More Room for Climate Change News Reporting in China? A Study of Climate Change Coverage in Southern Metropolis Daily

by

Qianrong Wang

B.A., Taiyuan University of Science and Technology, 2017

Extended Essay Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

in the

School of Communication (Dual Degree Program in Global Communication)

Faculty of Communication, Art and Technology

Approval

Name:	**Qianrong Wang**
Degree:	**Master of Arts**
Title:	**More room for climate change news reporting in China? A study of climate change coverage in Southern Metropolis Daily**
Program Director:	**Katherine Reilly**

Shane Gunster

Senior Supervisor

Associate Professor

_____

Katherine Reilly
Program Director
Associate Professor

_____

Date Approved: August 31, 2020

_____

Abstract

Research on climate change news coverage in China mainly focuses on Chinese state-run media. However, market-oriented media are also an important information source in Chinese society. This paper examines climate change news reports in the *Southern Metropolis Daily*, a popular Chinese market-oriented newspaper, exploring the geographic focus, news sources and frames from an eighteen-month sample. Findings suggest an absence of climate science, a failure to focus upon local impacts and solutions and a lack of diverse voices. Instead, market-oriented media tend to follow the lead of state media in their reporting about climate change. Recommendations suggest the need for more diverse and locally relevant climate journalism for Chinese audiences.

Keywords: Climate change; China; News media; Market-oriented media; Southern Metropolis Daily

Acknowledgements

I would like to express my very great appreciation to my supervisor Dr. Shane Gunster for his valuable and constructive suggestions during the planning and development of this research work. His willingness to give his time so generously has been very much appreciated. I would also like to thank Dr. Katherine Reilly, for her advice and assistance in keeping my progress on schedule. Finally, I wish to thank my parents for their support and encouragement throughout my study.

Table of Contents

List of Tables

List of Figures

Chapter 1.

Introduction

"Climate emergency" has been chosen as the buzz word in 2019 by Oxford Dictionaries(*Oxford Word of the Year 2019 | Oxford Languages*, n.d.). Intergovernmental Panel on Climate Change (IPCC) released its 1.5°C special report in 2018, indicating that greenhouse emissions must reach net zero by around 2050 and, by 2030, cut emissions by about 45 percent from 2010 levels(Masson-Delmotte et al., 2018). Otherwise, people will suffer from catastrophic and irreversible environmental consequences. As the biggest developing country, China's fast development pace accompanies significant greenhouse emissions. China overtook the United States in 2007 to become the largest greenhouse gas emitter in the world, around 25% of global emissions comes from China. On a per capita basis, China's emissions have risen to more than seven tons per year, which is second only to the levels in most Western industrialized countries(J. C.-E. Liu, 2015).

Apart from the global influence of GHG emission from China, there are many climate change related natural disasters within the nation. These include: melting Tibetan glaciers, sinking Shanghai, inundating Hong Kong, devastating south coast typhoons, an expected 5.10% decline in agricultural production, and a rapid loss of biodiversity (Lai, 2009).

International and national pressure pushes the Chinese government to make commitments and to implement policies to alleviate climate change effects. A survey conducted by Pew Research Center indicates that Chinese people are less concerned about climate change compared with many countries (Wike, 2016). This inconsistent perception to climate change between state and citizen might damage the efficacy of environmental policies. Since news media plays a significant role in society by providing information and guiding public opinion, news media's climate change coverage is essential to public's perception to this issue.

There are two media types in China, one is state-run media, the other is market-oriented media. Both of them are subject to state control but to different degrees. State-

run media is the spokesman for Chinese government/Communist Party of China, while market-oriented media are independent of state support, and audience-oriented. Previous studies on climate change reporting have focused upon state-run news media, with little attention to market-oriented media. This study examines the characteristics and journalistic practice of climate change report in a Chinese market-oriented newspaper.

Chapter 2.   Literature Review

2.1. Environmental issues and climate change in China

Environmental issues and climate change are always related to industrialization and other human activities. China established the People's Republic in 1949. Poverty made economic development the national priority. At that time, China as a socialist country, mainly learned the development experience from Soviet Union characterized by central-planning and heavy industrialization. The Great Leap Movement in 1958 was an ambitious attempt to achieve collective mechanized agriculture and to produce large amounts of grain in a short period, but it ended up with a sharp decline of crop production and the Chinese people suffered from devastating famine. The next political movement was the Cultural Revolution from 1966-1976 in which the Chinese economy made little progress. People lived a hard life.

Things began to change in the1980s when Deng Xiaoping initiated reform and open-up policy, which meant that China would embrace the global economy and welcome foreign investment. Concurrently, Western economies were struggling to transfer their economic mode from Fordism to post-Fordism to avoid a crisis of capitalism in Western domestic markets, achieving an information and knowledge economy instead of industrial economy (Tong, 2015). Markets and resources attracted Western transnational business to build factories in China. In 2001, China entered into World Trade Organization (WTO), which hastened its integration into the global economy.

During this period, the Chinese economy developed quickly. Chinese environment and resources changed significantly. Economic modernization was the priority of the Chinese government and people. Government's attitude towards the environment was equivocal. According to Tong (2015), the Chinese government demonstrated its concerns about resource scarcity by implementing the "one child policy" in 1979, a response to Mao's emphasis upon "more people, more power" (renduo liliang da) that resulted in a population boom from the 1950s to the 1990s. The Chinese population increased by 57% from 1949 to 1971 (Jing, 2013). However, China did not halt the pace of exploiting natural resources to develop a national economy. Indeed, the Chinese economy made great progress in the following years and China became the

world's second biggest economy in 2010. More than half of the economic growth in 2011 came from "machinery, buildings and infrastructure"("How Strong Is China's Economy?," 2012).

In parallel with rapid economic growth, the Chinese environment began to deteriorate. According to Ma and Ortoland (2000), there are two major environmental problems: resource scarcity and environmental pollution. Walker (1996) argued that China would witness a new age of resource scarcity by the end of the 1990s. In 2011, China took over from the United States as the world's biggest energy consumer ("Energy for China," 2007). Natural resources including coal, copper and oil were exploited to meet the needs of energy consumption and other industrial production. Local governments were eager to attract investment to stimulate local economy which was the only standard for judging a governor's performance.

Famous resource-rich cities, like Datong in Shanxi, Panzhihua in Sichuan, E'er dou si in Inner Mongolia developed very fast in the 1990s due to the exploitation of natural resources. The 21st century's "Western Great Development" (xibu da kaifa) policy is a good example of attracting foreign investment in local regions. However, when local resources were running out, business withdrew and moved to another region, leaving a devastated environment behind. Water scarcity is another major problem of resource scarcity, which can be attributed to water overuse in urbanization and industrialization. After assessing the risks associated with water shortages, scholars(C. Liu & Zheng, 2002; Zhang & Chen, 2009) even predicted that Northern China would run short of water till 2014 or even 2050 despite all current governmental efforts.

Environmental pollution is another facet of environmental problems in China. There are many forms of pollution. Some are observable, like air pollution, which results from the overuse of coal for energy production. In addition, 81% percent of factories were located in environmentally sensitive areas, such as near rivers and seas, and population-dense regions ("An Investigation into Chemical Projects and Plants: Severe Environmental Risks Exist in Most Water Areas," 2012). This situation makes the industrial pollution accidents even more cytotropic, because those accidents would have a long-lasting effect and even destroy ecosystems. In the single month of July 2010, for example, there were three major incidents in three regions: the Zijin mine pollution accident in Fujian Province, the raw petrol pollution caused by the explosion of a petrol

transmission pipe in Dalian City, and the pollution of the Songhua River in Jilin Province by barrels of chemicals (Tong, 2015, p. 26).

Some Chinese people began to experience the "revenge" of nature. Many more disasters, such as tornados, storms, drought, and landslides happened and caused considerable financial loss and casualties. Environmental pollution also occurred in water and soil pollution, which can lead to food insecurity problems. "Cancer village" is an example of devastating impact of chemical pollutants, small communities near polluting factories where cancer rates have soared far above the national average(Kaiman, 2013).

Environmental victims started to worry about their health, some even protested to show their discontent with local government policies. In 2012 many protests happened. In January there were local residents' street protests against the construction of a power plant in Haimen, Guangdong; in July, protests took place against the dumping of polluting toxic waste by a paper factory into the sea in Qidong, Jiangsu; and, separately, against the construction of a copper alloy factory in Shifang, Sichuan; and in July and August, against water pollution caused by the illegal mining, which was allegedly supported by local officials, of rare earth minerals (Tong, 2015). All these protests illustrated that the Chinese people wanted an environmentally friendly development model instead of sacrificing their environment for economic growth.

These protests stopped the development of factories and raised the central government's awareness of environmental protection. The Chinese central government identified environmental protection as one of the fundamental national policies and launched the ecological civilization (shengtai wenming) construction, a Chinese version of sustainable development. This concept was advanced by president Hu Jintao in 2007, and was intended to provide an alternative development theory capable of revolutionizing the global economic order and bringing about a global ecological transition (Foster, 2017; Gare, 2016; J. Pan, 2016).

However, China's unique political structure makes it difficult to implement effective environmental policies. As illustrated by Qi and Wu (2013), in a top-down hierarchical political system, all significant decisions are made by the Chinese central government and then implemented by local governments. Since the environmental

situation and economic development mode vary in each province and region, it is unwise to require all regions to implement central policies unanimously and, instead, there is a need for more investigation and even negotiation.

2.2. Discussions of environmental issues and climate change in Chinese society

Concordant with Chinese industrialization, environmental problems have loomed large in China since the 1980s. As such, state and society have paid more attention to them. On the state level, China erected its environmental laws and policies in 1979, and built institutions, such as environmental protection agencies at the national, provincial and local level, to execute and monitor their implementation. The Chinese government has also launched environmental campaigns to promulgate environmental protection. "China Environment Centennial Journey" (Zhonghua huanbao shiji xing) is a significant state environmental campaign funded by Chinese government in 1993. It was organized by government officials to raise people's environmental consciousness and promulgated environmental protection policies and knowledge. The commission invited journalists to investigate a specific environmental issue each year: for example, the theme in 1993 was "fighting environmental pollution".

During these state-initiated campaigns, mass media played an important role in reporting and disseminating environment-related information. As the spokesman for Communist Party of China (CPC), state-run media such as the People's Daily mainly focused on disseminating state policies. Many market-oriented media also invested a lot in environment reporting because of the increasing expectations from audience. From 2001 to 2010 the number of petitioners (including those writing letters and making visits collectively or individually) to the Ministry of Environmental increased over 545,000 to 802,000 (Tong, 2015).

In addition to news media, citizens also began to discuss environmental issues. Yang and Calhoun believed there was a green public sphere existing from 2004, the hot public debate on the dam construction on Nu River that halted the proposed hydropower project. Before this event, they argued that "direct citizen voices are relatively absent from China's public arena and seldom influence government policymaking"(Yang & Calhoun, 2007, p. 211). In the formation of green public sphere, Environmental Non-

Governmental Organizations (ENGOs) play a critical role, and these organizations serve as platform producers, discourse producers and discussion facilitators.

