

**Framing Disaster: A Content Analysis of Differences in News Media Coverage about  
Fukushima Nuclear Incident in 2011 and 2021**

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In March 2011, Japan suffered a devastating nuclear disaster at the Fukushima Daiichi nuclear power plant, which was caused by a strong earthquake and tsunami. The incident severely damaged the power system of the plant and led to the release of radioactive material into the surrounding environment (Mazahir et al., 2019). Ten years later, with the Japanese government approving the discharge of radioactive water into the Pacific Ocean, it has again attracted widespread domestic and international media attention and raised concerns about exposure to contamination in all countries. The Fukushima incident has had far-reaching impacts on public health, environmental sustainability, and countries' nuclear energy policies, with the media playing a key role in shaping the narrative, political response, and public perception of the disaster. Therefore, studying key frames of media coverage of the Fukushima nuclear disaster will have significant implications for future nuclear energy and policymaking, while also providing valuable insights into disaster coverage in the affected countries and beyond.

The research question in this essay is framed in terms of consequences, international conflict, responsibility, and solutions, with the aim of investigating what differences there are in the media coverage of the Fukushima nuclear disaster in 2011 and the radioactive wastewater discharges in 2021 and critically discussing the potential reasons for the differences. Firstly, the methodology employed in this study will be briefly introduced. Secondly, the findings of the frames will be analysed, and the characteristics of each frame will be examined through content analysis. Then, combining the insights of relevant scholars, the factors that caused the differences and the focus of media coverage of these disasters will be explored in detail. Finally, conclusions will be drawn with the limitations of this study

noted.

## Methodology

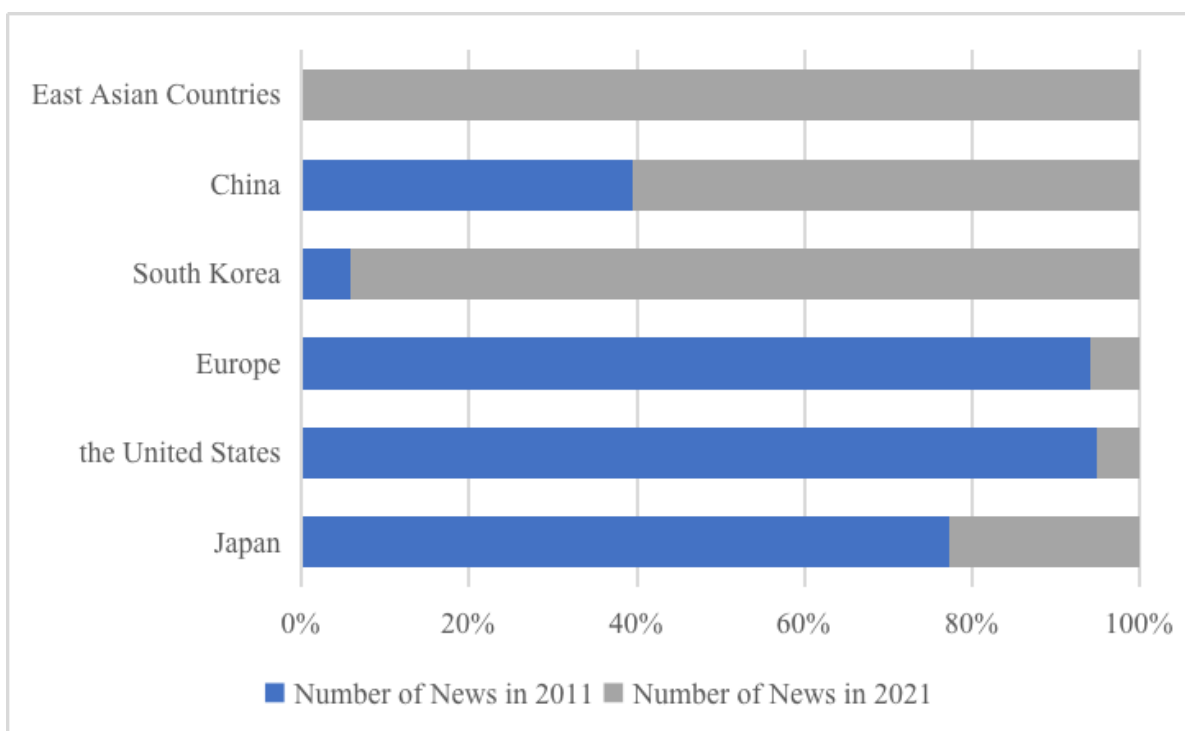
The study conducted a content analysis using frames on a sample of online news articles related to the 2011 Fukushima nuclear disaster and radioactive wastewater discharges in 2021, sourced from the Factiva database. The analysis focused on the one-month period following these incidents, using a random number generator to select 25 articles from each of the two time periods.

