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博士論文
Doctoral Dissertation

氣候變遷之框架分析:中國、美國及南非的組織比較

Framing Climate Change on the Websites of Consequential Organisations: A Comparative Perspective amongst China, South Africa, and the US

指導教授: 徐美苓教授
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Submitted to International Doctoral Program in Asia Pacific Studies

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Abstract

This study contributes to the existing body of knowledge by examining how the websites of consequential corporations, eNGOs and political parties across the socio-politically distinct nations of China, South Africa and the US frame their positions to climate change. The study uses a mixed-method approach that drew from van Gorp's (2010) inductive-deductive approach to framing theory, the sociological theory of fields and supplementary archival analysis. The study asks three research questions.

The first question asks what the reasoning devices and framing devices are like in the consequential actors' framing of climate change. The findings show four dominant frames. The public accountability and governance frame identified the problem of climate change as being due to corporate-produced GHG emissions, pollutants or carbon footprints that caused ecological or environmental damage. Perceiving the need for better legal compliance, applicants of this frame offered policy solutions. Data, hedging devices, scientific evidence and metaphors often accompanied the statements. The economic development and competitiveness frame defined the problem as due to the increasing costs from environmental legislation. Evaluating the need for more sustainable profitability, solutions included cost-cutting, efficiency investments, and exploring new markets. The social progress frame defined the problem as negative social impacts. Seeing the need to build social resilience in harmony with nature, applicants proposed solutions for social development and technological innovation. The environmental ethics and morality frame defined the problem as environmental damage and biodiversity losses from ignored environmental limits, mining, fracking and industrial activities. To institute an environmental ethic, applicants of the frame proposed conservation, environmental protection, rehabilitation and environmental education as solutions.

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The second question asks how the framing of climate change by consequential actors reflect the socio-political context. In China, actors preferred an assertive application of public accountability and governance and social progress frames. This finding was reflected in the national legislative and governance documents which called for social modernisation under the law. In South Africa, actors overwhelmingly preferred the social progress frame with an emphasis on building social resilience. Archival data from both political and civic actors reflected these findings. In the US, the broader distribution of frames reflected a national political split. Actors applying the public accountability and governance frame as well as the economic development and competitiveness frames tended to hedge their statements often. In all national cases, eNGOs preferred the environmental morality and ethics frame and often used emotional appeals.

The third research question asks how consequential actors' framing of climate change is similar or different across and within nations. Four hypotheses were evaluated. First, the findings suggested that China and the US have a similar preference for public accountability and governance frame. This finding could be due to their similar environmental histories. Second, South African consequential actors overwhelming preferred the social progress frame. This finding was in line with the national emphasis on social development. Third, the study found that the US made the most applications of the economic development and competitiveness frame, with mostly corporate actors and the Republican party applying it. Finally, the US also made most applications of the environmental morality and ethics frame, while China made the least. These findings have implications for the successful adoption of climate change solutions.

Keywords: climate change, consequential organisations, constructionist approach, framing analysis, sociological theory of fields

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List of Abbreviations

ANC	African National Congress
CPC	Communist Party of China
CO_2e	carbon dioxide equivalent
COP	Conference of the Parties
DA	Democratic Alliance
EPA	Environmental Protection Agency
eNGO	environmental non-governmental organisation
GHGs	greenhouse gas emissions
IPCC	International Panel for Climate Change
PRC	People's Republic of China
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America

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1. Introduction

The 2016 ratification of the Paris Accord heralded a new chapter in international cooperation on climate change mitigation. However, it also exposed deep national rifts. While the COP (Conference of the Parties) debated the reduction of greenhouse gas emissions (GHGs) and the mitigation of anthropogenic climate change, political, corporate and environmental non-governmental organisations (eNGOs) made clear its disagreement. Media reports by various US news agencies on the 2016 presidential election, reveals that at least thirteen US Republican presidential nominees lamented on the financial ramifications of climate action, denied the science, or opposed the very existence of climate change (see for example Dunlap, McCright, & Yarosh, 2016; Kaplan & Uchimiya, 2015). This position was affirmed by US President Donald J. Trump's signing of an order to withdraw the US from the Paris Accord as well as his efforts since to repeal EPA regulations that placed limits on fossil fuel emissions ("Approval and promulgation of air quality...", 2018; Trump, 2019).

