

FUKUSHIMA'S WASTEWATER RELEASE: A CORPUS-BASED ANALYSIS OF THE LEMMA 'WATER' IN THE JAPANESE AND GERMAN PRESS

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Abstract

The objective of this article is to analyze the occurrences of the lemma 'water' within Japanese and German newspaper articles regarding the release of wastewater from the Fukushima Daiichi nuclear power plant. The work was carried out with the aid of two corpora built with the software *NooJ* and containing news on the subject extracted from the online database of six newspapers, *Asahi Shinbun* and *Yomiuri Shinbun* for Japanese, *Die Zeit*, *Süddeutsche Zeitung*, *Der Spiegel* and *Die Welt* for German.

Through both quantitative and qualitative analysis of the headword and the constituents positioned to its left and right, it was possible to delineate two trends in the description of the release, portrayed either as harmless or dangerous thanks to precise linguistic choices and communicative strategies.

The results constitute a step forward in establishing the role of media in influencing public opinion concerning the ever-present and highly politicized debate on the safety of atomic energy.

Keywords wastewater release, Fukushima Daiichi, Japanese press, German press, corpus linguistics.

EL VERTIDO DE AGUAS RESIDUALES DE FUKUSHIMA: UN ANÁLISIS BASADO EN CORPUS DEL LEMA 'AGUA' EN LA PRENSA JAPONESA Y ALEMANA

Resumen

El objetivo de este artículo es analizar todas las ocurrencias del lema 'agua' en artículos de periódicos japoneses y alemanes sobre el vertido de aguas residuales de la central nuclear de Fukushima Daiichi. El trabajo se ha llevado a cabo con ayuda de dos corpus construidos con el software *NooJ* y que contienen noticias sobre el tema extraídas de la base de datos de seis periódicos, *Asahi Shinbun* y *Yomiuri Shinbun* en el caso del japonés, *Die Zeit*, *Süddeutsche Zeitung*, *Der Spiegel* y *Die Welt* en el del alemán.

Mediante el análisis cuantitativo y cualitativo del lema y de los constituyentes situados a su izquierda y a su derecha, fue posible delinear dos tendencias en la descripción del vertido, retratado como inofensivo o como peligroso gracias a elecciones lingüísticas y estrategias comunicativas precisas.

Los resultados constituyen un avance en el establecimiento del papel de los medios de comunicación a la hora de influir en la opinión pública en relación con el siempre presente y muy politizado debate sobre la seguridad de la energía atómica.

Palabras clave vertido de aguas residuales, Fukushima Daiichi, prensa japonesa, prensa alemana, lingüística de corpus.

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1. Introduction

This paper aims to analyze the lemma 'water' occurrences in Japanese and German newspaper articles about releasing wastewater from the Fukushima Daiichi nuclear power plant using corpora constructed by *NooJ*.

The choice of such a topic stems from the desire to dedicate a linguistic analysis to the news coverage of an ecological issue, not only because similar topics occupy more and more media space, gaining increasing social attention, but also because they are often exploited for political or even propaganda purposes.

For this reason, research is deemed necessary to establish the role of the press in influencing public opinion on issues related to the environment: Thanks to precise lexical choices and communication strategies, it is, in fact, possible to influence, even heavily, the perception of events, leading to the formulation of thoughts and judgments not based on objectivity, a criterion that correct journalistic information should respect.

The decision to release the wastewater from the Fukushima power plant is not only the government's responsibility in Tokyo but primarily affects the people of the Japanese archipelago; therefore, the study of the nationwide articles is to be considered of utmost importance.

The choice to include the German language in the research was inspired by the recent energy policy adopted by Germany: Following the events of 2011, the executive led by Angela Merkel (b. 1954) decided to phase out nuclear power, and on April 15, 2023, during the term of the current Chancellor Olaf Scholz (b. 1958), the last operating reactors were permanently shut down. In contrast, although Japan initially opted for a long moratorium, it has been reinvesting in recent years in building state-of-the-art plants and developing safer technology.

Japan and Germany are thus in diametrically opposed situations. Exactly from this premise originated the interest in a contrastive language study aimed at identifying not only possible differences in the representation of the release but also the different ways of contributing to the ever-present and highly politicized debate on exploiting atomic energy.

2. Fukushima's wastewater release

Before delving into the actual linguistic analysis, it is necessary to briefly contextualize the Fukushima wastewater release to better understand the research findings.

The term 'wastewater' concretely refers to seawater fortified with boron used to cool down the four reactors that were damaged during the infamous Fukushima nuclear disaster in March 2011. The entire cooling process required millions of tons of water, which, once encountered the reactor buildings, became radioactive and, posing a danger to the environment and human health, was temporarily stored in thousands of tanks located near the plant (*Figure 1*) (TEPCO, 2024).