## Findings

This study aims to analyse how the news media framed the Fukushima nuclear disaster and the differences between the two periods.

### Figure 1

*Differences between the Areas Mentioned in 2011 and 2021*



**Table 1***Differences between the Areas Mentioned in 2011 and 2021*

Areas Mentioned	East Asian Countries	China	South Korea	Europe	The United States	Japan
Number of News in 2011	0	15	5	16	109	820
Number of News in 2021	49	23	80	1	6	241
Difference	49	8	75	-15	-103	-579

By applying the search terms to Factiva, namely 'Fukushima and nuclear disaster' in 2011 and 'Fukushima and Radioactive Water and discharge' in 2021, Figure 1 shows a gradual shift in the geographical focus of the news media from the US and Europe to East Asian countries such as South Korea and China in both incidents. Specifically, the US saw the largest decline in mentions, down 103 times, while South Korea saw the largest increase 75 times. Meanwhile, the affected country, Japan, experienced a decrease in mentions in news coverage.

It can be argued that, in 2021, most Western countries have stayed deliberately silent or accepting of Japan's decision on radioactive wastewater. Therefore, the news media turned their focus to those countries whose neighbouring seas or industrial chains were affected by this decision. South Korea, for example, actively opposed the controversial plan, claiming that it was developed without adequate coordination with its neighbours and expressing doubts about the reliability of the safety data on nuclear wastewater provided by the Japanese government (Seung-woo, 2021).

**Table 2***Usage of Frames by News Media Coverage*

<b>Frames</b>		<b>2011</b>	<b>2021</b>
<b>Fukushima nuclear disaster</b>	Consequences	15 (60%)	5 (20%)
	International Conflict	3 (12%)	16 (64%)
	Responsibility	6 (24%)	2 (8%)
	Solutions	1 (4%)	2 (8%)
	<b>Total</b>	<b>25</b>	<b>25</b>

According to the data in Table 2, the most popular frame in the 2011 coverage was the consequences frame, which was mentioned 15 times, or 60 % of the total frames. In contrast, news in 2021 focused more on international conflicts accounting for 64 % of the total frames, while the consequences frame dropped to 20% of the total frames mentioned, placing it second in the ranking.

It can be inferred from this that in the initial coverage, the news media placed more emphasis on the human consequences of the first nuclear disaster and the general perception of nuclear energy and related policies of countries. Over time, however, the focus shifted to potential conflicts caused by the discharge of nuclear wastewater as a trigger, especially among neighbouring countries that have tensions with the Japanese government and are heavily influenced by its decisions.

In terms of the frame of solutions, there was less emphasis in both periods, focusing

mainly on actions taken by international organizations such as the IAEA. This suggests that the news media were limited in their access to information about disaster solutions. The reasons for this phenomenon will be revealed in detail in the discussion section.

The three most represented frames are then expanded in detail, which are the consequences frame for 2011 and 2021, the responsibility frame for 2011 and the international conflict frame for 2021

**Table 3**

*The Extensions of the Consequences Frame Mentioned in 2011 and 2021*

<b>The Extensions of the Consequences Frame Mentioned</b>	<b>2011</b>	<b>2021</b>
Consequences for Economy	4 (27%)	1 (20%)
Consequences for the Country's Nuclear Power Policy	3 (20%)	1 (20%)
Consequences for Anti-nuclear Energy Green Groups (for the Environment)	2 (13%)	3 (60%)
Consequences for Injured	6 (40%)	0 (0%)
<b>Total</b>	<b>15</b>	<b>5</b>

Specifically, in the 2011 consequences frame, the news media focused mainly on the impact of the nuclear incident on the injured. These included their forced removal from their homes, high levels of radiation exposure and psychological trauma. However, in 2021 there was a major shift to the environmental and economic impact of the nuclear accident on activities such as the marine food chain, agriculture, and fisheries. Both periods had impacts on the nuclear energy policies of other countries, with observations showing that the influences in 2011 are mainly concentrated in many Western countries that pride themselves

on nuclear energy technology, such as Germany and the United States, while the effects in 2021 mainly concern smaller areas such as Taiwan and Hong Kong, but close to Japan.

