisms that were found in the course of research work will be prepared in detail. Such terms as water-energy nexus, hydropolitics, and blue economy will be placed in this list, and each of them will

be defined successfully to understand the sense of these terms. In addition, in both terms, the context of application will be given which explains the kind of environmental issues or debates that led to the development of these terms. As an example, one can consider the term water-energy nexus that can be explained as the interdependent nature of water and energy resources and the context of its application might clarify the occurrence

of that name in the context of sustainable energy and water resource management. Examples of the research corpus will be also considered in the results, where the frequency of these terms in environmental literature, policy-making documents, as well as in the public discourse, will help to determine the relevance and importance of these new terms in the area.

Table 1: Newly coined water-related neologisms.

Term	Definition	Frequency of Occurrence (2023)
Water-Energy Nexus	Interconnection between water and energy resources.	15 occurrences
Hydropolitics	Politics of water distribution and access between nations.	8 occurrences
Blue Economy	Economic model using water resources sustainably.	20 occurrences
Water Resilience	Capacity of water systems to adapt to climate-related shocks.	10 occurrences
Virtual Water	Water embedded in the production of goods.	5 occurrences

This table 1 is a summary of significant neologisms regarding the concepts of water and the environment. The terms that have been coined are described in the Term column and the definition of the terms is also explained

in the definition column. Frequency of Occurrence column indicates how many times each of the terms was mentioned in the research sources in 2023, which gives an idea about their use.

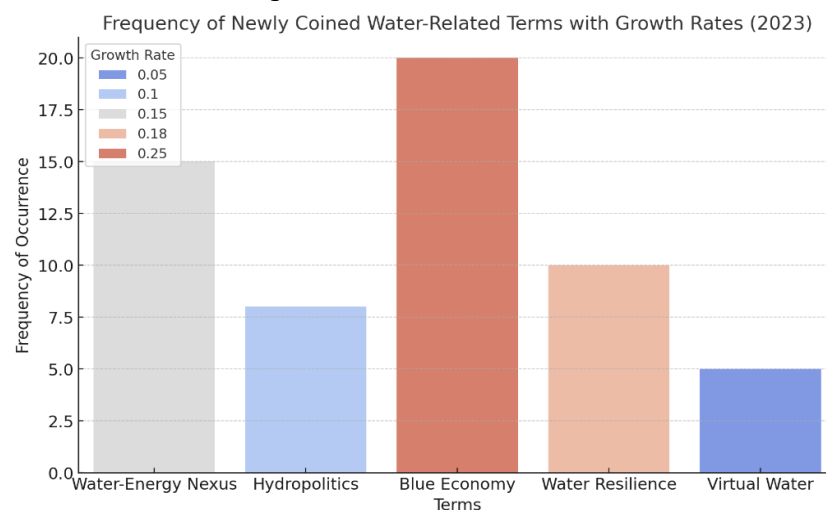


Figure 2: Frequency and growth rate of newly coined water-related terms (2023).

This Figure 2 depicts the count of each of five newly coined water-related terms that have occurred in the year 2023 with

the growth rate of the terminology. The words are represented on the x-axis and the frequency at which they have been

used is displayed on the y-axis. The color gradient shows the rate at which each term is expanding which gives a visual account of the speed at which the terms are being embraced in the environmental discourse. Those terms that have a higher growth are depicted in warmer colors whereas those terms with slower adoption are illustrated in cooler colors. Not only do these terms appear frequently in the literature, but they also have an emerging impact on the subject of water management and environmental policy, as shown in this graph.

After that, the frequency and usage of these neologisms will be analyzed, which will give the understanding of their adoption periods. Through the analysis of the frequency of occurrence of these terms in different sources, the study will be able to monitor the increase in the popularity and the trend of using them. The analysis will entail determination of the terms that were coined over the past few years, monitoring their process of adoption and whether they have taken root in the policy debate, media, and scholarly literature. As an example, a phrase, such as a blue economy, could have begun to be used more often in governmental reports and sustainability models, which could mean that there is a change in the perception of water resources in the framework of economic development models. The analysis will also aim at establishing whether or not these terms have been preserved or have been on the rise within the time, and this could indicate that they are taking on more power in the public and policy agenda. This analysis of the trends in evolution will play a pivotal role in the

analysis of the transforming discourse of water management and sustainability.

Finally, the findings will also involve a comparison of the new terms with the accepted terms in the water management sphere. The given comparison will concern the issue of whether neologisms are coined to seal the lexical gaps or aimed at redefining the current notions. As one example, such a term as hydropolitics could be considered as a continuation of the classic debates concerning water governance in which the focus is put on the political and diplomatic nature of water access and control. It will compare them to discover whether these new terms introduce new differences in meaning or they are similar to existing terminology, and whether, they do so, how they bring a new viewpoint or a new point of view. The study will determine the difference in meaning that these neologisms introduce like a shift in emphasis on certain technical management of water to a more holistic perspective of water management that takes into account social, economic, and environmental aspects. This section of the analysis will also add to the knowledge about how the language is changing to mirror the growing complexity of the environmental issues around water.