Over the past thirteen years, TEPCO (Tokyo Electric Power Company, the firm operating the plant) managed to almost purify the water completely through a decontamination system called ALPS (Advanced Liquid Processing System). However, it was impossible to remove a radioactive substance, tritium, which, according to the International Atomic Energy Agency (IAEA), does not appear to be dangerous (*ibid.*). Therefore, the Japanese government received clearance for the release at sea. The process began on August 24, 2023, and will continue, gradually, for at least another thirty years (*ibid.*).

Probably, if there were a way to remove all radionuclides and thus obtain completely "clean" water, the decision to release it into the Pacific Ocean would not have caused any controversy. As a matter of fact, it is the permanence of tritium that worries fishermen in Fukushima prefecture and the international community (Khadka, 2023).

Despite reassurances from the relevant authorities that a concentration of this radionuclide below 10,000 Bq/L is harmless to human health (*ibid.*), eliminating anxieties inherent in the trauma of the 2011 events is a particularly difficult task.

Fears are also fed by the statements of some scientists who, due to the lack of large-scale studies conducted, obviously due to the exceptional nature of nuclear disasters such as the one at the Daiichi plant, have been uncertain in predicting the impact and long-term consequences tritium may have on the marine ecosystem and, indirectly, on human beings (*ibid.*).

An important contribution to the perception of Fukushima's wastewater as either hazardous or harmless were the reactions and statements of different countries in response to the decision to release it into the sea. As early as April 2021, when the Japanese government presented to the international community the "Basic Policy on the handling of ALPS-treated water stored at the Fukushima Daiichi Nuclear Power Station" (IAEA, 2023), several countries bordering the Pacific Ocean expressed their concerns. Foremost among them is China, which has been sharply critical of the project from the outset, threatening a complete blockade of seafood imports from the archipelago (Taylor, 2021).



Figure 1: Storage tanks for contaminated water at Fukushima Daiichi nuclear power plant, January 20, 2023. © Philip Fong, AFP

Of course, the idea of releasing radioactive water initially raised doubts and misgivings somewhat in states around the world, alarmed at the thought of possible health and environmental consequences. However, after the clearance in July 2023 from the relevant authorities, some countries were in favor of implementing the project, showing support for Japan.

Prominent among them is the U.S.: Indeed, in April 2021, the President's special envoy for climate, John Kerry (b. 1943), clearly described the U.S. position on the issue, expressing absolute confidence in the choices and actions taken by Tokyo (Ahn, 2021). Considering the security data, most governments in the European Union made similar statements to those of the United States. Strongly opposing them were South Korea, Indonesia, Taiwan, the Philippines, and the Republic of China, which attempted during the 2021-2023 biennium to hinder the implementation of the project by threatening serious economic measures.

These alignments, which came into being even before the actual start of the wastewater release, have remained virtually unchanged, with the sole exception of South Korea's position. A month before the release, Minister Bang Moon-kyu (b. 1962) spoke up for Seoul's renewed intentions, declaring himself endorsing Japan's project because, in light of the IAEA task force's comprehensive July 2023 report, for the South Korean government all previous safety concerns had been completely dispelled (Son, 2023).

After August 24, 2023, Indonesia, Taiwan, the Philippines, and other countries bordering the Pacific Ocean again expressed their outrage, making similar remarks to those of China. For example, Solomon Islands Prime Minister Manasseh Sogavare (b. 1955) said the Japanese choice will «impact our people, our ocean, our economy, our livelihood» (*The Hindu*, Aug. 25, 2023). Of the same opinion is the government of the Cook Islands, whose Premier Mark Brown (b. 1963) currently serves as chairman of the Pacific Islands Forum (*ibid.*).

Many analysts and foreign policy experts argue that the emergence of two sides globally regarding the fate of Fukushima's waters is not simply the result of ecological concerns and divergent views. Indeed, in recent years, the Sino-Japanese relationship has been increasingly deteriorating due to the Japanese government's very close relationship with the United States, China's main economic rival. Moreover, Tokyo has repeatedly shown its support for Taiwan, triggering Beijing's displeasure (Wong, 2023). China's allies in the Pacific would choose to support the line of thinking of the most influential state, just as countries under strong U.S. influence, including the European Union, have done.

Following the logic of this analysis, the release of wastewater would thus take on the role of a pretext for measures in the economic field and the strengthening of certain interstate relations; therefore, it turns out to be a highly politicized event, the subject of media interest and, in a sense, propaganda as well.

While the reactions of different states around the world may also have been dictated by purely political reasons, the protests organized by ecologists, intent on protecting the Pacific Ocean from potentially harmful substances, appear to be of a different matrix.

A few days before the release, Greenpeace, probably the most famous global environmental organization, expressed its negative opinion on the matter, stating that the Japanese choice «disregards scientific evidence, violates the human rights of communities in Japan and the Pacific region, and is non-compliant with international maritime law; moreover, it ignores the concerns of the public, including fishermen» (Greenpeace, 2023). In addition, TEPCO and the Tokyo government have been accused of «falsely asserting that there is no alternative to the release decision to discharge» (*ibid.*). For Greenpeace, then, Fukushima's water release is nothing more than «deliberate pollution of the marine environment», an action that violates international law, as it «does not comply with the recent UN Council Resolution 48/13, which in 2021 determined that it is a human right to have a clean, healthy and sustainable environment» (*ibid.*). With similar arguments, many demonstrators in different countries – South Korea, New Zealand, Fiji Islands, Micronesia, China, and Japan – took to the streets.