**Table 4**

*The Extensions of the International Conflict Frame Mentioned in 2021*

<b>The Extensions of the International Conflict Frame Mentioned in 2021</b>	<b>2021</b>	
International Conflict with Resistance	15	(94%)
International Conflict with Support	1	(6%)
<b>Total</b>	<b>16</b>	

Regarding the international conflict frame, it is clear from Table 4 that most disagreements in 2021 were concentrated in East Asian countries, compared to 2011, which was not as pronounced and was mainly focused on countries that combined the influence of other political conflicts in the context of the period. However, the positions of these countries were not explicitly supportive or opposed, such as the national tragedy that eased the sometimes-tense relations between Russia and Japan.

**Table 5**

*The Extensions of Responsibility Frame Mentioned in 2011*

<b>The Extensions of Responsibility Frame Mentioned in 2011</b>	<b>2011</b>	
Responsibility for Government	1	(17%)
Responsibility of Organization	5	(83%)
<b>Total</b>	<b>6</b>	

According to Table 2, in 2011, the second most frequent frame was responsibility, accounting for 24% of the total sample, however, it becomes scarce in the coverage of 2021. This suggests that responsibility for disasters in 2021 has become self-evident, especially in

the context of the Japanese government's announcement of the release of nuclear waste.

Whereas in 2011, the Fukushima nuclear incident following the earthquake and tsunami led to serious damage to the reputation of the Japanese government and power companies.

According to Table 5, the blame in news media reports was mainly attributed to TEPCO, with only a small amount attributed to Japan's nuclear energy policy.

## **Discussion**

This essay aims to provide a comprehensive analysis of the use of frames and to explore the reasons for the differences in frames between the two periods-

### **Consequences**

In the study, the consequences frame has been extended to four areas: economic industries, changes in nuclear power policies in other countries, environmental impacts to threats for humans, and consequences for sufferers. It is worth noting that nuclear disasters provide an excellent opportunity for anti-nuclear organizations to raise their concerns, a trend observed in both the 2011 and 2021 news samples. Environmentalists and anti-nuclear organizations used these crises to call for the total elimination of nuclear energy (Chattopadhyay 2012), often linking the Fukushima disaster to previous nuclear accidents at Three Mile Island and Chernobyl to highlight the perceived dangers associated with this energy source.

Another common aspect of both periods is that the Fukushima incident sparked ongoing concerns about nuclear energy in the country. Like previous findings by Gómez-Calderón et al. (2014), over time, the media changed its focus from initially covering the consequences of the damage caused by the disaster to the political aspect as the situation



gradually returned to normal. A representative example is that German newspapers were particularly active in discussing the risks of nuclear energy and advocating a transition to non-nuclear energy sources. This engagement of the German media reflects both increased concerns within the country and the consistency between media coverage, government policy and the overall political atmosphere regarding nuclear energy (Park et al., 2015).

### **International Conflict**

In the case of a nuclear disaster, media coverage has become a powerful tool used by different stakeholders, including governments, institutions, and news editors. In 2021, the international conflict frame dominated most of the news pages in the findings. In addition to the greater vulnerability of neighbouring countries to nuclear contamination, another dimension of international conflict can be linked to the intricate political, economic and security tensions within East Asia. As events unfolded, the United States and Europe might have experienced a period of relative calm ten years after the Fukushima disaster, while East Asian countries such as South Korea and China might have seen noteworthy developments in their economic performance or innovative achievements that would have influenced the media coverage of the nuclear disaster.

Some news media described the US as supporting Japan for political reasons because of its importance in its regional strategy, portraying the US as the only influencer that could pressure Japan (Seung-woo, 2021). This is in line with the argument made by Kepplinger and Lemke (2015), which suggests that the news media can be a tool of conflict. In this case, events are no longer just objects to be reported, but become instruments of conflict. Different media present different realities to their audiences, leading to different conclusions, opinions,

demands and actions, and these different perspectives can support the positions of all sides in a conflict and even influence decision-makers (Kepplinger & Lemke, 2015).