The first group of ENGOs emerged in the mid-1990s. In 1994, there were only nine ENGOs, including four student organizations. By 2002, there were more than 200 ENGOs (G. Yang & Calhoun, 2007). These organization orchestrated different activities to promote environmental protection ideas and public participation. Common practices included public lectures, workshops and conferences, salon discussions, field trips, publication of newsletters and multimedia documents, and new forms of "electronic action" such as online discussions, online mailing lists and internet petitions (G. Yang, 2005). These practices not only raised citizen's environmental consciousness, but also created a democratic value for Chinese society (Yang, 2005). Ordinary people could express their environmental opinions, appeals and even their opposition to certain environmental policies by participating in environmental events. Their voices could be concentrated and amplified by ENGOs, mass media and internet-based new media, imposing significant pressure on the government and promoting official leaders to reconsider their policies.

Although ENGOs play an important role in activating Chinese civil society, they are still confronted with challenges from themselves and the state. On the one hand, the organization's leaders should have the ability to mobilize social resources. According to Yang (2005), there are at least three types of "organization entrepreneurs": one type combines cultural prestige with political capital; the second type has professional expertise and international connections: the third type are those young people with technological skill because the internet plays a pivotal role in people's life.

Apart from internal requirements, the state also exercises control on the development of ENGOs. Some regulations encourage ENGOs to act as a "third force" to provide assistance to marginalized groups (Jin, 2001) but others limit the development of NGOs. For example, they require applicants to have a sponsoring institution, which presents a major barrier to registration because an NGO is considered a liability instead of an asset to its sponsoring institution (Jin, 2001). It is further stipulated that there should no more than one organization in certain areas of work in the same administrative area, which also curbs the development of NGOs.

Based on Yang and Calhoun's research, scholars began to further explore the green public sphere in China. Eberhardt (2015) tried to further explore Yang and Calhoun's argument that there are environmental public spaces in China after 2004. Eberhardt found these green public spheres are mostly occupied by state and foreign NGOs advocating a "low carbon" lifestyle without mentioning climate change and questioning existing policies. As a result, the topic of climate change was manipulated by governmental and non-governmental elites due to the absence of public voices.

Sima (2011) believed ENGO played a critical role in disseminating and calling for actions through the internet. In her study she employed ethnographic methodology to examine how the internet assists ENGOs to create counter a green public sphere which is an alternative sphere to counterbalance the discourse of economic growth. She also found that the internet produces visibility, provides platforms to create their environmental discourse, and builds connections with local and global publics. The internet also empowers Chinese publics to voice their environmental opinions and provide environmental suggestions to government though there are state and commercial intervention in green public sphere. Nevertheless, it could facilitate social and political change in China because a green public sphere was able to trigger other civic behaviors (Sun et al., 2018).

2.3. Introduction of Chinese media system

The well-known Four Theories of the Press (Siebert et al., 1963) concluded four main media systems (authoritarian, Communist, libertarian and social responsibility) existed after the Second World War. Since each country is different historically, culturally, and economically and politically, it is difficult to categorize the media system of every country. These theories are also mainly from a Western perspective and influenced by the Cold War.

China, as one of the remaining communist countries in the world, has a long history of media operation. I will mainly discuss the media system after 1949, the founding of the People's Republic. Since China opened its market in the 1980s, the media landscape has undergone a significant change: the majority of media, for example, no longer relied on state financial support and started to require profit in order to support themselves. Accordingly, the relationship between market and media

changed and media organization have adopted new practices to adjust to the new economic and political environment. We must, therefore, discuss the Chinese media system in two periods: before opening up and after opening up.

The first stage began in 1949 with a totalitarian media system. Media mainly consisted of newspapers, radio and television. They were a blend of the Marxist and Maoist ideology, serving as tools of class struggle, with their major function being to indoctrinate, agitate and mobilize (Winfield & Peng, 2005). In addition, it is a unique perspective of Chinese philosophy and culture that a strict control of information is critical to maintain social and political order. For example, Confucius espouses a unidirectional logic of people's relationship (from ruler to subject, from parent to child, from teacher to student, from husband to wife and from the elder to younger sibling) which has important implications for Chinese media policies and justifies the suppression of dissidents (Lee, 1990).

According to Winfield and Peng (2005), the tight economic and political control of media showed in following aspects. The government was the truth holder and its authority could not be challenged and offended; media organizations are not independent; foreign media are subordinate to the established authority; all imported media products are subject to state control. The Chinese government subscribed to Mao's belief that press control is quite important to enforce and maintain state power. State control over media have the following characteristics: State had ownership and provided full financial support to media organization; government appointed management and editorial personnel; and the main function of media was to serve as the mouthpiece of the Party.

When China opened its market in the 1980s, some significant changes happened among Chinese media. First, apart from a few key state media, such as the People's Daily and the Xinhua News Agency, most existing media could no longer depend on state funding (even though they are still state owned theoretically and officially). Advertising, circulation and finance investment were to become their key sources of financing, and they are operated and managed independently. New economic policies also stimulated the rapid development of media. Zi (2003) argued that by 2003 there were 2,000 newspapers, over 4,000 television and radio stations, and over 10,000 magazines.

Although media were prosperous and acquired more freedom after commercialization, they were still subject to state control to varying degree. Winfield and Peng (2005) pointed out that Chinese media play a dual role: simultaneously commodities in the market and ideological apparatuses. In other words, the nature of their media products is propaganda and market commodity.

Generally, following the party line is still the prerequisite of media freedom. Chinese media still face ideological and cultural dependency upon the state and the Party, even though the media are registered to be commercial (Winfield & Peng, 2005). These media are still officially state-owned but run by private business. The contents of media are diverse: apart from official news, there are entertainment, news and advertising.

Jang Zeming, Chinese supreme leader after Deng Xiaoping, remarked in an interview with CBS reporter Mike Wallace in 2000, "Freedom of the press should be subordinate to the interests of the nation. How can you allow such freedom to damage the national interests? Acknowledging that many foreign news sites have been banned in China because of their political content, Jiang said, we need to be selective. We hope to restrict as much as possible information not conducive to China's development" (Neumann, 2001). Yu likewise argued that fundamental media reform did not give media more political freedom but is instead a strategy for Chinese government to adjust to the new international environment. The political control of media still belongs to the Party alone (Yu, 1994).

Licensing, regulating, and allocating resources to specific state media are different forms of political control. Self-censorship and access blocking are also forms of political and ideological control. State monopoly and conglomeration replace state funding and become a new type of economic control. In terms of administrative control, certificates for journalists and guidelines are new forms of control (Winfield & Peng, 2005). Those controls show that the Chinese government fears that the press poses a threat to state order and the authority of the Party. Therefore the press attempts to seek an ideal position to satisfy government and their advertisers and audience.

2.4. News reports on environmental issues and climate change

I will now turn to an examination of how environmental issues and climate change are reported by Chinese news media. This section has three parts: the first will explore the history of climate change coverage in China; the second will discuss environmental issues and climate change coverage in Chinese party-sponsored media and market-oriented media respectively; and the third will explore comparative analysis of climate change reporting. Such comparisons are usually based upon research on foreign media and Chinese media (e.g. the US and China) , and between Chinese market-oriented media and Chinese party-sponsored media.

The history of climate change coverage in China corresponds to different development stages. China's attention to environmental issue dates back to the 1970s. As mentioned before, the Chinese government began to worry about overpopulation because of the "baby boomer" generation. In 1972, the United Nations Conference on Human Environment was held in Stockholm. While the Chinese government started to express concern about environmental issues, the Cultural Revolution made it difficult for the Chinese people to contemplate environmental issues thoroughly.

Opening its doors to the world in 1978, China was exposed to a global context and it has developed quickly since then. China began to experience significant environmental problems associated with rapid economic growth in the 1980s. The first climate change global conference was held in 1992 by the United Nations, and resulted in the United Nations Framework Convention on Climate Change (UNFCCC). There has been a UNFCCC conference held every year since 1997.

Xie (2010) argues there are four stages through which environmental issues have come into state, public, and the media's life: 1972-1984, 1985-1992, 1993-2000, and 2000 to today. These divisions are based upon significant international events, conferences and some important activities in China. The first stage is from 1972 to 1984. The United Nations Conference on the Human Environment was held in Stockholm in 1972. The Chinese State Development Planning Commission presided over the first national environmental protection conference in 1973 and the first environmental publication, *Environmental Protection*, was published in the same year. However, due to

the special political environment in China, there was little attention paid to the environment during this decade. In the 1980s, environmental problems begun to loom larger with rapid economic development in China. Environmental protection became a fundamental national policy in 1984. The first national professional environmental protection newspaper was established in 1984. However, the public was still unfamiliar with environmental issues: environmental news was in an incipient state.

The second stage is from 1985 to 1992. In this stage, environmental reporting in China developed slowly. It mainly concentrated on investigative reporting. Industrial pollution and resource waste and other environmental problems were the main themes at this stage.

The third stage is from 1993 to 2000. China joined the International Federation of Environmental Journalists in 1993, signifying that Chinese environmental communication was starting to grow. In the same year, a national level environmental event called "China Environment Centennial Journey" (Zhonghua huanbao shiji xing) was organized by the Chinese government, and it earned considerable attention from media and the public. Environmental reporting in this stage had improved significantly. More topics were involved, and more professional environmental journalists began to produce high quality news reports.

The last stage is from 2000 to today. In this stage, environmental reporting developed quickly, there are more publications and articles, combined reporting forms and also diverse topics. Environmental communication in China serves to spread environmental information, provide media scrutiny, raise public awareness of environmental protection, and build the national image. Xie also talks about some challenges and hopes in the development of Chinese environmental journalism; she notes, for example, that the lack of professional environmental knowledge serves as an obstacle to accurate reporting.

Apart from the development of environmental news in China, reports on climate change in China also has its history. News reports on climate change and environmental issues are discussed separately in Chinese academia. Zheng and Wang (2013) make the case that China started to engage in climate communication after the 2009 Copenhagen conference. In 2012, the China Center for Climate Change Communication

(China 4C) organized the first research survey of Chinese people's awareness of climate change and climate communication. Results showed that 78% of Chinese citizens expressed concern about climate change, 93% believed climate change is happening as compared to 75% of British people and 63% of American people who believe climate change is happening now. China has taken the lead among developing countries in seeking more climate justice. More effective engagement in international climate negotiations and developing appropriate national environmental policies have enabled China to have more influence on global climate change dialogue. But it still confronts many challenges like high greenhouse gases emission and low public climate change awareness (Zheng & Wang, 2013).

Jia (2007) interviewed several climate change scientists and science and technology reporters, finding that environmental communication in China is not effective because of the lack of institutional scientific communication norms. Reporters seldom turn to climate scientists for climate change information and they do not learn the newest scientific findings about climate change. Newspapers tend to describe climate change as a remote risk and always relate it to challenges to Chinese economic development and opportunities for Chinese clean energy industry. It is difficult to draw public attention to climate change through a macro depiction of environmental problems. According to Yuan (2014), a former news reporter from Southern Weekly, climate change features a long term time span, global influence, low conflict, distance from public: these characteristics suggest climate change reports need to be scientific, balanced and interesting.

The second section will discuss environmental issues and climate change coverage in Chinese party-sponsored media and market-oriented media respectively. Research is still concentrated on Chinese party-sponsored media because that they are the mainstream media in China, representing the point of view of Chinese government. They offer the most comprehensive way to learn Chinese environmental policies and government attitudes towards certain international issue, including climate change.

Other studies have focused on how Chinese environmental communication came into form by analyzing the history of some party-sponsored news media, such as the People's Daily. Chinese scholars believe climate change and environmental issues are hard news that non-commercial and official media should cover accurately and

comprehensively (M. Wang, 2015). Similarly, scholars outside of China believe the most suitable way to learn the Chinese government's attitude is by examining Chinese official news media. Tolan (2007) argues state-run media are much more influential in climate change issues and also the news source for other media to a large extent.

