

An Analysis of Korean News Media on Sustainability in the Anthropocene

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Abstract. The fast levels of industrialization, urbanization, globalization, and expansion of mass consumption that most countries in the world are experiencing today have led to environmental destruction and climate change, eventually threatening the survival of the Earth and humanity. Especially in the case of South Korea, where per capita greenhouse gas emissions have risen to the third highest in the world, there is an urgent need to raise public awareness of the risks of climate change and initiate a more active societal response. This study examines Korean news media trends related to sustainability and explore suggestions for sustainable measures in the Anthropocene. In this way, a total of 1,203 articles was collected, including material from the news archives of newspapers, broadcasting TV, and Internet news channels. The articles have been analyzed by means of word-count-based analysis and topic modeling. The results of this study suggest that there is a need to develop and activate articles that contain more information about the effectiveness of the social response to sustainability and climate change in the Anthropocene.

Keywords: Anthropocene crisis, sustainable development, climate change, media literacy, South Korea.

INTRODUCTION

The recent ongoing spread of infectious diseases such as COVID -19, international wars and terrorism, climate change, deteriorating air quality, water pollution, and loss of biodiversity raise the question of the possible collapse of the so-called Anthropocene. The first researchers to officially use the term were Paul Crutzen and Eugene Stoermer (Kim *et al.*, 2022). According to their view, the Anthropocene refers to an era in which

human activity is the main cause of geological change (Crutzen & Stoermer, 2000: 17-18). In other words, the Anthropocene refers to a new geological age in which humans have had a profound impact on the social, economic, and environmental aspects of the Earth (Stromberg, 2013). The Intergovernmental Panel on Climate Change (IPCC) also mentioned the Anthropocene for the first time in the special report on *Global warming 1.5 degree* published in 2019, noting that the concept is useful in preventing global temperature rise and enabling cooperation among countries to ensure the sustainability of the global system (IPCC, 2019: 49).

Particularly between 1990 and 2007, South Korea was identified as the country with the fastest increase in carbon dioxide emissions among members of the Organization for Economic Co-operation and Development (OECD), and in 2009 it eventually became the country with the eighth largest emissions worldwide (Ju, 2013: 615). In this time of the environmental change, a fundamental shift in perception of the relationship between humans and the ecological environment is required. The news media's increasing interest in the Anthropocene, sustainability, and climate change makes it necessary to examine the content aspect of the corresponding reports. This is because the mass media's interpretation of climate change can become an important factor shaping the discussion of climate change countermeasures, such as greenhouse gas mitigation measures and human lifestyle changes, and linking related considerations (Boykoff & Roberts, 2007: 23).

Based on previous discussions of the Anthropocene, this study aims to analyze Korean news media trends towards sustainability and explore suggestions for sustainable measures of the future global community. The news articles were collected by the Korea Press Foundation "Kaon Media", but the *Chosun Ilbo*, which did not include articles on this website, used its own website. The keywords were "Anthropocene", "climate change", "sustainability", and "global warming", and expert columns were also included in the survey. Some longer reports that aired as news magazines and duplicate articles that aired at different times but had almost the same content and were reported by the same reporter were also excluded. By applying the method of an existing study (Dotson, Jacobson, Kaid, & Carlton, 2012), which analyzed 20% of 1,628 articles that are the entire target of the study, the order of 1,203 articles was included in the

recent articles order during the period of individual news media. A total of 287 articles were analyzed by principled selecting.

CONCEPTUAL FRAMEWORK AND RESEARCH TREND OF ANTHROPOCENE

The concept of the Anthropocene, which directly links the ecological crisis to human activities, has rapidly spread in the public and academic spheres beyond geology and earth system sciences. Currently, the diagnosis of the Anthropocene functions as a metaphor that effectively captures the accelerating environmental crisis and as a normative concept that sees human activities as the cause of the ecological crisis and calls for immediate changes in human behavior. According to Rockström et al. (2009), three of the Earth system processes – climate change, rate of biodiversity loss, and interference with the nitrogen cycle – have already exceeded their boundaries, and several other boundaries may soon be crossed.