The news received considerable media attention, especially in Asia and Europe. Germany was indeed one of the European countries to devote the most space to news on the subject, no doubt abetted by the ruling majority's anti-nuclear line and the shutdown of the reactors that took place a few months before the release began.

3. Research methods

The analysis conducted in this paper was carried out by relying on two digital corpora created using the software *NooJ*. Since corpora are always built to represent a certain situation using the language employed in that context, their content is selected based on the communicative function it serves (Barbera, 2013).

In the case of the present work, texts were chosen considering the medium in which they were contained (online newspapers) and the subject matter (the release of water from the Fukushima nuclear power plant). Both corpora's dimensions are 60.000 words.

The newspapers chosen for Japanese were *Asahi Shinbun* and *Yomiuri Shinbun*; those selected for German were *Der Spiegel*, *Die Welt*, *Süddeutsche Zeitung*, and *Die Zeit*. There were two main reasons for opting for them. The first is related to the coverage: Indeed, these are among the most popular newspapers both in Japan and Germany, rendering them representative of the media landscape. The second has to do with political orientation. Since it is often difficult to separate the nuclear debate from historical stances and propagandistic intentions, newspapers with different political leanings were chosen: *Yomiuri Shinbun* and *Die Welt* are conservative in outlook, while the *Asahi Shinbun*, *Süddeutsche Zeitung*, and *Die Zeit* are liberal in influence. It was also decided to include the weekly *Der Spiegel* because, although historically attested to center-left positions, it has an unmistakable polemical style and often carries out in-depth investigations, sparing no one in its scathing criticism.

By selecting a balanced number of texts for each political position, an attempt was therefore made to present the issue of the Fukushima water release as neutrally and objectively as possible.

All articles were selected from the online database of the newspapers by searching for the keyword 福島第一原発事故 (*Fukushima Daiichi genpatsu jiko*, Fukushima Daiichi nuclear

accident) for Japanese, and simply *Fukushima* for German, to identify texts potentially related to the topic of the release but without directly including ‘water’ as a headword. This approach was taken because an explicit search based on terms such as ‘wastewater’ would not have provided a reliable picture of how much space the topic occupied in the post-Fukushima-focused press.

The year of publication of the texts included in the corpora is 2023; one half was written before August 24, while the other refers to the following months. Developments and events after December 31, 2023, were not taken into account to write this paper.

The analysis was conducted by first applying a quantitative approach, for which data collection using *NooJ* regular expressions and syntactic grammars proved to be of paramount importance. The achieved results were then deepened and contextualized qualitatively through a meticulous reading of the texts.

For both languages, three grammatical categories were analyzed: Verbs, nouns, and qualifying adjectives. However, considering the morphological and grammatical differences between the two languages, once statistics were collected, it was deemed more effective to divide the analysis based on the function of certain grammatical categories and not the grammatical categories themselves.

4. Describing actions, decisions, and measures

Verbs, in both languages, serve a similar function: Describing actions, decisions, and measures taken by the Japanese government, TEPCO, or the various international institutions. This conclusion was reached by analyzing the results collected with *NooJ*: firstly, all occurrences of the lemma 水 (*mizu, sui*) for Japanese and *Wasser* for German were gathered¹, and by checking the left and right phrasal context, it was possible to delineate which verbs were used most frequently concerning the wastewater release. An example of the used syntactic grammars, which are rather simple since the object of analysis is a single word, can be found in *Figure 2*. The most recurring occurrences, translated into English, are summarized in *Figure 3* and *Figure 4*.

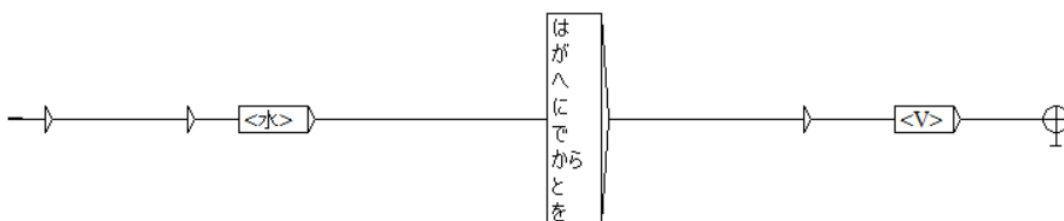


Figure 2: Example of one of the syntactic grammars built to detect verbs related to the lemma ‘water’ in the Japanese corpus.

Semantically, the most frequent verbs are neutral and do not have inherently negative or positive meanings. The analysis of all verbal occurrences showed a tendency for Japanese articles to list measures to avoid release-related problems more precisely (most likely to emphasize the government-sponsored prevention work). Nevertheless, for both languages, the verbal locutions are generally limited to playing a descriptive role and do not represent the grammar class that conveys the most information about the characteristics of wastewater.