There is less research on climate change reporting in market media. Some existing studies on coverage of market-oriented news media view this type of media as representative of metro news (eg. Ji & Liu, 2013). Overall, studies of market-oriented news media on climate change coverage study are always comparative.

The third section focuses on comparative media analysis of environmental issues. There are two comparative models for climate change coverage research. The first is between foreign media and Chinese official media. The second compares climate change coverage in Chinese party-sponsored media and market-oriented media. Comparative studies occupy the largest portion of Chinese climate change coverage research and they mainly focus on news coverage about United Nations Climate Change Conference.

The most common studies are those comparing media coverage between China and foreign countries. Comparison of the major stakeholders of climate change – especially those from non-Western sociopolitical backgrounds – "should play an important role in improving communication and help to identify the main barriers towards change"(Anderson, 2009, p. 176). More and more comparative studies now include Chinese news media. The U.S. is positioned as representative of the western world. U.S. media (e.g. *The New York Time, Washington Post*) is compared with Chinese media (e.g. *People's Daily, China Daily*). They mainly examine how these two biggest greenhouse emitters frame climate change: different frameworks and discourse analysis have been employed to compare similarities and differences between them.

Gao (2018) finds that Chinese and US influential media's opinion on climate change represent different environmental views from developing and developed countries. Chinese newspapers report government policies and attitudes towards climate change and frame it as a political issue. U.S. media use diverse news sources, such as scientists and economic experts, and create their own narratives to express opinions on climate change.

Another U.S. and China comparative study by Xie (2015) has some innovation in its research method by using a hybrid framework as a systematic tool of analysis to examine climate change representation in a geopolitically sensitive light and avoid the use of issue-specific analytical frames. His research findings identify four frames: skepticism toward climate change, micro-issue salience, audience-based frames, and attribution of responsibility. It shows that climate change skeptics existed in U.S. media but tended to fade away, while they were largely absent from Chinese media. News coverage in Chinese media attribute environmental responsibility to developed countries, while U.S. news media blame industries and corporations. Both sides lacked scientific knowledge and treated climate change as a political issue. The CPC hoped to maintain its political authority in China by facilitating beneficial environmental policies in the name of the people. The U.S. employed diverse political subjects to show reporting balance and objectivity, framing climate change as a political issue as well.

One study did a comparison between the People's Daily and *The New York Times.* It provided a new perspective on how to define Chinese official and mainstream media. The author chose the Chinese national newspaper People's Daily not because it is the mouthpiece of CPC, but because she viewed it as an elite newspaper that provided accurate and serious information to audiences who are supposed to be responsible and can contribute to environmental protection. This may offer a new angle to evaluate the state-run media in China (Ma, 2008).

Some research expanded the scope of the US and China and studied how developing countries and developed countries cover climate change. By analyzing the framing of COP21 in British, American and Chinese news media, one study found media's overall discourse supported addressing climate change, a promising prospect for global climate change policy making. However, British and American media shared more similarities than their Chinese counterparts in solution discourse: they wanted this problem to be solved according to western-led order. Conversely, those who disrupted this order were criticized as laggards, as climate change deniers or dissenting countries, such as China, India and Saudi Aribia. In contrast, Chinese media not only framed climate change as a global problem, but more importantly as an opportunity to gain recognition in the world through expressing its appeal for action and its efforts regarding climate policy (Y. Pan et al., 2019, p.528).

The second type of comparison is between Chinese party-sponsored media and market-oriented media. Chinese and English academia take different approaches to this type of research. Though they all focus on the comparison between official and commercial media, their understanding and expectation to these two types of media vary significantly. In Chinese academia, South Week or South Metropolis Daily are usually taken as representative of Chinese comprehensive newspapers instead of Chinese commercial media. Similarly, many Chinese scholars view Chinese official media as the most influential media in China. At the same time, they propose that these two types of media coordinate harmoniously to create a complete Chinese media picture. However, foreign academia tend to differentiate them and to explore the complicated relationship between them. Accordingly, comparative research on these two types of media show different perspectives and foci.

In Miller and Duan's (2019) article, they discuss the difference between party-sponsored and market-oriented newspapers in China on climate change coverage. Since attention has been disproportionally paid to official media on this topic, this research bridges the gap of market-oriented media analysis. It also considers changes of recent environmental challenges and policies in China, which may influence environmental coverage of both official and market-oriented media. This study uses the conceptual framework of news diversity and examines environmental coverage in those two types media according to the diversity of frames, sources and viewpoints. The results show commercial media are different from official media by including diverse viewpoints, conflict frames and ENGO's sources, while party-sponsored media employs more domestic political, science, and scientific uncertainty frames. The results suggest that researchers should be cautious about generalizing previous findings to the entire Chinese media ecosystem because it is unique, diverse, and complex (Duan & Miller, 2019).

In other words, Chinese news media cannot simply be viewed as a monolithic entity. And research on market-oriented media is necessary even though the mass media in China generally serve as the mouthpiece for the ruling Communist party (Zhao, 1998).

Another study examined the coverage of environmental risk in ten Chinese newspapers. Apart from *People's Daily,* the other nine media outlets were commercial

newspapers. The main target of this study was to examine how investigative journalism covered environmental risks in China. It found that commercial newspapers were not singing a harmonious song of economic development, but instead served to disclose environmental problems in Chinese society. This challenged overheated enthusiasm for development and also reflected the social inequality pertaining to environmental problems. In contrast, the People's Daily primarily published CPC's self-reflective reports over environmental problems to ensure "inner party purity" (Tong, 2015).

It is worth noting that the research sample chosen by each researcher varies. Chinese scholars prefer news coverage of United Nations Climate Change Conferences. Almost all existing comparative studies of party-sponsored and market-oriented media focus on coverage of these conferences. Conversely, English academia has a broader research scope: they not only examine coverage of conferences, but also reporting on other environmental issues in China, such as environmental risks and policies. This research reality reflects two points. One is that Chinese journalists and scholars bear in mind that their approach should align with state media in terms of certain significant political principles. The second point is that environmental journalism does not gain consecutive attention from Chinese journalists and scholars.

Chapter 3.   Theoretical framework and Method

3.1. Theoretical framework

Framing is an important theoretical perspective to understand social reality. Goffman argued that framing explores the ideological implications of social reality by "locating, perceiving, identifying and labeling" the reality (1974, p. 21). Mass media play an indispensable part in society by framing social reality. It believed that mass media have a strong impact by constructing social reality by "framing images of reality…in a predicted and patterned way" (McQuail, 1994, p.331). Gamson and Modigliani (1987) defined a media frame as "a central organizing idea or story line that provides meaning to an unfolding strip of events" (p. 143). For journalists, media frames can help them choose suitable information quickly and "package it for efficient relay to their audience" (Gitlin, 2003, p. 7). Entman (1993) put more emphasis on selection and salience: he argued that to frame is to " select some aspects of a perceived reality and make them more salient in a communication text, in such a way to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (p. 52). Readers of news media can be influenced by framing and representations of social events (Price et al., 1997)

Climate change has been framed by mass media around the world. Framing research on climate change communication is a common research approach which has been used by many media scholars. Some have explored news framing of climate change in different countries, including the United States (M. T. Boykoff, 2008; M. T. Boykoff & Boykoff, 2004; Shehata & Hopmann, 2012; Trumbo, 1996), France (Brossard et al., 2004), Sweden (Olausson, 2009; Shehata & Hopmann, 2012), and Australia (Jang & Hart, 2015). Common frames include: solutions, responsibility, consequences/effects, science, skepticism, international relations/conflicts.

Much attention has been paid to developed countries. Shanahan (2009) called for more studies on developing countries that are more vulnerable and that suffer most from the impact of climate change (Saleh, 2012; Schmidt et al., 2013). In the past decade, there is an increasing volume of research on climate change communication in developing countries such as Mexico (Gordon et al., 2013), Peru (Takahashi, 2010), Argentina (Mercado, 2012), Uganda (Semujju, 2013), India (Billett, 2010; M. Boykoff,

2010; Mittal, 2012), and China (Tolan, 2007). This research found that some news frames used in developed countries are also employed in developing countries such as solutions, science, international relations/conflicts but with different practices (Gordon et al., 2013; Mercado, 2012; Semujju, 2013; Takahashi & Meisner, 2013). News coverage in developing countries tends to focus upon environmental consequences and mitigation (e.g., in Brazil and Peru). The nationalism frame can also be found in news media in India and Malaysia (Billett, 2010; Manzo & Padfield, 2016).

Though there are distinct frames among different countries, some researchers have argued that there are generic frames on climate change. Semetko and Valkenburg (2000) identified four news frames on climate change in Dutch and French newspapers: conflict, economic consequences, human interest, and attribution of responsibility. Tong (2014) found these frames were also applicable in Chinese newspapers' climate change reports. Another set of frames is from Nisbet (2009). He identified eight frames developed by various researchers and applied to science-related policy debate: social progress, economic development and competitiveness, morality and ethics, scientific and technical uncertainty, pandora's box, public accountability and governance, alternative path, conflict and strategy.

Since this research focuses upon news frames in Chinese newspapers, it is also necessary to look through the existing frames in climate change news reports. Han, Sun and Lu (2017) examined climate change news coverage during the annual session of the Conference of the Parties by the United Nations Framework Convention on Climate Change (UNFCCC) in five Chinese state run and market-oriented newspapers. They used a deductive approach by selecting six popular generic news frames: conflict, attribution of responsibility, human interest, economic consequence, and leadership. Inductive approach was also employed in this study and they found a new frame: collaboration. Different newspapers emphasized different frames: state run media used the collaboration frame more frequently and used the human interest frame less than market-oriented media.

Duan and Miller (2019) identified eight frames on climate change in Chinese state run and market-oriented media: conflict, economic, scientific uncertainty, science, human interest, domestic politics of climate change, attribution of responsibility, international agreements and collaborations. Their results showed that the scientific

19

uncertainty frame was rarely seen in both media types. The domestic politics frame was largely limited to state run media. Other frames could be overserved in both.

Drawing from existing studies, this study will focus upon political, economic, scientific and moral frames. Firstly, climate change is a natural phenomenon caused by human activities, which has been proven by numerous scientific studies. News media should assist the public to learn the scientific facts of climate change, and more importantly the relationship between climate change and human societies. Cox (2013, p.19) proposed that "environmental communication is the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationships to the natural world". Therefore, the scientific frame in news media should be included in news reports. News articles adopting the scientific frame should include scientific facts on climate change, the consequences of climate change on human life and environmental, and scientific and technological approaches developed by human against climate change.

Next is the economic frame. Climate change as an emergency for human society and can only be solved or alleviated by human actions. Greenhouse gas emissions, which are produced by industries all over the world, is the principal cause of climate change. Excessive emissions can also be regarded as a failure of governments to strike a moderate balance around economic growth and environmental protection. Chen (2013, p.6) argues that "current global environmental crises (e. g. climate change, biodiversity extinction, overpopulation, etc.) are symptomatic of systematic failure of our economic and political system that are based upon the exploration of the nature". Accordingly, dealing with the relationship between environmental health and economic growth is critical for developing solutions to climate change. This frame include newspaper narratives on the relationship and interactions between economic growth and climate change.