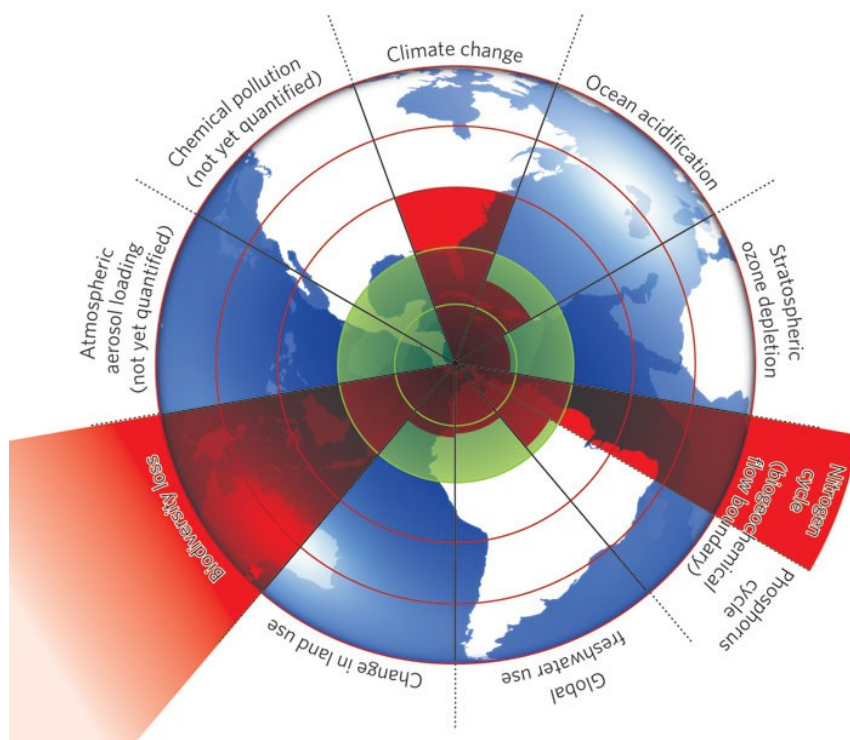


Figure 1. The nine planetary boundaries as safe operating space for humanity
Source: Rockström et al. (2009: 472).

Today, most studies on the state of the planet agree that we are headed for a crisis. However, some believe that the nexus of population growth, economic development, and social inequality (Arrow et al., 1995) is the fundamental force driving global society and ecology toward a sustainability crisis. Others focus on ecological sustainability; they note that biodiversity loss (Wilson, 1999) undermines ecosystem stability and that ecosystem instability threatens nature's services to society (Dasgupta, 2020), many of which are unknown to the general public. A large group is focused on climate change and is aware of the enormous political, economic, and technological challenges associated with stabilizing the climate on an industrialized planet such as ours has become. Additionally, in recent decades, the biomedical community has warned of the growing potential for pandemics causing massive deaths (Quammen, 2012). In this way, answers to the question of the cause and starting point for the Anthropocene may be discipline-specific (Ruddiman *et al.*, 2015).

Differences	Starting point	Cause-effects
Human industry activities	<ul style="list-style-type: none"> - Industrial Revolution, the invention of steam engines (1784) - The First Nuclear Test (1945) - The time when industrial activities at the global level began in earnest (the era of rapid acceleration since 1950) - The Beginning of Agriculture (Early Anthropocene) 	<ul style="list-style-type: none"> - human activities such as agriculture, industry, and nuclear tests were cited as the cause. - mainly linking industrial activity with the emergence of the Anthropocene
Capitalism expansion	<ul style="list-style-type: none"> - European colonization (1450) when human activities were embodied in capitalism - North American colonial plantation (16th century) 	<ul style="list-style-type: none"> - finding a cause-effect in capitalism expansion - to emphasize that capitalism is the cause of the current crisis, the concept of 'Capitalocene' was proposed instead of the Anthropocene
Modernism	<ul style="list-style-type: none"> - period of global expansion of European political, economic and cultural systems through colonial development (since the 16th century) 	<ul style="list-style-type: none"> - caused by the Western modern worldview that nature can be used according to human needs

Table 1. Starting point and cause-effects of the Anthropocene

Source: Kim et. al. (2022: 13).