However, three aspects emerged from the linguistic analysis that are worth mentioning contrastively. The first of them is the more frequent use of verbal forms in German than in Japanese, where the nominal style remains predominant. The most recurring predicates are, respectively, ‘to release into the sea’ (73 occurrences) and ‘to dilute’ (13 occurrences): The gap, in quantitative terms, is clear.

The nominal style can explain such statistical observation and ellipses typical of the Japanese journalistic language, for which exist conventions, part of the so-called *midashi no bunpō* (見出し

¹ In the Japanese corpus, the lemma for ‘water’, 水 (*mizu, sui*) occurred 1117 times (1.9% of all lemmas in the corpus). In the German corpus, the lemma for ‘water’, *Wasser*, was used 791 times (1,3% of all lemmas in the corpus).

の文法, grammar of headlines), that are scrupulously observed both to “save” space in the pages of newspapers and magazines in print or digital format and to capture the attention and interest of the recipient more easily (Noguchi, 2002).

Substantial differences between the two languages also emerged in the use of modal verbs: They were hardly ever used in Japanese articles (0.6%) but played a relevant role in German ones (11.3%).

In German, the use of this category is one of the fundamental linguistic means of journalistic language (*Pressesprache*), since it is precisely through this mode that «the speaker’s opinions on the validity of the facts to which the statement refers are expressed» (Bußmann, 2002: p. 438). As far as the passive form is concerned, a smaller gap was found between the two languages: 14% in the case of Japanese, and 24% in the case of German.

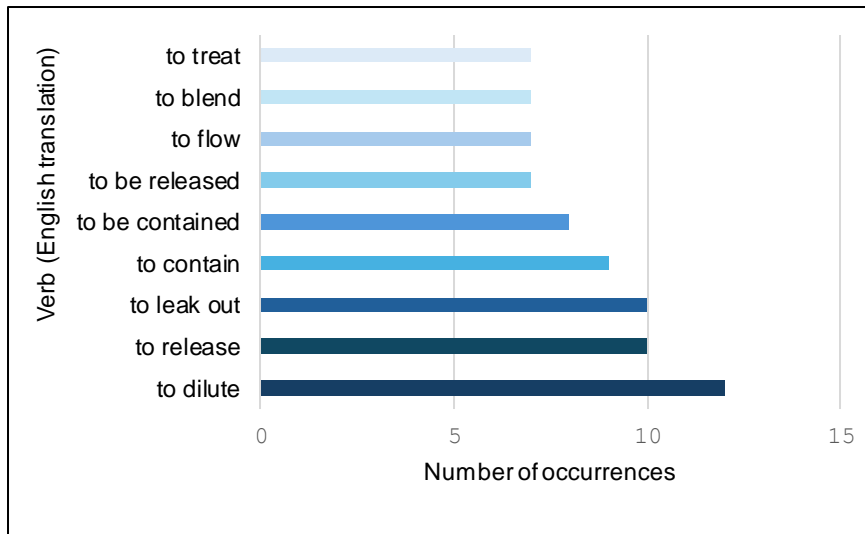


Figure 3: Number of occurrences of verbs related to the lemma ‘water’ in the Japanese corpus.

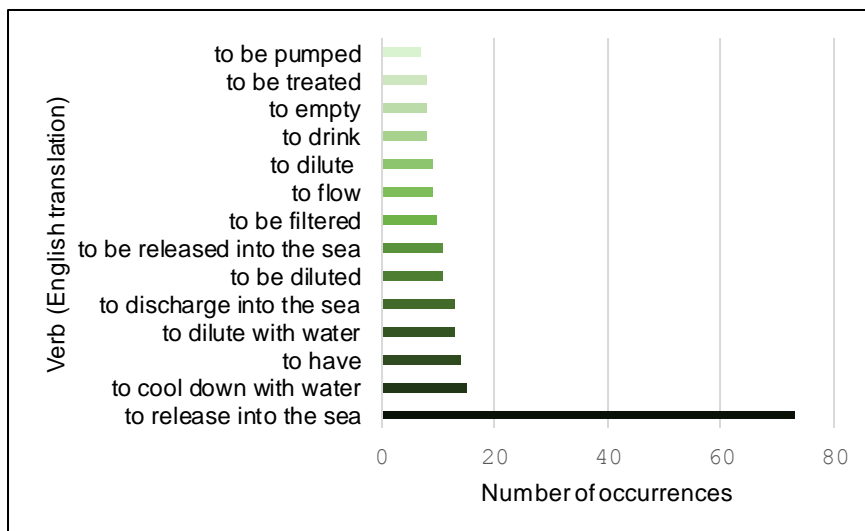


Figure 4: Number of occurrences of verbs related to the lemma ‘water’ in the German corpus.

5. Describing the context and circumstances

In both journalistic corpora, it is mainly up to the nouns placed to the right or left of the headword ‘water’ to contextualize the events in Fukushima. The most common terms are listed in Figure 5.