The third frame is politics, a frame that has become increasingly prevalent. Wu (2009) indicated that, like other countries, China tends to politicize climate change. This reflects how different political actors strive for their interests. If the pursuit of endless economic growth is the cause of climate change, then effective political intervention is the only real solution. Of interest is how a country treats climate change in the context of the interests of its citizens and the national interest. This frame includes: citizens'

environmental appeals, attribution of responsibility, leadership, and international relations/conflicts.

The last frame is a moral frame. Morality is an obligation and rule facilitated by social routine. It is related to the culture and history of a region or a country. Different places may have different moral connotations. In terms of climate change, there should be distinct, culturally specific moral judgements. News articles that adopt this frame express an opinion on relationship between human and nature and among humans. Attention to such a philosophical orientation may provide a deeper understanding of news reports on climate change, and may also help to predict people's future attitudes on climate change and environment. Climate justice is also a moral aspect over climate change. It emphasizes the responsibility to recognize and protect the rights of people who are more vulnerable to climate change, such as environmental victims and the next generation. Moral frame covers people's attitudes to climate change, and thoughts on the relationship between human and nature, and obligation for pursuing climate justice.

3.2. Method

For this research, news articles have been chosen from Southern Metropolis Daily (SMD) between January 1, 2019 and May 31, 2020. "Climate change" and "global warming" were used as key words in the Wisesearch database. It resulted in a sample of 113 articles.

SMD was chosen because it has the highest circulation among Chinese market-oriented newspapers, and it is a liberal newspaper that is widely known for its investigative journalism (Yue & Yu, 2016). The timespan was chosen because the latest research on climate coverage in Chinese market-oriented media is 2016. I wanted to provide more up-to-date research of this topic. The half year of 2020 was included because I also wanted to explore how climate change reporting changes during the COVID-19 pandemic since both of them are social crises.

The criteria I used was different from that used in prior research. For Duan and Miller (2019b), qualified articles must have at least one paragraph talking about climate change and they eliminated opinion pieces on climate change. In my research, all news articles and opinion pieces related climate change were included even if there was only

a brief mention of climate change. Only those which expressed a different meaning – in Chinese, climate change sometimes means weather change – were excluded. There were 99 articles – 16 opinion pieces and 83 news items – remaining after excluding irrelevant items.

A mixed method approach was used. First, content analysis was employed to provide a quantitative analysis on some features of climate change news reports in SMD including geopolitical focus, news sources and frames. An objective statistical overview of the sample can illustrate the significance of certain aspects of climate change reporting. A qualitative method was also used to explore the rhetorical characteristics of news discourse: both discourse and framing analysis were undertaken to examine the deep meanings and patterns behind news articles.

Chapter 4.   Findings and analysis

4.1. Geographic focus

A key consideration for geographic focus was whether news reports on climate change in SMD focus on China or other places in the world. It shows the balance of reporting among local and global effects of climate change. Twenty-seven percent of news items focused upon climate change within China, with close to three quarters of news reports covering climate change in other places.
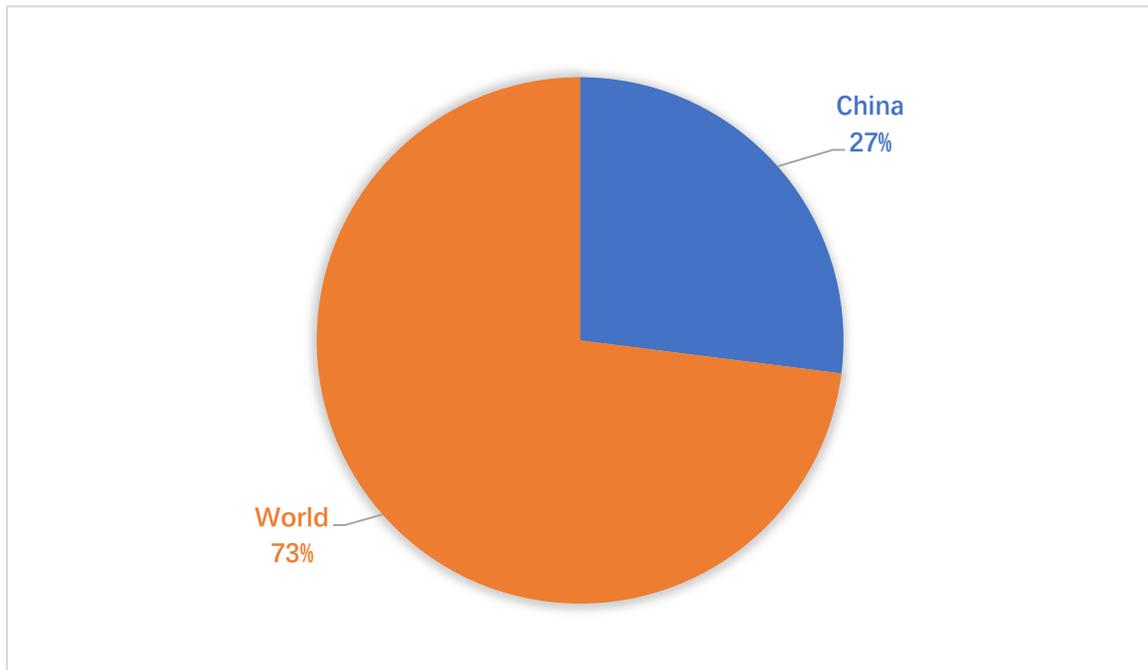

Figure 1：Geographic focus

Within the Chinese context, SMD focused upon either the Guangdong province or national policies. The focus on Guangdong province can be attributed to the fact that SMD is located in this province, which has many coastal cities. The main topics of these news stories include urban environmental governance, urban development governance, energy transformation, local precipitation and local companies. Climate change was not the main topic among these articles, and it was generally only mentioned in one or two sentences. For example, an article titled "Guangdong's Enping and Yangjiang have most precipitation in 2018" mainly talked about the achievement of China's CO_2 reduction in 2018. It further noted that China began to pay more attention to climate change by

adding measurements of cities' temperature, precipitation and sea level. It concluded that Enping and Yangjiang in Guangdong province had the most rainfalls in 2018, the average temperature in 2018 increased 0.54℃ and sea level also tended to increase but without exact statistics.

For news articles with a non-China focus, three categories of countries and regions are noteworthy: developed countries (such as Germany, France, the United Kingdom and the United States), African countries (such as South Africa), and other developing countries and regions (such as Kiribati and Micronesia). There are relatively fixed reporting patterns for each category. For most developed countries, news stories primarily framed China's hope to collaborate with them to fight against climate change, and, in turn, the appreciation of China's leadership on this issue by leaders of these countries. Stories focused upon the U.S. discussed the divergence in Congress and the fact that the U.S. is not a follower of international order such as its withdrawal from the Paris Agreement. This reporting category shows that China tends to be critical of the U.S., at least on the climate change issue.

The second category involves African countries, especially South Africa, which is severely impacted by climate change. These articles discussed the concrete consequences of climate change. For example, a January 27, 2019 article discussed the crisis with African baobabs, a gigantic and ancient tree in Africa. It noted that that the southern part of Africa is one of the regions experiencing severe climate change and high temperature and dryness might lead to extinction of the baobabs. The discussion of consequences of climate change in SMD are predominantly limited to Africa countries. The African tropical region always receives a fair degree of attention when climate change consequences are showed (Reyes-García et al., 2016). The third category mainly focuses on developing countries with China framed as willing to cooperate with these countries to alleviate climate change effects.

Climate change as a global crisis will have (and is having) catastrophic impacts on each country and region. As the largest CO_2 emitter in the world, China will experience significant consequences such as sea level rise and extreme weather. The lack of coverage of the local and domestic impacts of climate change in China can decrease the urgency of this issue, and give the public the perception that climate change is remote and happening in other places.

4.2. News source

According to Carpenter (2007), news sources are providers of information in news articles that are identified with verbs of attribution. Climate change is a complex issue which involves many factors within a country and in the world. By examining news sources, we may learn which groups' opinions on climate change are valued. The following chart illustrates that government officials provided the most information on climate change with 78%, scientists, individuals and industry spokespeople accounted for 9%, 7% and 6% respectively.
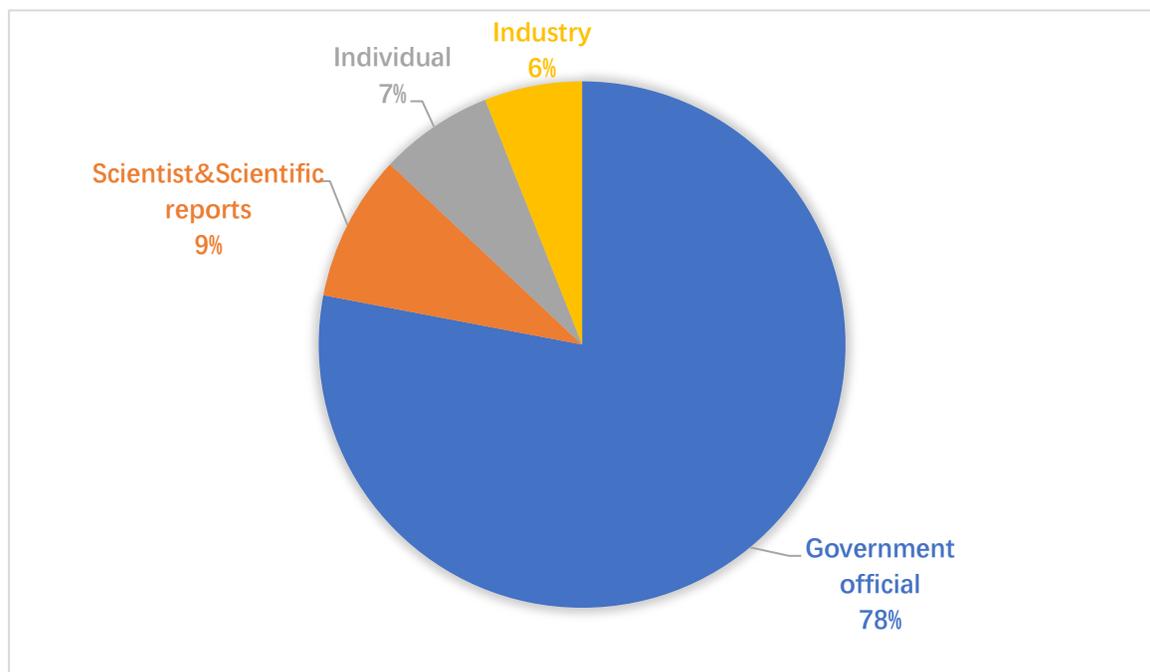

Figure 2: News source

Clearly the views of government officials are prioritized. In part this may be due to the fact that there are 54 (55%) news articles from Xin Hua News Agency, a state-run news organization. Among these 54 items, most news sources were national leaders with some references to foreign public opinion, researchers and media commentators. State-run media in China serves as the mouthpiece of the Communist Party of China. It is unsurprising, therefore, that news articles will frequently rely upon quotes from government officials and leaders. It is noteworthy, however, that the SMD – as a market-oriented newspaper – also relies so heavily on government officials as their news source and that over half of its articles on this topic are from the state-run agency.

This suggests that SMD tends to treat climate change as a state issue and prioritizes the perspective of the national government. Thus the SMD replicates the sourcing practices of state-based media, prioritizing government officials and/or government reports and policies as dominant news sources. Clearly the state/party continues to exert great influence on market-oriented media on this issue.