In the *The Structure of Scientific Revolutions*, American science historian Thomas Kuhn argues that the cause of environmental destruction and the ecosystem crisis lies in a ‘mechanistic, human-centered, dominant paradigm’, and to address this, we need to shift to a systematic, biocentric, alternative paradigm. (Kuhn, 1962). From this point of view, the debate on the introduction of the Anthropocene provides an opportunity to stimulate a rethinking of the relationship between the Earth and man, not only in science, including geology, but also in society as a whole.

PUBLIC SPHERE AND NEWS MEDIA FRAMING

According to Jurgen Habermas (2015), the public sphere cannot be considered as an institution, an organization, or a system. It is a network for the communication of information and points of view. In this process, streams of communication are filtered, synthesized, and combined into a bundle of thematically specified public opinions. Here, the public sphere can play a role as a warning system, with sensors that are sensitized to society as a whole. In today’s society, mass media play an important role in political communication. To some extent, the functions of the public sphere, as defined earlier, can be found in the media. The mass media play a crucial role in the dissemination of concerns and opinions that they themselves produce (Habermas, 2006: 7).

The news media frames identified in the sustainability reporting research can be broadly classified into two types based on their characteristics. These are the frames for approaching the climate change issue on a scientific level and the frames for approaching the issue on a risk resolution or safety issue resolution level. In the former case, Antilla (2005)’s survey of four national newspapers and 251 community newspapers in the United States can be used as an example. This study found the frames of ‘valid science’, ‘ambiguous cause or effects’, ‘uncertain science’, and ‘controversial science’ in the reports of new discoveries related to climate change, and among them, the “valid science” frame was the most prominent. On the other hand, sustainability and climate change issues are not only scientific in nature, but also a risk or social problem that will have a multifaceted impact on human society’s safety.

In this context, human society’s safety is defined as a situation in which individuals and communities have the necessary options to eliminate,

mitigate, or control risks to human, environmental, and social rights, as well as the capacity and freedom to use them (O'Brien & Leichenko, 2007: 3). Based on the concept of human security in this broad sense, climate change poses risks that can lead to problems in various areas such as politics, society, and the economy. An example of this second type of framing can be found in the study by Dirikx & Gelders (2010), who analyzed reports on climate change in French and Dutch newspapers. In this study, frames of responsibility, conflict, implication, human interest, morality were reported. These categories do not represent aspects that arise from the scientific nature of climate change itself, but rather represent aspects that may be of selective interest in the process of problem solving or risk mitigation.

As noted earlier, this study is based on the fact that climate change is an issue that is inevitably characterized as a powerful 'social problem' and draws on the diagnostic/prognostic framework found in American sociological studies of social movements (Benford, 1993; 2005; Evans, 1997) that pay attention to the possibility of functioning as a 'central organizing idea'. According to Benford (1993), 'diagnosis' consists in finding a social problem and associating the negative aspects of society with certain factors. On the other hand, 'prognosis' is the orientation to find a solution by focusing on the aspect of what to do to achieve the alternative reality of the problem reality found in the diagnosis framework. Therefore, this study examines the aspects of sustainability reporting in South Korea by introducing the framework of diagnosis and prognosis as analysis criteria in the study of sustainability of human society.