The linguistic analysis reveals several similarities concerning choices in both the Japanese and German articles. In fact, three main semantic fields, common to both corpora, have been identified to which words often associated with ‘water’ belong:

1. Marine environment.
2. Energy and nuclear power plants.
3. Measures and provisions.

In the case of German, the semantic fields, although they are very similar to the ones of Japanese, contain a greater variety of nouns. It was noted that words related to the field of atomic energy, in addition to being quantitatively more, belong to the scientific lexicon and are therefore typical of the sectoral language, whereas, in the *Asahi* and *Yomiuri Shinbun* articles, this was avoided.

JAPANESE TERM	ENGLISH TRANSLATION	OCCURRENCES
放出 (<i>hōshutsu</i>)	release	223
問題 (<i>mondai</i>)	problem	199
海洋放出 (<i>kaiyōhōshutsu</i>)	release into the ocean	162
GERMAN TERM	ENGLISH TRANSLATION	OCCURRENCES
<i>Meer</i>	sea	61
<i>Japan</i>	Japan	55
<i>Einleitung</i>	discharge	45
<i>Atomruine Fukushima</i>	Fukushima’s nuclear ruins	42
<i>Tonnen</i>	tons	25
<i>Kernkraftwerk</i>	nuclear power plant	21
<i>Atomkraftwerk</i>	nuclear power plant	20

Figure 5: Most frequent nouns associated with the lemma ‘water’ in both corpora.

The noun that appears most frequently in the Japanese corpus is 放出 (*hōshutsu*) ‘release’; on the surface, its German counterpart, *Freisetzung*, seems extremely less often used (8 occurrences).

However, it is worth noting that release, in German, is also mentioned with the help of numerous synonyms such as *Einleitung* (discharge, 49), *Einleiten* (discharge, 2), *Verklappung* (discharge, 22) and *Ableitung* (discharge, 15), the extremely recurrent verbal locution *ins Meer leiten* (73) and predicates of similar meaning (*verklappen*, *einleiten*, *freisetzen*, *ableiten*). Adding up these results, one realizes that the concept of release is equally relevant in both corpora.

By contrast, the noun meaning ‘problem’, the second most frequent in *Yomiuri* and *Asahi*, appears much less often in the German titles: Occurrences of *mondai* are 199, while *Problem* appears only 9 times, suggesting a more urgent concern about the consequences of the release by the

Japanese media. This figure finds justification in the fact that Fukushima’s water release could have serious repercussions – not only environmentally, but also geopolitically and economically – first and foremost for Japan.

Among the nouns placed to the right or left of the lemma ‘water’ words that are useful in contextualizing the matter geographically are repeated several times in the German corpus; it is not for nothing that the term most frequently preceding *Wasser* is *Japan* (Japan).

Other names with the same function are *Fukushima*, *japanische Regierung* (Japanese government), *China* (China), *Pazifik* (Pacific), *AKW-Fukushima* and synonyms (Fukushima nuclear power plant), and *Tokio* (Tokyo). The need for frequent repetition of this information does not exist in Japanese articles: The mere mention of 処理水 (*shorisui*, treated water) alone immediately hints at the fate of the Fukushima Daiichi wastewater, a topic that occupies the pages, digital or otherwise, of national newspapers daily.

Although, in the German articles, the complex relationship between Tokyo and Beijing is also mentioned quite often, in the case of *Asahi* and *Yomiuri* the economic rivalry and opposed views of Japan and China are repeated again and again, getting reflected in the frequency of names such as 中国 (*Chūgoku*, China), 中国政府 (*Chūgoku seifu*, Chinese government), 中国の代表 (*chūgoku no daihyō*, Chinese representation), 中国政府や国営メディア, (*Chūgoku seifu ya kokuei media*, Chinese government and media), 習氏平 (*Shī Jinpin*, Xi Jinping), and 中国国営新華社通信 (*Chūgoku Kokuei Shinkasha Tsūshin*, Xinhua Chinese News Agency).

6. Fukushima’s wastewater: Harmless or dangerous?

The most interesting result of the conducted linguistic analysis concerns the description of the characteristics of Fukushima’s wastewater. In Japanese, the grammatical category that conveys this information is the one of nouns, while in German it is the one of adjectives. An example of the used syntactic grammars can be found in *Figure 6*.