Divergent views proliferated amongst political and other organisational actors abroad. In China, political actors, including General Secretary of the Chinese Communist Party, Xi-Jinping, avidly fended off accusations that climate change was a hoax (Shankleman, 2016; Xi, 2015). State-owned enterprises such as the State Grid Corporation often published such rebuttals and promoted the adoption of smart-grid technologies to clean up energy supplies (State Grid Corporation of China, n.d.). In the US, debates and action also went beyond politics. High technology corporations such Apple Inc., Tesla and Microsoft, joined in a coalition with California's Governor, Democrat Jerry Brown, in signing a climate agreement with China (Leswing, 2017; Shepardson, 2017). Meanwhile, mining companies such as Alcoa Inc. admitted financial losses from pro-climate regulations. In South Africa, energy corporations such as EDF Renewables and Lesedi Nuclear Services focused on building social resilience in preparation of climate change.

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Such divergences showed that international political agreements do not equate the views taken by organisational actors. Furthermore, organisational actors have increasingly been expected to implement pro-climate policies while receiving limited opportunity to take part in the formation process. As a result, corporations have turned to the growing number of public relations tools to express their respective positions (Anderson, 2009; Cacciatore, Scheufele, & Iyengar, 2016; Wickman, 2014). The importance of understanding organisations' climate change positions has grown. However, current research provides limited insight into organisations' views on climate change. The current study aims to add to this body of knowledge by exploring how national organisational actors in different socio-political and economic systems communicate their positions on climate change.

1.1 Cases for the Study

A vital premise of the 1998 Kyoto Protocol was that of common but differentiated responsibilities (CBDR) (Torvanger, 1998; United Nations, 2011). It recognised that while all nations should take climate actions, some have higher historical responsibilities and capabilities. The literature furthermore recognised that the different socio-political realities of different nations might affect organisations' actions (Fligstein & McAdam, 2012; Kluttz & Fligstein, 2016; van Gorp, 2007). To better understand the impacts of political settings on organisations' climate change positions, the researcher chose the three national cases of China, South Africa, and the US for their different socio-political and economic systems as well as for their different approaches to the international climate change debate.

1.1.1 Socio-political characteristics. The three nations have developed different political systems to address their governance needs. As of 2019, China's leadership identified as a unitary political system ("China's legislative system," 2019; World Bank, 2019a). The system is characterised by a robust legal system and subject to the guidance of the Communist Party of China (CPC), the Politburo and the General Secretary of the CPC, Xi

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Jinping. The Republic of South Africa defined itself as a multi-party representative parliamentary democratic republic. Under this system, eligible voters elect political parties to parliament to serve for five-year cycles. The US identifies as the Federal Republic. The President of the United States and the House of Representatives are indirectly elected through the Electoral College in general elections every four years. The following discussion elaborates.

China's socio-political context. China has undergone significant political and economic changes over the last 40 years. Although China adopted its first constitution in 1954, it replaced it three times in 1975, 1978 and 1982. The most recent constitution was adopted in 1982 under the leadership of Deng Xiaoping. It was founded on selected principles from Marxist-Leninism, socialism and Maoism. The constitution focused on developing an institutional foundation to promote the national goals of power, affluence and stability (Leonard, 2012; Vogel, 2011; Wright, 2011; Xi, 2014b).