Therefore, one possibility is that coverage by East Asian countries tends to remind silent Western countries, particularly the United States, urging them to reconsider the legitimacy of Japan's announcement. Moreover, as a result of this instrumental use of the news media, tolerance for public demonstrations in front of Japanese embassies has increased. By limiting their opponents (Kepplinger & Lemke, 2015), the East Asian countries are eager to emphasize that the public is unacceptable of Japan's decision.

### **Responsibility**

The responsibility frame played a prominent role in the incident of 2011, agreeing with the findings of Chattopadhyay (2012), in which the authors analyzed the news media's focus on government responsibility. The article suggested that this emphasis on government responsibility could be attributed to the unique circumstances faced by Japan, which experienced multiple disasters simultaneously. In contrast, this study shows that the news media placed more emphasis on placing blame on TEPCO, focusing specifically on the adequacy of the agency's emergency plans, its failure to inspect ageing equipment, and the extent of its efforts to compensate affected homes. This difference may stem from TEPCO's early role as a direct source of information and, as a result, TEPCO's actions were more visible in public opinion than those of the government. In addition, there is a possibility that news media, when examining government responsibility, tended to shift the focus to the economic consequences faced by industries that the government has been supposed to consider.

A very small number of news articles in the 2021 samples suggested that Japan should take primary responsibility for the "tragedy of the commons" (Yin & Gong, 2021). These articles accused Japan of prioritizing the recovery of Fukushima without considering marine ecological safety and human health. The journalists argued that Japan is taking advantage of the lack of international governance mechanisms and precedents to discharge radioactive water from Fukushima into the sea through manipulative arguments (Yin & Gong, 2021). The view of the news media is clear: after the announcement of the discharge, the blame has been primarily placed on the Japanese government. This frame has the potential to turn into an international conflict, depending on the position of the other countries involved.

## **Solutions**

While there may be relatively little news coverage of the solutions frame, it is evident that various measures have been implemented in the response and recovery from the Fukushima nuclear disaster. However, according to the research by Kim and Bie (2013), there was no additional information in Fukushima news reports about specific solutions, such as how to prevent potential harm from radiation exposure.

There are three possible reasons for this same outcome. Firstly, these solutions are usually developed and implemented because of the efforts of governments, scientists, experts, and relevant institutions. The underlying political dynamics, as Okumura et al. (2019) pointed out, have made it difficult for the media to express any opposing views, with the media relying entirely on the government and the nuclear power industry as sources of information. In some cases, however, governments may be unlikely to disclose all the details of the solution, or there may be information gaps. This may result in the news media not having

access to sufficiently detailed information to report on the solutions frame. Inconsistent and incomplete information may be the result of poor communication or information transfer chains between different bureaucracies (Lazic & Kaigo, 2013).

Secondly, due to the shortage of professional journalists, the interpretation and verification of these solutions require time and expertise. Even when news media invite experts and scholars in nuclear science and engineering as guests, the choice of guests is often one-sided, often recipients of government grants or funds from the power industry to promote nuclear power (Okumura et al., 2019), so news coverage has generally focused on framing the consequences in ways that are more likely to attract public attention and emotional resonance.

Finally, another factor regarding the incident in 2021 may be that the media perceive the attitude of some countries towards the solutions as a demand for Japan to change its decision to discharge radioactive wastewater, thus making it more newsworthy if the frame of this story is transformed into an international conflict.

## **Conclusion**

Overall, the study provides a comprehensive comparison and analysis of media coverage of the nuclear disaster in two periods, highlighting key insights from the frames of consequences, international conflict, responsibility, and solutions. These insights have important implications for understanding the impact, policy development and action of nuclear incidents. Future research could further explore the role of the media in shaping public opinion on nuclear disasters, as well as the coping strategies and lessons learned in different countries and regions during nuclear disaster incidents. However, it is important to

note that a major limitation of this study is that the news sources are too broad, as there are not many news articles about nuclear radioactive wastewater discharge incidents in 2021 and comparisons with news about the 2011 disaster may be inaccurate due to the large quantitative gap. Another drawback of the study is that it focuses on only four frames based on pre-defined categories and is subjective and selective, which may introduce bias and cross-cultural differences to the results. Future focus on this disaster topic could be sustained depending on the dynamic nature of the news that is constantly updated.

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