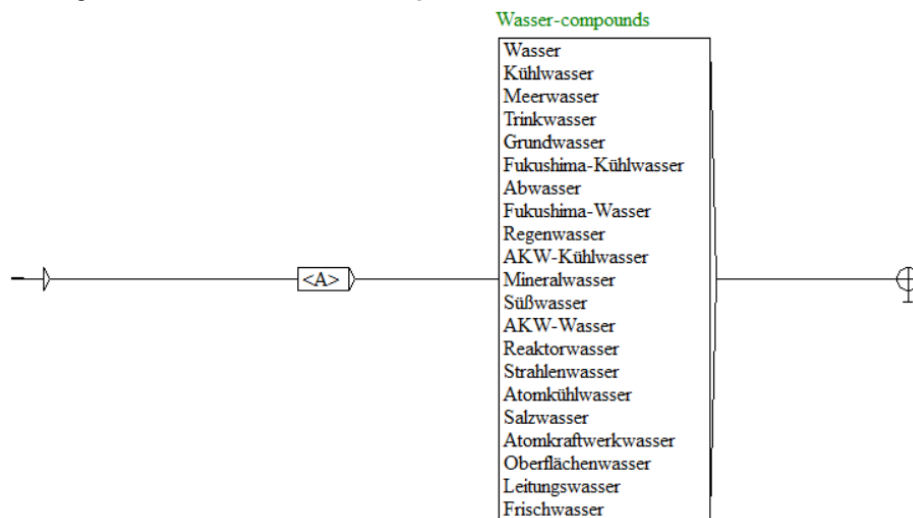


Figure 6: Syntactic grammar built to detect adjectives related to the lemma ‘water’ in the German corpus.

To sum up best what emerged from the statistics, even on a purely visual level, the graphs referring to water qualities are displayed below (*Figure 8* and *Figure 9*); the data on which they are based are essential for understanding the line of thought pursued by the newspapers under consideration.

On one hand, as one can see from the graphs, *Asahi Shinbun* and *Yomiuri Shinbun* mainly chose the term 処理水 (*shorisui*, treated water), within 88% of the occurrences. The 12% occurrence of 汚染水 (*osensui*, contaminated water) detected loses statistical weight when, through the quantitative analysis, one realizes that this expression is used only to report “erroneous or misleading statements” from China or political opponents. Indeed, as can be noticed from the analysis of the standard score (*Figure 7*), a very prominent use of the expression 汚染水 occurs in articles published in the first half of August, corresponding to the most heated moment of the debate before the actual release, and to the harshest statements from China. The position of

Japanese newspapers is clear and impossible to misunderstand: Fukushima's wastewater is harmless and the decisions of TEPCO and the government can be relied upon. On the other hand, as far as *Die Zeit*, *Der Spiegel*, *Die Welt*, and *Süddeutsche Zeitung* are concerned, the idea of *aufbereitetes Wasser* (treated water) outweighs that of *kontaminiertes Wasser* (contaminated water) only by a few percentage points.

Considering all newspapers, thus respecting the criterion of political neutrality on which the construction of the corpora and, consequently, the entire analysis was based, it can be stated that there is a slight tendency for the release to be more often represented as safe. However, adjectives expressing its potential dangerousness are not omitted, as in the case of Japanese, but, rather, are used almost as frequently.

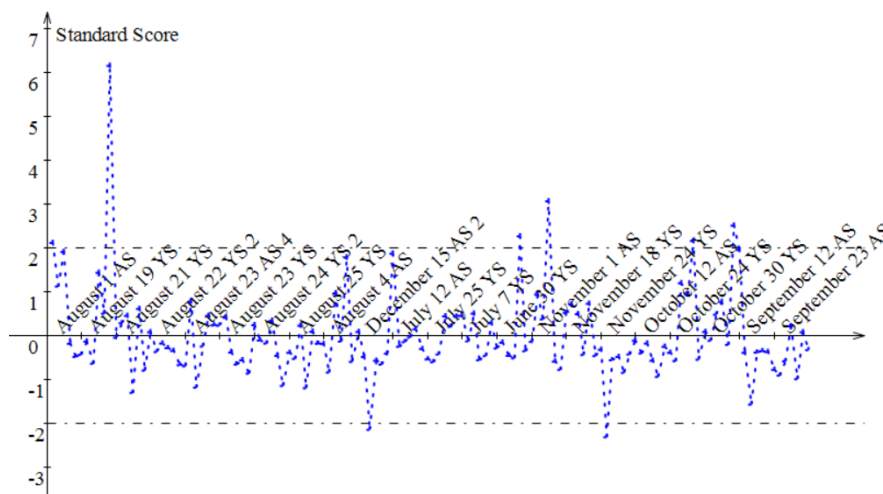


Figure 7: Standard score of the expression '汚染水' (contaminated water) in the Japanese corpus. The names of the newspapers are represented by the abbreviations AS (Asahi Shinbun) and YS (Yomiuri Shinbun).

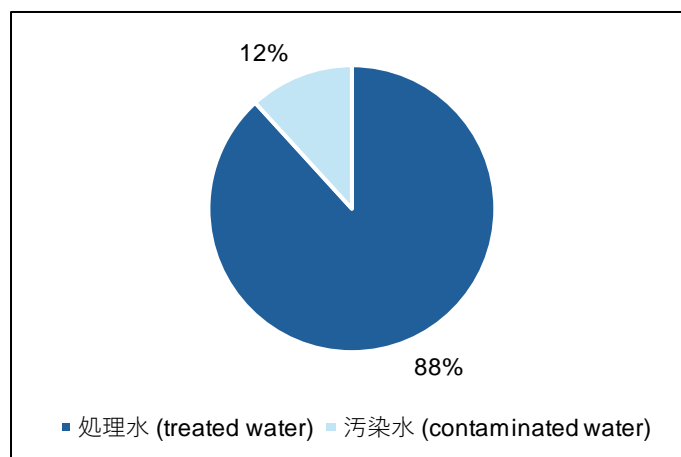


Figure 8: Frequency of the terms '処理水' and '汚染水' in the Japanese corpus.