RESEARCH FINDINGS AND DISCUSSION

Before analyzing the actual information situation, we examined the number of news coverage to determine the level of interest in sustainability in the media. Regarding the average number of articles by media, *Chosun Ilbo* daily newspaper with conservative tendencies reported the most (M=145.2). This was followed by *Hankyoreh* (M=120.8), other newspapers (M=110.1), terrestrial broadcasting (M=105.5/92.3), and internet news channel (M=90.2).

News media		Number of articles by last year	Number of articles by last month	Average amount of articles by last year	Number of analysis articles
Newspaper	Chosun Ilbo	1,742	278	145,2	89
	Hankyoreh	1,449	228	120,8	57
	Others	1,321	205	110.1	22
broadcasting TV	KBS	1,266	198	105.5	43
	SBS	1,108	143	92.3	38
Internet news channel	Liberal	647	67	53.9	21
	Conservative	436	43	36.3	17
Total		7,969	1,203	664,1	287

Table 2. “Sustainability” coverage by news media

Looking specifically at the *Chosun Ilbo* and the *Hankyoreh*, which have comparable data, we find that from 2021 to 2022, the *Chosun Ilbo* reported 145,2 cases and the *Hankyoreh* reported 120,8 cases. On the other hand, if we look only at the absolute number of articles, the coverage in the broadcasting TV news was only half that in the newspapers, and the internet news reported very little on climate change and sustainability.

As shown in Table 3, the positive tone of the *Chosun Ilbo* is that it focuses on “green project” (23.1), while the *Hankyoreh* focuses on “green life” (18.0) and negative tone focuses on “climate change” (17.7/19.5). The main finding of this study is that *Chosun Ilbo's* sustainability reports tend to focus on themes of the forecasting framework, which focus more on solving the problem than on diagnosing global crisis. In this process, the theme of “green project” appeared most frequently, and the news stories reporting various sustainable development activities of local governments, quoting local officials and making positive tones, were stronger than those of *Hankyoreh*.

Frame	Theme	<i>Chosun Ilbo</i>			<i>Hankyoreh</i>		
		positive	negative	neutral	positive	negative	neutral
D I A G N O S I S	scientific uncertainty	0.7	3.6	1.7	1.3	4.9	1.6
	disaster	4.3	15.6	3.2	0.1	13.3	0.4
	economic aftermath	1.8	4.2	2.7	0.0	2.7	3.1
	climate change	3.2	17.7	2.4	0.3	19.5	2.3
	public health impact	1.6	1.2	0.8	0.1	3.7	0.2
P R O G N O S I S	green life	14.0	2.0	2.6	18.0	1.3	4.9
	green project	23.1	12.3	5.4	12.4	2.6	7.4
	green economy	6.9	2.1	6.3	10.2	1.1	2.5
	environmental nationalism	0.3	1.8	3.7	0.6	3.6	2.7
Total		n = 145.2			n = 120.8		

Table 3. The *Chosun Ilbo*/*Hankyoreh* sustainability report by theme (n)

According to Slovic *et al.* (2004), risk perception and associated coping behavior are explained by affective heuristics. In this context, heuristics can be described as a guide or orientation for understanding, evaluating, and making decisions in the information processing process. Positive or negative emotional attitudes toward risk factors such as climate change influence risk perception. This is an explanation based on the ‘memory model of category-based affective response’ proposed by Fiske and Pavelchak (1986). According to these psychologists, the human memory structure is equipped with positive and negative emotional markers associated with each memory of a person, topic, or event, so that each related memory object (person, topic, event, etc.) influences the subsequent information processing process.

Since the diagnostic framework involves the identification of a problem and the discussion of its cause, it can be said to contain negative emotions within itself. On the other hand, the prognostic frame, which proposes a

solution, is logically associated with positive emotions, since the problem solution itself assumes a positively altered reality. From the perspective of frame construction, this suggests the possibility that the emotional tone of the article may act as a framing device that builds a diagnostic and prognostic frame.