By contrast, the voices of 'average people' are not prominent. Although six percent of news stories featured the perspectives of individuals, most were from celebrities including writers and artists. These individuals did express concerns about climate change and appealed to the public to take actions to fight against it. However, without specific and concrete personal stories about climate change it is hard to arouse people's awareness of environmental protection and concern on climate change. Because only in this way, people are able to learn about the real consequences of climate change in their own country or region. Only one news item provided a personal story about climate change. Wun Xun is a mountaineer, and years of mountain climbing experience has made him a witness to the dramatic melting of glaciers. Given the Paris Agreement – and its objective of limiting temperature rise below 2℃– Xun decided to launch a plan called "plan of <2℃", combining a scientific expedition and science education to increase youth's sense of participation and responsibility in countering climate change.

SMD spent relatively little time exploring climate science. Climate change has already had many catastrophic impacts, both globally and within China. However, these impacts were seldom reported in SMD. Climate change is a scientific issue and, as such, news coverage should clearly explain its reasons, impacts and possible solutions. Only by doing this can people be given a clear image of climate change and make better decisions. Climate change literacy (Niepold et al., 2007) refers to an individual's knowledge, competence and attitudes about climate change (Azevedo & Marques, 2017, p.4). Media reports should provide basic knowledge to its audience, including reasons, impacts and solutions to climate change. With this knowledge, people can pursue further action and change on this issue (Hines et al., 1987).

There are two problems with news sources of climate change in SMD. One is the overuse of government officials/state's perspective on climate change, which is not beneficial for the independence of SMD and impairs its credibility. Second, a lack of

source diversity also makes climate journalism less appealing and excludes key social voices. For example, there were no news articles that feature information and viewpoints from ENGOs, or stories of citizens experiencing the impacts of climate change. State-run media do not provide channels for other social groups but only express the CPC's viewpoints. This suggests that people do not have mass media access to learn about climate change, or relevant media platforms to voice their environmental/climate appeals and ideas.

4.3. Frame

This study adopts both an inductive and deductive approach to the analysis of frames. One dominant frame in each article has been decided by author. Before analyzing the sample, I identified some general frames: political, economic, scientific and moral. Each frame includes sub frames. The political frame refers to: citizens' environmental appeals, attribution of responsibility, leadership, international relations/conflicts. The scientific frame includes: scientific facts on climate change, the consequences of climate change on human's life and environmental, scientific and technological approaches developed by human against climate change and scientific uncertainty. The economic frame includes: the relationship and interactions between economic growth and climate change. And, finally, the moral frame refers to: people's attitudes to climate change, thoughts on the relationship between human and nature. All frames were derived from previous studies and my hypotheses.

Additional frames and sub-frames emerged through the analysis, including three new frames: solutions, values and neutral international issues.

The political frame is the most common frame among all articles. The value frame and economic frame are the least prevalent. News items with a scientific frame accounted for 16% of all articles. The moral, solution and neutral international issue frames were used in around 5% of articles respectively.
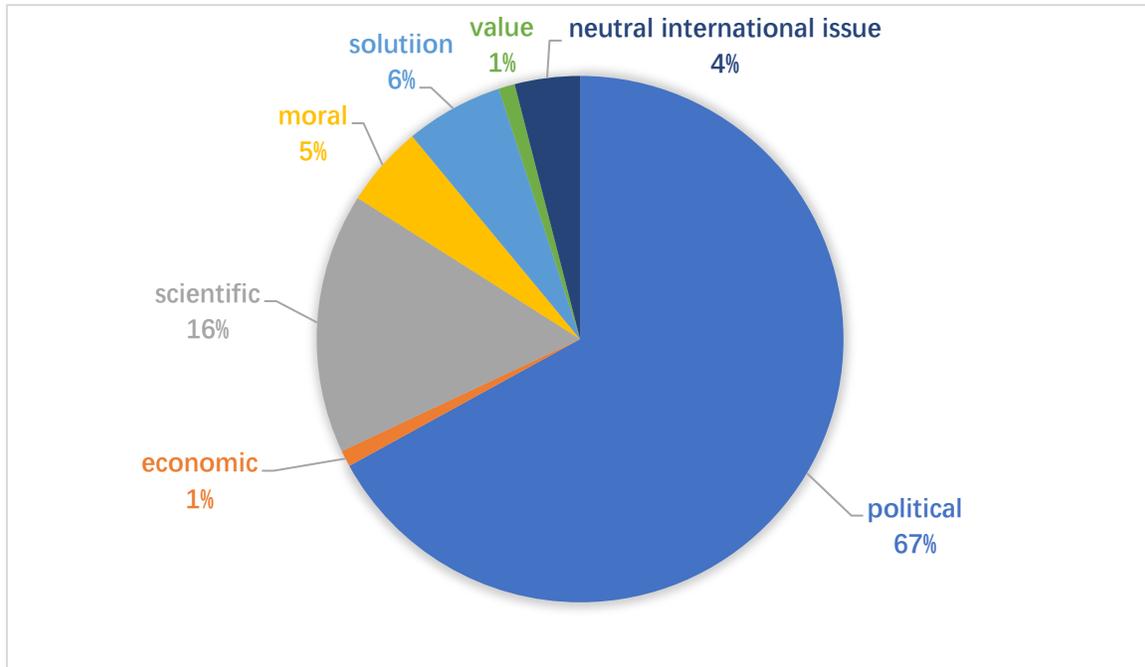
Figure 3: Main Frame

Table 1: All frames

Main frame	Sub-frame
Political frame (67%)	International cooperation (68%)
	International conflict (9%)
	Leadership (2%)
	National policy (15%)
	Contribution (2%)
	Individual environmental appeals (4%)
Scientific frame (16%)	Consequences of climate change (62.5%)
	Solution of climate change (18.75%),
	Scientific development to learn climate change (18.75%)
Moral frame (5%)	People's increasing concern about climate change (80%)
	Environmental responsibility for next generation (20%)
Solution frame (6%)	/
Value frame (1%)	/
Economic frame (1%)	/
Neutral international issue frame (4%)	/

4.3.1. Political frame

Under the political frame, I identified six sub frames: international cooperation (68%), international conflict (9%), leadership (2%), national policy (15%), contribution (2%) and individual environmental appeals (4%). The first three have appeared in former studies (Duan & Miller, 2019a; Han et al., 2017), and the last three are new frames that I have identified.

International cooperation is the most common political frame. Articles in this frame primarily discussed how the Chinese government and other state leaders are willing to cooperate to solve climate change. These news stories framed climate change as an international issue that requires cooperation from all governments. This frame positions climate change as part of a government agenda rather than a personal/social issue. People may be less motivated to take actions on climate change because they might see it as the government's responsibility to tackle climate change. A survey conducted in 2011 among Chinese youth identified a common narrative that only government had the ability to address the climate change issue (Eberhardt, 2015).

Duan and Miller (2019b) they found that Chinese newspapers were more likely to attribute responsibility to domestic governments instead of foreign governments. The international cooperation frame also shifted climate change away from average people, depicting a harmonious picture that the Chinese government is attempting to solve this problem. Notably, this is also a good way to justify the party's ongoing rule.

The number of articles framed around national policy is larger than the rest of political frames with 15%. These frames also offer strong support to CPC legitimacy. Most of these articles discussed the many environmental and climate change policies that have been enacted and put into practice. For example, a news article published on Feb 19, 2019 titled as *State council of central committee of CPC issues the guidelines for development of the Guangdong-Hong Kong-Macao Greater Bay Area*. The item focused upon a government report, exploring how a low-carbon development mold should be achieved by researching and creating low-carbon technologies. It also encouraged citizens to choose a low-carbon lifestyle. Even when climate change is discussed within China, it is still represented as a government issue: climate action can only be initiated and advanced by government. The narratives of low-carbon innovation

in food, agriculture, energy and urban mobility in China conceptualize the transformation in terms of top-down "high technology innovation". Perspectives that might put greater attention on the complex, systemic, and emergent nature of the multiple processes involved in transition, or the role of power and practices of societal actors in these processes are excluded from such discourse (Tyfield et al., 2015).

The dominant role of government as portrayed in SMD is a reflection of Chinese political structure, which is a "unitary hierarchy": central government exerts its great influence on lower administrations, state enterprises and social institutions (Qi & Wu, 2013). This political structure explains how China has achieved such rapid development in recent decades by "aligning local governments initiates with the national prerogative" (P. Wang et al., 2018).

International conflict is also a noteworthy sub political frame. Conflict over climate change is largely framed as something that occurs outside of China, mainly the U.S. Most of articles suggested that the U.S. is not willing to cooperate with international society in solving climate change. An article named *America beginning to withdraw from Paris Agreement*, noted that the U.S. would leave the Paris Agreement. It quoted many comments from other government officials and researchers such as the Spanish environmental minister. Jack Jocoby, an economist from MIT claimed that U.S. would lose its leadership and authority due to leaving from Paris Agreement. Michael Gerrard from the Law School of Columbia University described the decision as setting a negative example for other countries: if the richest country with significant GHG emission does not commit to fighting climate change, there is no reason for other countries to do their part.

A few articles mentioned that countries could not reach an agreement on coping with climate change. An article published on Dec 30 noted that parties could not arrive at a consensus on core issues of climate change during the United Nations Climate Change Conference. Another story explained how huge divergences between U.S. and Europe meant that both sides could not create common views on climate change governance.

Based on news reports in SMD it would appear that conflict on climate change only occurs outside of China, mainly in the U.S. Climate change, however, is a complex

issue and involves many interest groups both within a country and in the world. As a Chinese metropolis newspaper, SMD rarely mentioned conflict *within* China; instead, it primarily focused on criticizing U.S. climate change governance decisions. This served as an ideological weapon against the U.S., illustrating how and why climate change coverage is so frequently has been politicized. Many countries tend to treat this issue more like a political agenda instead of a scientific fact and a shared crisis.

The individual environmental appeals frame is a novel frame in research into climate change coverage in China. Civil society engagement is an important part in climate change governance. Civil society is able to influence government policies if there is a powerful appeal from people: social media and other new media could help to make their voices heard. "A more empowered civil society can provide a more solid foundation for climate governance in China" (Wang et al., 2018, p. 2). However, there was less little room for citizens in SMD. Only three articles mentioned individuals appeals around climate change: one was from foreign citizens, one was from a foreign celebrity and one was from a Chinese activist. The voices of average people on climate change was entirely absent from SMD. This illustrates the relatively marginal role that civil society plays in Chinese society (P. Wang et al., 2018).

4.3.2. Scientific frame

Sixteen news articles (16%) framed climate change as a scientific issue. This confirms past findings that the role of media in providing scientific knowledge to public did not play a significant role in Chinese news coverage (Duan & Miller, 2019a). Jia (2007) has speculated that the absence of climate change scientific information was due to the fact that Chinese journalists lack scientific literacy about climate change. They do not pay attention to the newest scientific publications on climate change, and they do not believe they need to reach out to scientists or other experts for climate change related information. It is also possible that journalists in developing countries are relatively slow to tell complex science stories of climate change (Shanahan, 2009). In other words, climate change communication in China might be in an infant stage.

Three sub frames appeared here: consequences of climate change (62.5%), reason and solution of climate change (18.75%), and a new sub frame: scientific development to learn climate change (18.75%). Over half of SMD news stories talked

about the consequences of climate change in SMD, but their geographic focus was largely outside of China. For example, articles discussed the extinction of baobabs in South Africa, a country that is extremely vulnerable to climate change; catastrophic sea level rise in Bangladesh and Jakarta; forest fires in Brazil; a drastic decrease of insects in the world, global temperature rise, and significant reductions in sea turtle and devilfish populations.