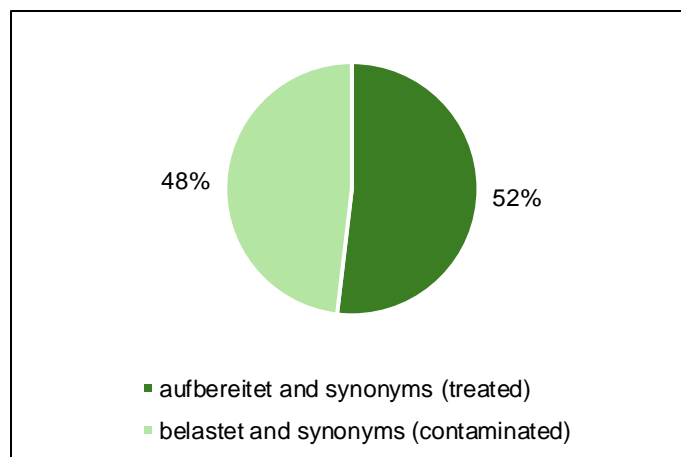


Figure 9: Frequency of the expressions 'aufbereitetes Wasser' and 'belastetes Wasser' in the German corpus.

7. Differences among newspapers

The different views on Fukushima's water release, which emerged more or less explicitly from the articles in the six newspapers, are briefly mentioned in these last considerations.

In the case of *Yomiuri* and *Asahi Shinbun*, despite the conservative orientation of the former and the liberal orientation of the latter, it was noted that keywords and recurring expressions were always similar, if not identical, and no substantial differences were found in describing the release plan, developments before and after August 24, 2023, as well as possible environmental or geopolitical consequences.

In light of the data extrapolated from the Japanese-language corpus and the in-depth reading of all the articles in it, it can be stated that there was no tendency observed in either newspaper to use "controversial" terms such as 汚染水 (*osensui*) significantly more often, thus demonstrating a kind of "ideological alignment" on the issue that probably also stems from trust in continuous international scientific monitoring and the government's promise to act as transparently as possible after what happened in 2011.

As for the German-language corpus more diversified stances were faced. The press does not avoid a priori negative comments on the release plan promoted by Japan as is the case with *Asahi* and *Yomiuri*, and what happened in Fukushima was narrated by giving space not only to considerations about the health of the population but also to environmentalist reflections, without silencing concerns and perplexities of those who oppose the release.

Consistent with expectations, the media outlet that adopted a decidedly more polemical tone was *Der Spiegel*. Indeed, in its articles, there was no shortage of criticism of the release, sometimes openly described as risky. Of course, this aspect emerges not only from *Wasser's* linguistic analysis but also from reading the texts in full.

However, intending to stick to the central point of the present paper, the frequency of the qualifying adjectives 'treated' (*aufbereitet* and synonyms) and 'contaminated' (*kontaminiert* and synonyms) can be brought as an example, through which the differences of opinion can already be noted (see *Figure 10*).

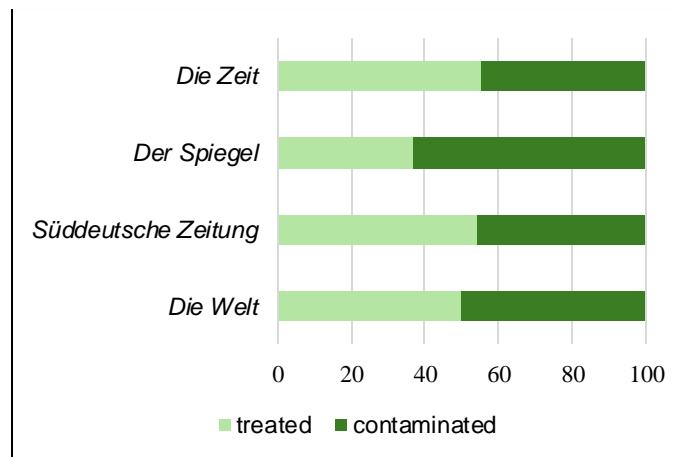


Figure 10: Comparison in the use of the expressions 'contaminated water' and 'treated water' in the German press (percentage).

If for *Die Welt*, a conservative-oriented newspaper, the percentage of negative attributes of *Wasser* is around 50%, in the case of *Der Spiegel*, adjectives translatable as 'contaminated' were used in 63% of cases. On the other hand, as far as *Die Zeit* and *Süddeutsche Zeitung* are concerned, the choice of adjectives such as *aufbereitet* or *behandelt* (treated) is higher than expected (55% and 54%, respectively) considering the liberal orientation of the newspapers which, following the traditional polarization of the debate, would see the political right tending to be in favor and the left against the exploitation of nuclear power.