In addition to this, regarding the frequency of information on effectiveness, it was examined whether each item “refers to the possibility/ability of a particular group, person, policy, etc. to solve a problem.” It was found that only 14.9% (43) of the 287 articles analyzed referred to the possibility of solving such a problem. Table 4 below shows whether the frequency of articles containing this effectiveness information varies by news media type. The analysis found that there were no differences in the frequency of efficacy information by type of news media.

News media types	News media	Number of articles with information on efficacy (%)	Total analysis articles
Newspaper	Chosun Ilbo	11(12.4)	89
	Hankyoreh	7(12.3)	57
	Others	4(18.2)	22
Broadcasting TV	KBS	9(20.9)	43
	SBS	6(15.8)	38
Internet news channel	liberal	2(9.5)	21
	conservative	4(23.5)	17
Total		43(14.9%)	287

Table 4. Presentation of information about the effectiveness of “Sustainability” by the news media

For efficacy information, it was found that although the overall frequency of provision was very low, KBS and conservative news media processed this information the most, followed by liberal media and other media in order of efficacy information. The fact that Korea’s representative conservative media (*Chosun Ilbo*, *Donga*, *TV Chosun*) and broadcaster KBS, which most likely supports the government’s agenda-setting function (You *et al.*, 2017), share a forecasting or problem-solving orientation is the prognostic framing of *Chosun Ilbo*’s existing climate

change report within the framework of human community sustainability. This is consistent with the preference phenomenon (Ju, 2013) and appears to be a feature of Korean climate change reporting.

As mentioned above, the issue of how to frame individual risk factors in the face of various risks such as environmental problems including climate change and the spread of infectious diseases can be an important key to establishing an effective social response mechanism. In particular, when the social focus of diagnosis and prognosis is balanced, it can be expected to establish a smooth social crisis response mechanism. Climate change is a risk that requires a long-term approach that cannot be expected to be resolved temporarily. In this regard, risk governance (Van Asselt & Renn, 2011) is a concept based on a holistic approach involving the government, media, civil society, and individual citizens, going beyond risk management by experts in the relevant field. From the perspective of risk governance, the news media's report on climate change, which plays a major role, is not limited to a one-time content analysis study, but also raises the need to regularly manage changes and implications of the news framing pattern.

CONCLUSION AND RECOMMENDATIONS

Due to globalization, transnational problems such as climate change, infectious diseases, and international disputes directly affect our daily lives. In this context, environmental and ecological problems are attracting great interest and awareness in the social mass media. The purpose of this study was to examine the trends in Korea's representative news media on sustainability and to suggest sustainable measures in the Anthropocene. The main findings of this study are that the *Chosun Ilbo* report on sustainability and climate change contains more themes of the prognostic framework that focus more on solving the problem than on diagnosing this global crisis. Among them, the theme of "green project" appeared most frequently, and the tendency to convey it in a positive tone was stronger than in the *Hankyoreh*. On the other hand, the topic of "climate change" and "green life" appeared most frequently in the *Hankyoreh* articles.

According to the functionalist view, every society is like an organism whose survival system is maintained by the proper functioning of its individual body parts. Based on this functionalist view, it can be predicted

that a society in which a problem has arisen, be it climate change or an insidious infectious disease such as COVID-19, will have a diagnosis and prognosis orientation to maintain the sustainable survival system. There is more validity to the prediction that this framework for sustaining the social system as an organism emerges from the intelligence function that is responsible for the overall environmental monitoring function. This socio-anthropological perspective based on functionalism makes it necessary to examine diagnosis and prognosis in a different general framework of communication research. Especially, in the Anthropocene, there remains a need for broader framework studies to expand our understanding of the role of media in managing the risks of climate change to the sustainability of the human community.