Only two news stories covered climate change consequences in China. One item, published on Dec 16, 2019, mentioned that climate change and global warming make coastal cities increasingly subject to salt tide and other natural disasters. Another, published on April 7, 2020, explained that global warming and a strong South China Sea monsoon might bring more complex and uncertain weather conditions to Shenzhen (a coastal city in Guangdong province) leading to more storms and typhoon in 2020.

Reports from outside China were more concrete and appealing, framed around a story-telling narrative that sustains audience attention to long articles. A news story published on Oct 15, 2019 explored an SMD journalist's visit to the island of Java as a volunteer to help with a sea turtle protection project. This news story employed first-person narrative and depicted a vivid and detailed picture of turtle's life, showing how global warming, ocean pollution and the destruction of habitats could have deadly impacts upon their life and their offspring. His volunteer experience enabled him to learn more about the vulnerability of these sea turtles. He concluded with an appeal to protect ocean creatures and the ecological environment. The story was powerful and likely effective in arousing people's awareness and making them think about this issue.

In contrast, there was no specific climate change stories told in China. The connections between China and climate change/global warming were often mentioned in one or two sentences. People were given no information about what was happening in their own country. This can decrease perceptions of the salience and urgency of climate change in China.

The scientific uncertainty frame was not found in any articles in this research project. But it did appear in Duan and Miller's study (2019b) whose research focused on climate change news coverage in Chinese state-run and market-oriented media from 2013 to 2015. My findings may reflect the fact that this frame has gradually disappeared,

and that climate change skepticism and uncertainty are seldom seen in Chinese newspapers. Indeed, Painter and Ashe (2012) found that scientific uncertainty primarily exists in the U.S. and the U.K.

4.3.3. Solution frame

Among the six (6%) solution framed articles, the main solution presented was the adoption of new energy. There are two key topics. One is electric vehicles in China; the other is the development of new forms of energy. BYD is an electric car brand in China. Four articles primarily talked about the development of this car brand, and how it would help reduce GHG emissions and boost economic development at the same time. The other two news stories discussed nuclear energy and the Chinese energy transformation.

Generally speaking, there is little coverage on solutions to climate change and there is a lack of topic diversity. The car industry has significant impacts upon energy consumption. China is a coal-based economy and most of its GHG emissions come from fossil fuels. The real solution to curbing GHG emission is to develop renewable energy and increase energy efficiency, an undertaking that carries a high cost. China is now facing the dilemma of how to achieve economic growth and also environmental protection. As Heggelund (2007) suggests, China is confronting a typical developing country dilemma – how to juggle economic growth, resource scarcity and environmental degradation.

It is still difficult for China to take action on climate change, though it must be said that China has launched many policies, such as reducing the economy's energy and carbon intensity (Qi & Wu, 2013). The "green economy" had also been recognized in the political agenda and was a key part of the discussion of "ecological civilization" that occurred at the 18th Congress of the Communist Party of China in November 2012. Qi and Wu (2013) believe that the infrastructural and administrative challenges can still be overcome to meet China's avowed goals such as the 40-45% energy efficiency gains by 2020.

4.3.4. Moral frame and value frame

There are two sub frames to morality: people's increasing concern about climate change (80%) and environmental responsibility for next generation (20%). These two sub frames reflect the relationship between humans and the environment and the relationship between humans and their descendants. In general, the small number of articles suggest that people do not have strong awareness of the environment or climate change, and they seldom deliberate upon their relationship with nature.

A Spring 2015 Pew Research Center survey found that Chinese and Americans were less concerned about climate change among 40 nations (Wike, 2016). This may be for two principle reasons. One is the lack of attention to the issue in the media. Shanahan (2009) pointed out that the lack of concern to climate change can be partially attributed to the lack of coverage by news media. SMD is one of the most popular market-oriented newspaper, yet it fails to cover climate change comprehensively and sufficiently. This failure means people are unlikely to have much awareness, let alone concern about climate change. Among the five moral-framed articles, deep concern was expressed from celebrities instead of normal people.

Another reason may be the fact that most Chinese people are more concerned about their economic livelihood. Eberhardt's (2015) four year research on climate change discourse in China found that not a single causal conversation emerged about climate change – as compared, for example, to common topics such as finding a job, affording an apartment, having a higher salary and even moving to a place within or outside of China with less smog. This suggests that those in developing countries may prioritize their individual economic livelihoods even though they are aware of the negative effect of climate change or other environmental problems.

Moral frames around the human relationship with the environment are generally much harder to achieve compared with moral frames with respect to other humans. Lack of systematic environmental education leaves many people unaware of the significance of the environment to human beings. Capitalism also plays a key role in destroying nature in a moral manner. There are countless environmentally friendly products in the marketplace, which creates guilty-free and eco-friendly myth.

A frame focusing upon values is a new frame in this research.. Articles in this frame represent fighting against climate change as a life pursuit which may include career or hobbies. Those who treat climate change as a value pursuit may be willing to invest time and resources in it. This motivation could originate from morality but also much deeper than it. The only article framed around values was focused upon the secret to a long life. It advised people to find things they really enjoy and set goals to achieve them. Fighting against climate change was one of the life goals mentioned in this article. The value frame actually suggests a higher profile for climate change in China.

4.3.5. Economic frame

This frame is not prevalent in SMD. The only news article adopting this frame discussed a Chinese ocean oil company's exploration for renewable resources, an ideal fusion of the economy and environment. The economic frame prioritizes the relationship between the economy and climate change. There are three ways to depict this relationship: conflicting, harmonious and uninfluenced. It is contradictory to pursue rapid economic growth and GHG reduction at the same time due to China's fossil fuel-based economy. However, if this conflict is foregrounded to Chinese society, the public may question the government and its policies; it may also pose considerable pressure to those Chinese corporations/industries that are the source of GHG emissions. As a result, it is citizens who are shouldering the significant environmental pressure, a fact that is not widely reported in mass media. As Heggelund (2007) argued, economic growth, social stability and development are priorities for Chinese policy makers. A focus upon conflict would have challenged these priorities. And, accordingly, SMD's avoidance of such conflict suggests political pressure from government.

4.3.6. Neutral international frame

The neutral international issue is a new frame for climate change coverage. Articles adopting this frame represent climate change as a 'normal' international issue, such as refugees. In most cases, when climate change is mentioned in an international context, there are positive or negative attitudes associated with it: indeed, most articles with a political frame adopted a positive perspective on international cooperation, with a few critical of U.S. actions. In a neutral frame, these connotations are not present. And, if

climate change is framed in a neutral manner (instead of as an ideological weapon), it may be easier to address this problem globally.

4.4. Follow-up research

Given the surprisingly paucity of articles during the time period initially identified for this study, I conducted follow-up research to survey the broad contours of how SMD had covered climate change since the paper's founding in1997. As noted earlier, SMD is located in Guangdong province which boasts many coastal cities, such as Guangzhou, Zhuhai and Shantou. These coastal cities are subject to sea level rise due to climate change (IPCC,2007). Accordingly, this follow-up research used "climate change" and "sea level rise" as key words to review the WiseSearch database with a timespan of 1997 to 2020.

In total, 166 news articles and 15 articles with a focus upon China were identified. Only one article directly connected global warming and sea level rise directly in the 15 articles on China. It was published on April 10, 2010 named *Don't use city development as an excuse for high carbon emission*. It explored the devastating consequences of global warming, such as sea level rise and water shortage, and noted that Shenzhen is one of the most vulnerable cities in the world. In addition, it implicitly questioned government policies, appealing that government should adopt a low carbon approach to planning urban infrastructure. This additional research suggests that the geographic focus of the reporting practices of SMD have not undertaken any significant change over the past two decades.

I also conducted searches of two separate time periods: 1997-2007, and 2007-2020. Tolan (2007) found that the publication of the IPCC report in 2007 marked the first emergence of China's media coverage linking global warming and greenhouse-gas emissions. I found 262 news articles on climate change before 2007 and 2,370 news articles after 2007. Clearly, the volume of articles increased dramatically. But it also seems that SMD has made little progress on the quality of climate change reporting given, for example, that it continues to neglect the local impacts of climate change/global warming. One might even say that SMD is explicitly avoiding reporting upon the specific impacts of climate change in China.

Chapter 5.   Discussion and conclusion

5.1. Discussion

5.1.1. Not a 100% politically sensitive issue

Clearly, SMD is subject to government influence on how it reports on climate change issue. Over half of its news articles (55%) are directly taken from the Xin Hua News Agency. These articles were all framed as a national or international political issue, relying upon Chinese sources or the leaders (and government officials) of other countries. SMD followed the lead of state media in representing climate change as a political issue in 66 (67%) articles.

The follow-up research reflected that there might be an intangible power which curbs substantial climate change reporting in China. Hobson (2012) suggests that China's brand of authoritarianism may, in fact, be a reaction to the possibility that the environmental crisis may spark democratization. Clearly stability is one of the priorities the Chinese government want to achieve. Therefore the regime only permits limited space for non-state actors. Gilley (2012) called this aspect of environmental politics "authoritarian environmentalism".

Others, however, argue that there is room for more independent coverage. Gaell (2018, p.544) argues that climate change is less sensitive than other environmental issues, such as water and air pollution, or food security. Environmental journalism could focus more upon the conflict between scientific risk and environmental knowledge, and thereby express different subjectivities and the constructions of citizenship. Environmental journalists, he argued, should actively engage in climate change reporting by showing multiple voices and constructing multiple frames and plural narratives in the context of uncertainty. In doing so, more creative solutions and approaches might emerge.

Effective climate governance in China cannot be achieved by the state only. State, civil society and market are three important and indispensable partners for climate governance in China. In particular, a more empowered civil society can provide a stronger foundation for climate governance in China (Wang et al., 2018, p.2). Media are

crucial channels for increasing people's climate change awareness. However, if climate journalism is minimized and restricted by government control, a "lock in" effect will lead to low social concern, which in turn, makes more repressive state control more necessary and difficult (Gilley, 2012, p. 300).

The state has begun to take people's opinions into consideration, which may not be captured and understood by news media. People's opinions can be gathered and communicated in the form of internal reference reports (neican), and seminars and conference are organized by government, government-affiliated institutions and third parties. This bottom-up political practice has been exercised in various processes. Government has also recognized the role of environmental NGO that help to promote people's environmental awareness and monitor local government and industrial activities (Fu, 2010). NGOs can also provide useful information for policymakers to improve their policies or their management of certain social sector (Moe, 2012). As such, the tolerance or 'safety zone' might be expanded for news media as well. News media should have more social influence than NGOs in terms of ideas and public opinions; and if they can report climate change more strategically, there might be better social effects.

5.1.2. Media should jump out climate change reporting comfort zone

While control and repression continue to be a reality in China, news media should change their editorial practice on climate change. There should be more compelling and informative climate change reports in news media. Currently, news media are unduly limiting their climate journalism through an over-reliance upon state news sources and thereby showing a lack of professionalism in climate change communication.

This research shows that SMD tends to present climate change as a government issue instead of a social one, likely leading to lower levels of concern about climate change among the public. Climate change is a gradual, long-term and regionally specific process; it is also an unpleasant topic, therefore many mass media – and, especially market-oriented media – may avoid it.