A core part of the 1982 Constitution of the People's Republic of China (PRC) was to lay a strong institutional foundation. Notably, the 1982 Constitution of the PRC brought back the positions of President and Vice President. While the move did separate the powers of the presidency from that of the CPC, it established a clearly defined institution to house the executive powers for the PRC ("China's legislative system," 2019; Kabashima & White III, 2014; Leonard, 2012). To aid the executive in its decision making, the 1982 constitution identified the 3000-seat National People's Congress (NPC)[1] as the highest organ of state authority (Kabashima & White III, 2014). The NPC would have the duty to elect and hold the State Council responsible, as well as to provide oversight for the Supreme People's Court and

[1] The NPC consists of 8-political parties and various social interest groups, including the Revolutionary Committee of the Kuomintang (中國國民黨革命委員會 or 民革), the China Democratic League (中國民主同盟 or 民盟), the China Democratic National Construction Association (中國民主建國會 or 民建), the China Association for Promoting Democracy (中國民主促進會 or 民進), the Chinese Peasants' and Workers' Democratic Party (中國農工民主黨 or 農工黨), the Zhigongdang of China (中國致公黨), the Jiusan Society (九三學社) and the Taiwan Democratic Self-Government League (臺灣民主自治同盟 or 台盟).

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the Supreme People's Procuratorate ("China's legislative system," 2019). Also, the NPC would debate and vote on all major national policy decisions and confirm the positions of the President and Vice-president. When the NPC is not in session, the NPC standing committee would assume these same functions.

Another focus of the 1982 Constitution of the PRC, and later amendments, was to promote stability through the rule of law. In practice, researchers and observers noted that the power remains centralised with the CPC and the Politburo ("China's legislative system," 2019; Kabashima & White III, 2014; Leonard, 2012). The leading members of the CPC also tend to assume the positions of the President and Vice-president of the PRC. Furthermore, the CPC exercises indirect control by setting the national legal agenda through 5-year and 10-year plans as well as making constitutional amendments. Through five constitutional amendments and related policy documents, the CPC has mostly liberalised China's trade but also strengthened the rule of law and the centrality of the CPC ("Constitution of the PRC," 2018). Specifically, the first amendment permitted limited corporate privatisation and rights to transfer property. A 2004 amendment further permitted the ownership of private property and human rights ("Constitution of the PRC," 2018). However, the 2004 and 2018 amendments strengthened legal codes. The National Intelligence Law of the PRC (2018) was one example which required corporate actors to assist the State in issues of national security. This law has been cited as a reason for the US adding Huawei Technologies Co. Ltd. to its *Entity List of threats to the US telecommunications industry* (Lyu & Lee, 2019). Thus, China's political freedom did not necessarily increase. Figure 1.1 shows that overall liberalisation has decreased in recent years.

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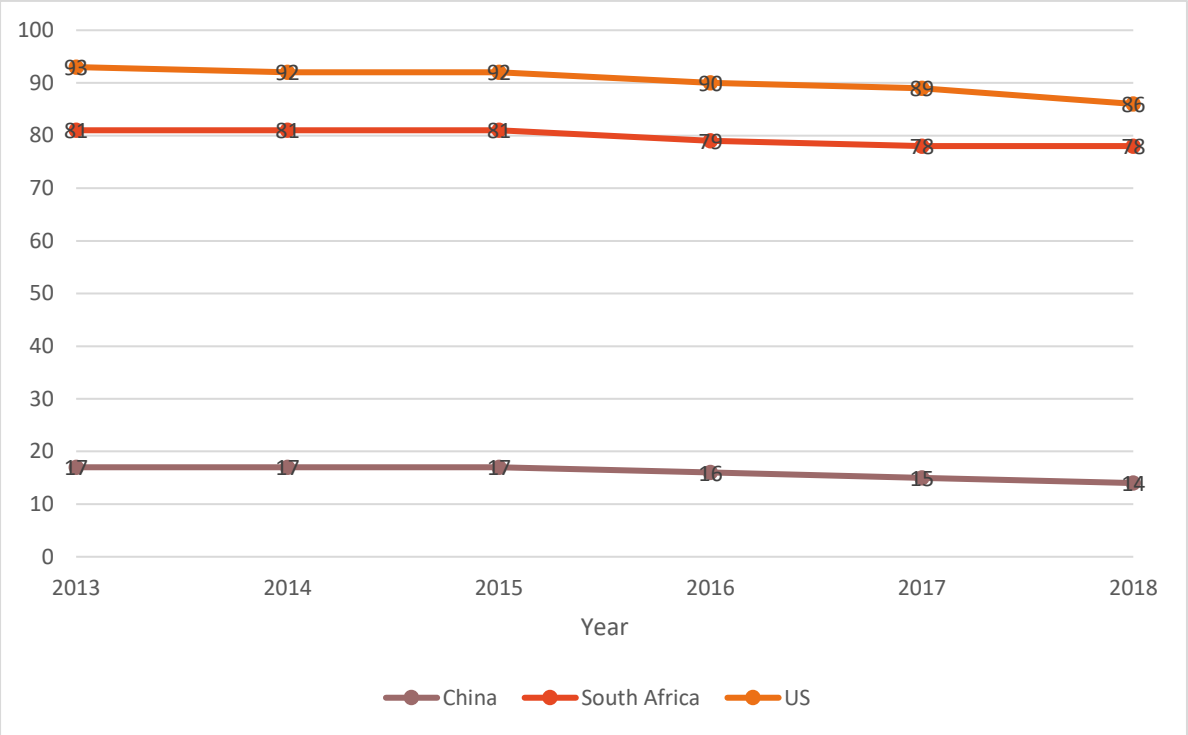
Figure 1.1 *Freedom House Aggregate Scores for China, South Africa and the US*