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References

- Antilla, Liisa. "Climate of scepticism: US newspaper coverage of the science of climate change." *Global environmental change* 15.4 (2005): 338-352.
- Arrow, Kenneth, et al. "Economic growth, carrying capacity, and the environment." *Ecological economics* 15.2 (1995): 91-95.
- Benford, Robert D. "Frame disputes within the nuclear disarmament movement." *Social forces* 71.3 (1993): 677-701.
- Benford, Robert. "The half-life of the environmental justice frame: innovation, diffusion, and stagnation." *Power, justice, and the environment: A critical appraisal of the environmental justice movement* (2005): 37-53.
- Boykoff, Maxwell T., and J. Timmons Roberts. "Media coverage of climate change: Current trends, strengths, weaknesses." *Human development report* 2008.3 (2007): 1-53.
- Crutzen, Paul J., and Eugene F. Stoermer. "The 'Anthropocene'." *The International Geosphere-Biosphere Programme Newsletter* 12, (2000): 7-18.
- Dasgupta, Partha. "The Dasgupta Review–Independent Review on the Economics of Biodiversity." *Interim Report* (2020).
- Dirikx, Astrid, and Dave Gelders. "To frame is to explain: A deductive frame-analysis of Dutch and French climate change coverage during the annual UN Conferences of the Parties." *Public understanding of science* 19.6 (2010): 732-742.
- Dotson, Devin M., et al. "Media coverage of climate change in Chile: A content analysis of conservative and liberal newspapers." *Environmental Communication: A Journal of Nature and Culture* 6.1 (2012): 64-81.

- Evans, John H. "Multi-Organizational Fields and Social Movement Organization Frame Content: The Religious Pro-Choice Movement." *Sociological inquiry* 67.4 (1997): 451-469.
- Fiske, Susan T., and Mark A. Pavelchak. "Category-based versus piecemeal-based affective responses: Developments in schema-triggered affect." (1986).
- Habermas, Jürgen. "Political communication in media society: Does democracy still enjoy an epistemic dimension? The impact of normative theory on empirical research." *Communication theory* 16.4 (2006): 411-426.
- Habermas, Jürgen. *Between facts and norms: Contributions to a discourse theory of law and democracy*. John Wiley & Sons, 2015.
- IPCC. *Global Warming of 1.5 °C*. 2019.
- Ju, Youngkee. "News Media's Political Orientation and Their Framing of Climate Change in South Korea." *Journal of Communication Science* 13.3 (2013): 591-626.
- Kim, Dokyun, Ahn, SoEun, Chung, WooHyun et al. *The Value of Green Transformation in the Anthropocene and Developing Medium and Long-Term Strategy*. Korea Environment Institute. 2022.
- Kuhn, Thomas S. *The structure of scientific revolutions*. University of Chicago Press: Chicago, 1962.
- O'Brien, Karen, and Robin Leichenko. "Human security, vulnerability and sustainable adaptation." *Human development report 2008* (2007): 1-2.
- Quammen, David. *Spillover: animal infections and the next human pandemic*. WW Norton & Company, 2012.
- Rockström, Johan, et al. "A safe operating space for humanity." *Nature* 461.7263 (2009): 472-475.
- Rudimann, William F., Erle C. Ellis, Jed O. Kaplan, and Dorian Q. Fuller. "Defining The Epoch We Live In: Is A Formally Designated 'Anthropocene' a Good Idea?." *Science* 348.6230 (2015): 38.
- Slovic, Paul, et al. "Risk as analysis and risk as feelings: Some thoughts about affect, reason, risk and rationality." *The feeling of risk*. Routledge, 2013. 21-36.
- Stromberg, Joseph. "What is the Anthropocene and are we in it?." *Smithsonian Magazine* (2013).
- Van Asselt, Marjolein BA, and Ortwin Renn. "Risk governance." *Journal of risk research* 14.4 (2011): 431-449.
- Wilson, Edward O. "The diversity of life." *Thinking About the Environment*. Routledge, 2015. 193-195.
- You, Myoungsoon et. al. "News Framing and Efficacy Information in Climate Change News Coverage." *Journal of Communication Science* 17.3 (2017): 105-137.

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