But a lack of scientific knowledge about climate change reinforces a lack of climate change justice. Citizens are the victims of many climate change related disasters

and, accordingly, they should have the right to learn about climate change, including relevant science and policymaking. This will enable them to take action against climate change and perhaps even enhance cooperation with government. And it is not enough for the state to impel climate change governance. Instead, a lack of awareness and motivation is the biggest challenge for people to take real action in their life to curb climate change.

In 2007, Jia (2007) found that media were not doing enough to cover climate change. At that time, there was only one article talking about climate science in a popular market-oriented newspaper. He also found that state-run newspapers mainly act as a propaganda apparatus and focus upon climate diplomacy, politics and economic news. Questionnaires with journalists reflected a real lack of communication between journalists, scientists and scientific institutions. Three years later, Yang (2010) – a journalist from China Environmental News – found that there was little self-produced climate reporting in most Chinese news media. Instead, they largely served as a spokesperson for government.

This research was carried out in 2020 and, unfortunately, it suggests that there has been little progress in climate journalism in Chinese news media despite the fact that climate change is now treated as a much more serious problem in Chinese society. Pressed by other countries and civil society, the Chinese government is actively alleviating climate change by implementing policies, such as energy efficiency and emissions reductions (Jieneng Jianpai), and establishing institutions, such as the National Coordination Group on Climate Change(NCGCC) which played a key role in developing China's position on the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol(Qi & Wu, 2013). Between 2007 and 2012, the number of environment-focused social organizations registered at the Ministry of Civil Affairs rose from 5,700 to 7,041 (Liu, 2013). However, the repaid growth of concern and attention to climate change in China has not been captured by news media.

5.2. Conclusion

This study examined climate change news coverage in SMD from January 1, 2019 to May 31, 2020. It suggests that the SMD tends to view climate change as a high-level and political administrative issue. It relies heavily upon the state-run news agency

for climate related news articles. A lack of substantial climate change coverage reflects a serious lack of professionalism in climate change communication. And, ultimately, this poor climate journalism reduces awareness and interest in the issue, and causes challenges for climate governance in China.

Discussion of climate change is subject to government control because of its complexities and contradictions, and the challenges they pose to the country's stability. Yet this should not excuse the insufficient and unbalanced reporting in Chinese news media. The Chinese government views climate change as a severe issue, but economic decentralization increases the difficulty of implementing environmental policy in a coordinated and substantive manner (Geall, 2018). Therefore, the state is willing to cooperate with civil society and the market to fight climate change over the past decade (P. Wang et al., 2018).

News media plays a crucial role in arousing people's awareness and providing them with scientific information about climate change. One the one hand, a better-informed public can hold governments to account "in the absence of binding commitments and an enforcement mechanism", evaluate and verify government implementation of commitments, assess the adequacy of commitments, and "mobilize around key opportunities to push governments to raise ambition" so that global targets can be ratcheted upwards (Bailey & Tomlinson, 2016). One the other hand, Jing (2003) pointed out that a "cognitive revolution" might be motivated by the pollution faced by Chinese citizens during the reform era. This means that the Chinese public may become much more aggressive in pursuing the social justice necessary to protect the ecological basis of human existence.

News media have a key role to play here. And they need to move out of their comfort zone to develop a better balance between state control and professional reporting. Future research could focus on exploring the possible strategies for climate change communication in Chinese context by news media or other media forms.

By examining the climate change news reports during the COVID 19 pandemic, I could not observe any change in terms of reporting frequency and topic. Only one article mentioned them together and depicted them as human crises for human beings. No further exploration and explanation over the relationship between these two threats.

References

An investigation into chemical projects and plants: Severe environmental risks exist in

    most water areas. (2012, September 5). *People's Daily*.

    http://news3.xinhuanet.com/ newscenter/2006.07/12/content_4820023.htm.

Anderson, A. (2009). Media, Politics and Climate Change: Towards a New Research

    Agenda. *Sociology Compass*, *3*(2), 166–182. https://doi.org/10.1111/j.1751-

    9020.2008.00188.x

Azevedo, J., & Marques, M. (2017). Climate literacy: A systematic review and model

    integration. *International Journal of Global Warming*, *12*, 414.

    https://doi.org/10.1504/IJGW.2017.084789

Bailey, R., & Tomlinson, S. (2016). *Post-paris: Taking forward the global climate change*

    deal. Chatham House.

Billett, S. (2010). Dividing climate change: Global warming in the Indian mass media.

    Climatic Change, *99*(1–2), 1–16. https://doi.org/10.1007/s10584-009-9605-3

Boykoff, M. (2010). Indian media representations of climate change in a threatened

    journalistic ecosystem. *Climatic Change*, *99*(1), 17–25.

    https://doi.org/10.1007/s10584-010-9807-8

Boykoff, M. T. (2008). Lost in translation? United States television news coverage of

    anthropogenic climate change, 1995–2004. *Climatic Change*, *86*(1), 1–11.

    https://doi.org/10.1007/s10584-007-9299-3

Boykoff, M. T., & Boykoff, J. M. (2004). Balance as bias: Global warming and the US

    prestige press. *Global Environmental Change*, *14*(2), 125–136.

    https://doi.org/10.1016/j.gloenvcha.2003.10.001

Brossard, D., Shanahan, J., & McComas, K. (2004). Are Issue-Cycles Culturally

    Constructed? A Comparison of French and American Coverage of Global

Climate Change. *Mass Communication and Society*, 7(3), 359–377.

https://doi.org/10.1207/s15327825mcs0703_6

Chen, S. (2013). *Environmental communication with Chinese characteristics: Crises, conflicts, and prospects* [Master]. Simon Fraser University.

Cox, R. (2013). *Environmental Communication and the Public Sphere*. SAGE.

Duan, R., & Miller, S. (2019a). Climate change in China: A study of news diversity in party-sponsored and market-oriented newspapers. *Journalism*.

https://doi.org/10.1177/1464884919873173

Duan, R., & Miller, S. (2019b). Climate change in China: A study of news diversity in party-sponsored and market-oriented newspapers. *Journalism*, 1464884919873173. https://doi.org/10.1177/1464884919873173

Eberhardt, C. (2015). Discourse on climate change in China: A public sphere without the public. *China Information*, 29(1), 33–59.

https://doi.org/10.1177/0920203X15571261

Energy for China. (2007). *The Economist*. https://www.economist.com/node/9488954.

Entman, R. M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, 43(4), 51–58. https://doi.org/10.1111/j.1460-2466.1993.tb01304.x

Foster, J. B. (2017). The Earth-System Crisis and Ecological Civilization: A Marxian View. *International Critical Thought*, 7(4), 439–458.

https://doi.org/10.1080/21598282.2017.1357483

Fu, T. (2010). *Civil society approaches, perspectives in China on climate change*.

Gamson, W. A., & Modigliani, A. (1987). The changing culture of affirmative action. In *Research in political sociology: Vol. Vol. 3* (pp. 137–177). JAI Press.

Gao, L. (2018). 联合国气候大会的环境新闻报道：冲突、协商与调整——以《人民日报》和《华盛顿邮报》为例.[Environmental News Report on the United Nations Climate Change Conference: Conflict, Negotiation and Adjustment, People's Daily and Washington Post for instance]. *Scientific Journalism Communication*, *9*, 16–21.

Gare, A. (2016). *The Philosophical Foundations of Ecological Civilization: A Manifesto for the Future*. Routledge.

Geall, S. (2018). Climate-Change Journalism and "Edgeball" Politics in Contemporary China. *Society & Natural Resources*, *31*(5), 541–555. https://doi.org/10.1080/08941920.2017.1414907

Gilley, B. (2012). Authoritarian environmentalism and China's response to climate change. *Environmental Politics*, *21*(2), 287–307. https://doi.org/10.1080/09644016.2012.651904

Gitlin, T. (2003). *The Whole World Is Watching: Mass Media in the Making and Unmaking of the New Left*. University of California Press.

Goffman, E. (1974). *Frame analysis: An essay on the organization of experience.* Harper & Row.

Gordon, K. V., Brownell, M., Wang, S. Y., Lepo, J. E., Mott, J., Nathaniel, R., Kilgen, M., Hellein, K. N., Kennedy, E., & Harwood, V. J. (2013). Relationship of human-associated microbial source tracking markers with Enterococci in Gulf of Mexico waters. *Water Research*, *47*(3), 996–1004. https://doi.org/10.1016/j.watres.2012.10.032

Han, J., Sun, S., & Lu, Y. (2017). Framing Climate Change:A Content Analysis of Chinese Mainstream Newspapers From 2005 to 2015. . . *International Journal of Communication (Online)*, *11*, 2889–2911.

Heggelund, G. (2007). CHINA'S CLIMATE CHANGE POLICY: DOMESTIC AND

    INTERNATIONAL DEVELOPMENTS. *Asian Perspective*, *31*(2), 155–191.

    JSTOR.

Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and Synthesis of

    Research on Responsible Environmental Behavior: A Meta-Analysis. *The Journal*

    of Environmental Education, *18*(2), 1–8.

    https://doi.org/10.1080/00958964.1987.9943482

Hobson, C. (2012). Addressing climate change and promoting democracy abroad:

    Compatible agendas? *Democratization*, *19*(5), 974–992.

    https://doi.org/10.1080/13510347.2012.709691

How strong is China's economy? (2012, May 26). *The Economist*.

    https://www.economist.com/node/21555915.

Jang, S. M., & Hart, P. S. (2015). Polarized frames on "climate change" and "global

    warming" across countries and states: Evidence from Twitter big data. *Global*

    Environmental Change, *32*, 11–17.

    https://doi.org/10.1016/j.gloenvcha.2015.02.010

Ji, L., & Liu, C. (2013). 中国都市类报纸气候变化议题的报道框架与关注周期——以《南方

    都市报》为例.[The frame and attention cycle of climate change issue in Chinese

    metropolitan newspaper, a case study of Southern Metropolis Daily]. *Social*

    Science Research, *5*, 196–201.

Jia, H. (2007). 全球变暖、科学传播与公众参与——气候变化科技在中国的传播分析.

    [Global Warming, Science Communication and Public Engagement——Analysis

    of S&T Communication of Climate Change in China]. *Science Popularization*, *3*,

    39–45.

Jin, J. (2001). *The growing importance of public participation in China's environmental movement* (Environmental Movements and NGO Trends in Mainland China, Taiwan and Hong Kong, pp. 5–8). The Woodrow Wilson Center.

Jing, J. (2003, September 2). *Environmental protests in rural China*. Chinese Society; Routledge. https://doi.org/10.4324/9780203302606-17

Jing, Y. (2013). The One-Child Policy Needs an Overhaul. *Journal of Policy Analysis and Management*, *2*(32), 392–399.

Kaiman, J. (2013, June 4). Inside China's "cancer villages." *The Guardian*. http://www.theguardian.com/world/2013/jun/04/china-villages-cancer-deaths

Lai, E. C.-Y. (2009). *Climate change impacts on China environment: Biophysical impacts.* Woodrow Wilson Certer.

Lee, C.-C. (1990). *Voices of China: The Interplay of Politics and Journalism*. Guilford Publications.

Liu, C., & Zheng, H. (2002). South-to-north Water Transfer Schemes for China. *International Journal of Water Resources Development*, *18*(3), 453–471. https://doi.org/10.1080/0790062022000006934

Liu, J. C.-E. (2015). Low carbon plot: Climate change skepticism with Chinese characteristics. *Environmental Sociology*, *1*(4), 280–292. https://doi.org/10.1080/23251042.2015.1049811

Liu, X. (2013). 应对气候变化，NGO 能有何作为？[Fighting climate change, what can NGOs do?]. *Environment News*.