Nonetheless, excessive use of the expression 'contaminated water' would perhaps have reflected an attitude of total and unprofessional disregard for the opinion of the International Atomic Energy Agency, which, representing the highest authority on the subject, cannot be ignored either at the scientific level or at the level of journalistic communication, which would otherwise result in damaged credibility.

8. Conclusions

In Japan, the wounds left by the events at Fukushima have not yet fully recovered, and the fear that a disaster of such magnitude could happen again continues to generate public misgivings about the actions of TEPCO and the government. Trying to keep their promise of absolute transparency, the authorities have been committed for thirteen years now to constantly update the public on the progress of the plant's decommissioning plan. In this context, because of the health and environmental implications, the release of wastewater is the phase of the project that causes the most concern and is therefore given extensive media coverage daily.

Through the data collected, it was found that the lexical choices made, the communication strategies followed, and the use of very similar headlines regardless of the political orientation of the newspaper, in addition to being symptomatic of a rather explicit ideological alignment, contributed largely to reassuring the population about water security and, at the same time, allowing the regaining of trust in institutions lost in 2011.

Aside from its significance in Japan, Fukushima's disaster's aftermath continues to impact governmental decisions and spark anti-nuclear protests worldwide. Germany is a notable example, as the ongoing media coverage of the events in Japan indicates sustained interest and prompts reflection on domestic policy matters.

The analysis of the German articles showed that there was no shortage of judgments about the quality of the water and the danger its release into the ocean could pose. However, an unambiguous communicative strategy was not followed, as in the case of *Yomiuri* and *Asahi Shinbun*. Taking all four newspapers together, the press gave voice to both negative and positive views on TEPCO's plans, thus allowing potential readers to inform themselves without omitting controversial points of view.

Fukushima's wastewater release had consequences for the international geopolitical order, economic relations among Pacific states, and Japan's reputation. Moreover, this study confirms the hypothesis that environmental issues are being instrumentalized for political purposes, turning into something far removed from the mere expression of ecological concern: A pretext on which to base trade disputes and a solid argument for, or against, the exploitation of nuclear energy.

9. References

Barbera, Manuel; Corino, Elisa; Onesti, Cristina (2007) (edited by). "Corpora e linguistica in rete". In: *L'officina della lingua. Strumenti*. Perugia: Guerra Edizioni.

Bußmann, Hadumod (2002). *Lexikon der Sprachwissenschaft*. Stuttgart: Kröner.

Noguchi, Takao (2002). "Midashi no bunpō – kaidoku e no tebiki to shomondai". In: *Koza nihongo kyōiku*, (38), 94-124.

10. Online references

Ahn, Sung-mi (2021). "Kerry backs Japan's wastewater release, rules out US intervention", *The Korea Herald*, 18th of April 2021, available at the link:

<https://www.koreaherald.com/view.php?ud=20210418000196>

Greenpeace (2023). "Japan announces date for Fukushima radioactive water release", 22nd of August 2023, available at the link:

<https://www.greenpeace.org/international/press-release/61364/japan-announces-date-for-fukushima-radioactive-water-release>

International Atomic Energy Agency (IAEA) (2023). "IAEA Finds Japan's Plans to Release Treated Water into the Sea at Fukushima Consistent with International Safety Standards", 4th of July 2023, available at the link:

<https://www.iaea.org/newscenter/pressreleases/iaea-finds-japans-plans-to-release-treated-water-into-the-sea-at-fukushima-consistent-with-international-safety-standards>

Khadka, Navin Singh (2023). "The science behind the Fukushima wastewater release", *BBC World Service*, 26th of August 2023, available at the link:

<https://www.bbc.com/news/world-asia-66610977>

Son, Ji-hyoung (2023). "Seoul says no scientific problems with Fukushima release plan", *The Korea Herald*, 22nd of August 2023, available at the link:

<https://www.koreaherald.com/view.php?ud=20230822000656>

Taylor, Adam (2023). "China to Japanese official: If treated radioactive water from Fukushima is safe, 'please drink it'", *The Washington Post*, 14th of April 2021, available at the link:

<https://www.washingtonpost.com/world/2021/04/14/china-japan-fukushima-water-drink/>

The Hindu (2023). "China's allies lead Pacific criticism of Fukushima water release", *The Hindu*, 25th of August 2023, available at the link:

<https://www.thehindu.com/news/international/chinas-allies-lead-pacific-criticism-of-fukushima-water-release/article67235230.ece>

Tokyo Electric Power Company (TEPCO) (2024). "Roadmap on the Way to Decommissioning", available at the link:

<https://www.tepco.co.jp/en/hd/decommission/project/roadmap/index-e.html>

Wong, Tessa (2023). "Fukushima: China retaliates as Japan releases treated nuclear water", *BBC News*, 24th of August 2023, available at the link:

<https://www.bbc.com/news/world-asia-66577769>