Conclusion

This study has offered a lexicographic and terminographic study of newly minted words on water and environmental semiology and how the new neologisms are defining and mirroring changing ecological issues. Also, this research was able to showcase the evolution of vernacular as a product

of global interdisciplinary pressures such as resource and climate change, as well as such lexical items as the water-energy nexus, hydropolitics, blue economy, and others. Over the timeframe of the study, these expressions not only burgeoned in the literature of a given field; they also began to influence literature of policy, environmental governance, and public discourse. The study juxtaposed the terms of the neologisms with the older ones. This sows neologisms as closing the language gaps and freezing the concepts to describe particular environmental phenomena. The study showed the importance of language in formulating and reformulating policies with respect to water and water conservation. Upcoming works might explore these terms as they relate to the expected changes in the environmental policies and people's interactions. Also, more works might target diverse culture and geographical contexts and the neologisms to enrich the vernacular. This would make it possible to come up with a language that is culturally specific and universal. The research offers useful insight on how new terminology has the ability to change the environment and provides ways of encouraging more positive and proactive responses to the global water crisis using the language of sustainability.

Reference

- Alqadi, M., Zaharieva, S., Commichau, A., Disse, M., Koellner, T. and Chiogna, G., 2025.** Developing and Implementing a Decision Support System-Integrated Framework for Evaluating Solar Park Effects on Water-Related Ecosystem Services. *Sustainability*, 17(7), p 3121.
<https://doi.org/10.3390/su17073121>
- Dong, J., 2024.** Knowledge Mapping of Lexicography Research: A Visual Analysis with VOSviewer and CiteSpace. *Journal of Education and Learning*, 13(6), pp.203-217.
- Gurudiwan, P. and Mire, S.K., 2024.** A Review of Pharmaceuticals in Aquatic Environments Risk Assessment and Ecological Impacts. *Natural and Engineering Sciences*, 9(3), pp. 88-99.
<https://doi.org/10.28978/nesciences.1606589>
- Imaduddin, M. and Eilks, I., 2025.** Focusing on Water-Related Ecosystem Services in a Glocalization Perspective: A Potential Pathway to Promoting Chemistry Education, Water Literacy, and Sustainability. *Sustainability & Circularity NOW*, 2(continuous publication).
<https://doi.org/10.1055/a-2727-4918>
- Ismail, L., and Ahmad, M., 2026.** Integrating Biogeochemical Modelling, Artificial Intelligence, and Climate Science: A Multidisciplinary Perspective on the DNDC Framework. *Bridge: Journal of Multidisciplinary Explorations*, 2(2), pp.9-16.
- Jafari, K. and Shokrzadeh, A., 2013.** The investigation of leisure and water center according to architecture approach (a case study: Miandoab city). *environment*, 1.
- Matthews, Z. and Popovich, I., 2025.** A Comprehensive Review of the Ecological, Economic, and Cultural Significance of Urban Wetlands and Their Susceptibility. *Aquatic Ecosystems and Environmental Frontiers*, 3(4), pp. 9-12.

- <https://doi.org/10.70102/AEEF/V3I4/3>
- Mishra, B.K., Kumar, P., Saraswat, C., Chakraborty, S. and Gautam, A., 2021.** Water security in a changing environment: Concept, challenges and solutions. *Water*, 13(4), p.490.
- Patano, M. and Camarda, D., 2023.** Managing Complex Knowledge in Sustainable Planning: A Semantic-Based Model for Multiagent Water-Related Concepts. *Sustainability*, 15(15), 11774.
<https://doi.org/10.3390/su151511774>
- Pozo-Muñoz, M.P., Martín-Gámez, C., Velasco-Martínez, L.C. and Tójar-Hurtado, J.C., 2023.** Research and development of environmental awareness about water in primary education students through their drawings. *Education Sciences*, 13(2), 119.
- Qiao, Y., Chen, Y., Lu, H. and Zhang, J., 2022.** Integrating water-related disaster and environment risks for evaluating spatial-temporal dynamics of water security in urban agglomeration. *Environmental Science and Pollution Research*, 29(38), 58240-58262.
- Radhakrishnan, S., Velanganni, R. and Paranthaman, P., 2024.** Groundwater Management: Integrating Geological and hydrological data for effective decision making. *Archives for technical sciences*, 31(2), 131-139.
<https://doi.org/10.70102/afts.2024.1631.131>
- Rebelo, A.J., Holden, P.B., Esler, K. and New, M.G., 2021.** Benefits of water-related ecological infrastructure investments to support sustainable land-use: a review of evidence from critically water-stressed catchments in South Africa. *Royal Society Open Science*, 8(4), 201402.
- Sochacka, B.A., Renouf, M.A. and Kenway, S.J., 2024.** Water-related live ability assessment: Indicators for evaluation of urban design. *Sustainable Cities and Society*, 101, 105103.
<https://doi.org/10.1016/j.scs.2023.105103>
- Yang, H., Ning, Q., Zhou, H., Lai, N., Song, Q., Ji, Q. and Zeng, Z., 2023.** Digital research on the resilience control of water ecological space under the concept of urban-water coupling. *Frontiers in Environmental Science*, 11, p.1270921.
<https://doi.org/10.3389/fenvs.2023.1270921>