Ma, X. (2008). *Extra Media Influences on the Issue-Attention Cycle:A Content Analysis of Global Warming Coverage in the People's Daily and The New York Times, 1998-2007* [Master, Ohio University]. https://etd.ohiolink.edu/pg_10?::NO:10:P10_ETD_SUBID:60894

Ma, X, & Ortolano, L. (2000). *Environmental Regulation in China: Institutions, Enforcement, and Compliance*. Rowman & Littlefield Publishers.

Manzo, K., & Padfield, R. (2016). Palm oil not polar bears: Climate change and development in Malaysian media. *Transactions of the Institute of British Geographers*, *41*. https://doi.org/10.1111/tran.12129

Masson-Delmotte, V., P., Zhai, H.-O., Portner, D., Roberts, J., Skea, P. R., Shukla, A., Pirani, W., Moufouma-Okia, C., Pean, R., Pidcock, S., Connors, J. B. R., Matthews, Y., Chen, X., Zhou, M. I., Gomis, E., Lonnoy, T., Maycock, M., Tignor, & T. Waterfield(eds). (2018). *Global Warming of 1.5°C.An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. IPCC.

McQuail, D. (1994). *Mass Communication Theory: An Introduction (3rd ed.)*. Sage.

Mercado, M. T. (2012). Media Representations of Climate Change in the Argentinean Press. *Journalism Studies*, *13*(2), 193–209. https://doi.org/10.1080/1461670X.2011.646397

Mittal, R. (2012). Climate Change Coverage in Indian Print Media: A Discourse Analysis. *The International Journal of Climate Change: Impacts and Responses*, *3*(2), 219–232. https://doi.org/10.18848/1835-7156/CGP/v03i02/37105

Moe, I. (2012). *Setting the Agenda: The Scope to Act on Climate Change Interests for Chinese NGOs*. https://www.duo.uio.no/handle/10852/34940

Niepold, F., Herring, D., & McConville, D. (2007). *Case for Climate Literacy in the 21st Century*. 11.

Nisbet, M. C. (2009). Communicating Climate Change: Why Frames Matter for Public

Engagement. *Environment: Science and Policy for Sustainable Development*,

51(2), 12–23. https://doi.org/10.3200/ENVT.51.2.12-23

Olausson, U. (2009). Global warming—global responsibility? Media frames of collective

action and scientific certainty. *Public Understanding of Science*, *18*(4), 421–436.

https://doi.org/10.1177/0963662507081242

Oxford Word of the Year 2019 | Oxford Languages. (n.d.). Retrieved August 8, 2020,

from https://languages.oup.com/word-of-the-year/2019/

Painter, J., & Ashe, T. (2012). Cross-national comparison of the presence of climate

scepticism in the print media in six countries, 2007–10. *Environmental Research

Letters*, *7*(4), 044005. https://doi.org/10.1088/1748-9326/7/4/044005

Pan, J. (2016). *China's Environmental Governing and Ecological Civilization*. Springer-

Verlag. https://doi.org/10.1007/978-3-662-47429-7

Pan, Y., Opgenhaffen, M., & Van Gorp, B. (2019). Negotiating climate change: A frame

analysis of COP21 in British, American, and Chinese news media. *Public

Understanding of Science*, *28*(5), 519–533.

https://doi.org/10.1177/0963662518823969

Price, V., Tewksbury, D., & Powers, E. (1997). Switching Trains of Thought: The Impact

of News Frames on Readers' Cognitive Responses. *Communication Research*,

24(5), 481–506. https://doi.org/10.1177/009365097024005002

Qi, Y., & Wu, T. (2013). The politics of climate change in China: The politics of climate

change in China. *Wiley Interdisciplinary Reviews: Climate Change*, *4*(4), 301–

313. https://doi.org/10.1002/wcc.221

Reyes-García, V., Fernández-Llamazares, Á., Guèze, M., Garcés, A., Mallo, M., Vila-

Gómez, M., & Vilaseca, M. (2016). Local indicators of climate change: The

potential contribution of local knowledge to climate research. *Wiley*

Interdisciplinary Reviews. Climate Change, *7*(1), 109–124.

https://doi.org/10.1002/wcc.374

Saleh, I. (2012). Ups and Downs from Cape to Cairo: The Journalisms Practice of

Climate Change in Africa. *Media Meets Climate. Nordicom, Gö Teborg*, 49–65.

Schmidt, A., Ivanova, A., & Schäfer, M. S. (2013). Media attention for climate change

around the world: A comparative analysis of newspaper coverage in 27

countries. *Global Environmental Change*, *23*(5), 1233–1248.

https://doi.org/10.1016/j.gloenvcha.2013.07.020

Semetko, H. A., & Valkenburg, P. M. (2000). Framing European politics: A content

analysis of press and television news. *Journal of Communication*, *50*(2), 93–109.

https://doi.org/10.1111/j.1460-2466.2000.tb02843.x

Semujju, B. (2013). Participatory media for a non-participating community: Western

media for Southern communities. *International Communication Gazette*, *76*, 197–

208. https://doi.org/10.1177/1748048513504166

Shanahan. (2009). *Time to adapt? Media coverage of climate change in non-*

industrialised countries. https://pubs.iied.org/G02512/

Shehata, A., & Hopmann, D. N. (2012). Framing Climate Change. *Journalism Studies*,

13(2), 175–192. https://doi.org/10.1080/1461670X.2011.646396

Siebert, F., Peterson, T., & Schramm, W. (1963). *Four Theories of the Press: The*

Authoritarian, Libertarian, Social Responsibility, and Soviet Communist Concepts

of What the Press Should Be and Do. University of Illinois Press.

https://muse.jhu.edu/book/59151

Sima, Y. (2011). Grassroots Environmental Activism and the Internet: Constructing a

Green Public Sphere in China. *Asian Studies Review*, *35*(4), 477–497.

https://doi.org/10.1080/10357823.2011.628007

Sun, Y., Graham, T., & Broersma, M. (2018). Environmental Talk in the Chinese Green
      Public Sphere: A Comparative Analysis of Daily Green-Speak Across Three
      Chinese Online Forums. In J. Schwanholz, T. Graham, & P.-T. Stoll (Eds.),
      Managing Democracy in the Digital Age (pp. 243–263). Springer International
      Publishing. https://doi.org/10.1007/978-3-319-61708-4_13

Takahashi, B. (2010). Framing and sources: A study of mass media coverage of climate
      change in Peru during the V ALCUE: *Public Understanding of Science*.
      https://doi.org/10.1177/0963662509356502

Takahashi, B., & Meisner, M. (2013). Climate change in Peruvian newspapers: The role
      of foreign voices in a context of vulnerability. *Public Understanding of Science
      (Bristol, England)*, *22*, 427–442. https://doi.org/10.1177/0963662511431204

Tolan, S. (2007). *Coverage of Climate Change in Chinese Media*. 10.

Tong, J. (2014). Environmental Risks in Newspaper Coverage: A Framing Analysis of
      Investigative Reports on Environmental Problems in 10 Chinese Newspapers.
      Environmental Communication, *8*(3), 345–367.
      https://doi.org/10.1080/17524032.2014.898675

Tong, J. (2015). *Investigative Journalism, Environmental Problems and Modernisation in
      China*. Palgrave Macmillan UK. https://doi.org/10.1057/9781137406675

Trumbo, C. (1996). Constructing climate change: Claims and frames in US news
      coverage of an environmental issue. *Public Understanding of Science*, *5*(3), 269–
      283. https://doi.org/10.1088/0963-6625/5/3/006

Tyfield, D., Ely, A., & Geall, S. (2015). Low Carbon Innovation in China: From
      Overlooked Opportunities and Challenges to Transitions in Power Relations and
      Practices. *Sustainable Development*, *23*(4), 206–216.
      https://doi.org/10.1002/sd.1588

U.S. Elite and Non-elite Newspapers' Portrayal of the Iraq War: A Comparison of Frames and Source Use—Serena Carpenter, 2007. (n.d.). Retrieved July 11, 2020, from https://journals.sagepub.com/doi/10.1177/107769900708400407

Walker, M. (1996). China and the New Era of Resource Scarcity. *World Policy Journal*, *13*(1), 8–14.

Wang, M. (2015). 国际政治经济格局下的气候变化报道策略——以中国媒体对哥本哈根气候大会的报道为例. [The Reporting Strategy on Climate Change Under International Political and Economic Structure, Chinese Media Report on Copenhagen Climate Change Conference for Instance]. *Shanghai Journalism Review*, *5*, 83–87.

Wang, P., Liu, L., & Wu, T. (2018). A review of China's climate governance: State, market and civil society. *Climate Policy*, *18*(5), 664–679. https://doi.org/10.1080/14693062.2017.1331903

Wike, R. (2016). What the world thinks about climate change in 7 charts. *Pew Research Center*. https://www.pewresearch.org/fact-tank/2016/04/18/what-the-world-thinks-about-climate-change-in-7-charts/

Winfield, B. H., & Peng, Z. (2005). Market or Party Controls?: Chinese Media in Transition. *Gazette (Leiden, Netherlands)*, *67*(3), 255–270. https://doi.org/10.1177/0016549205052228

Wu, Y. (2009). The Good, the Bad, and the Ugly: Framing of China in News Media‟s Coverage of Global Climate Change. In *Climate Change and Mass Media* (p. 158). Peter Lang.

Xie, L. (2015). The Story of Two Big Chimneys: A Frame Analysis of Climate Change in US and Chinese Newspapers. *Journal of Intercultural Communication Research*, *44*(2), 151–177. https://doi.org/10.1080/17475759.2015.1011593

Xie, L. (2010). *论我国环境新闻报道. [Discussing on Chinese environmental reporting]* [Master]. Minzu University of China.

Yang, G. (2005). Environmental NGOs and Institutional Dynamics in China. *The China Quarterly*, *181*, 46–66. https://doi.org/10.1017/S0305741005000032

Yang, G., & Calhoun, C. (2007). Media, Civil Society, and the Rise of a Green Public Sphere in China. *China Information*, *21*(2), 211–236. https://doi.org/10.1177/0920203X07079644

Yang, L., Ma, J., & Yan, S. (2010). 对我国媒体气候报道的思考[Reflection on Chinese media's climate report]. *Journal of Southwest Minzu University*, *8*, 208–212.

Yuan, Y. (2014). 全球视野下的气候变化报道.[Climate Change Report from Global View]. *International Journalism*, *11*, 24–25.

Zhang, S., & Chen, J. (2009). 华北地区缺水风险研究[A study of Water Shortage in Northern China]. *Journal of Natural Resources*, *7*, 1192–1199.

Zhao, Y. (1998). *Media, Market, and Democracy in China: Between the Party Line and the Bottom Line*. University of Illinois Press.

Zheng, B., & Wang, B. (2013). 中国气候传播研究的发展脉络、机遇与挑战. [The History Hopes and Challenges of Chinese Climate Communication]. *Dongyue Tribune*, *10*, 5–14.

Zi, L. (2003). Breaking News, State Media Reforms. *Beijing Review*, *46*(35), 11–12.

政府携手 NGO 实现脱贫[Chinese NGOs to work with governement for property reduction]. (2001, October 28). *People's Daily*.