The most recent amendment to Constitution was at the 5th session of the 13th National Congress of the CPC. It brought three significant changes that further cemented CPC and State authority. First, the NPC allowed the first constitutional reference to the CPC ("Constitution of the PRC," 2018). This insertion further legitimised the CPC as the only legal, political party in China (Gill, 2017; Womack, 2017). Second, the revision removed the term limits for both the president and vice-president ("Constitution of the PRC," 2018). In practice, this assures the continuation of Xi Jinping and future leaders of the CPC as the presidents of China. Third, the constitution was amended to include both *Hu Jintao's Scientific Outlook on Development* and *Xi Jinping Thought on Socialism with Chinese Characteristics*, or *Xi-Thought* ("Constitution of the PRC," 2018; "Full text of resolution on CPC Central Committee report," 2017). Foundationally, Xi-Thought acknowledged that 'socialism with Chinese characteristics has entered a new era and the principal contradiction in Chinese society has evolved into one between unbalanced and inadequate development and the people's ever-growing needs for a better life' ("Full text of resolution on CPC Central

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Committee report," 2017). The result has been a stronger top-down legal model that acknowledges the importance of a science-driven approach to social and technological modernisation.

South Africa's socio-political context. As with China, South Africa underwent dramatic political change. Between 1948 and 1994, South Africa's apartheid policy was the cornerstone of all social, political and economic policy. The apartheid policy had functioned on the separation of racial groups (Bodley, 2008; Deegan, 2011). Seekings and Nattrass (2008) explained that the South African Apartheid government used the term *African* to refer to *native*, *Bantu*, or *Black* South Africans, *Indian* for people from India, *White* for people descendant from European origin and *Coloured* for people who do not fit the previous categories. This oversimplified colour-system was used to further the socio-economic policies that unfairly advantaged the White minority population. This apartheid heritage resulted in deep economic, social and educational imbalances that continued to dominate political discourse after democratisation (Anand, Kothari, & Kumar, 2016).

When Apartheid officially ended in 1994, South Africa's first democratically elected government promised to address this inequality. As a first step, the 1996 Constitution of the Republic of South Africa was adopted under the leadership of South Africa's first democratically elected president, Nelson Mandela, and the African National Congress (ANC) (Deegan, 2011). Chapter 1, act 1 of the founding provisions, immediately established the values of South Africa as being non-racial and non-sexist, with everyone subject to the same law (*Constitution of the Republic of South Africa*, 1996). To further enforce equality, chapter 2 adopted the Bill of Rights and founded the South African Human Rights Commission to investigate rights violations. Figure 1.1 (see page 5) shows that these changes had an overall positive effect on freedom levels. However, it has seen a decline under former South African President, Jacob Zuma.

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Aside from social equality, the constitution also enacted a representative parliamentary democracy, based partially on the British system (*Constitution of the Republic of South Africa*, 1996). Chapter 4 of the Constitution established Parliament, which consisted of the National Assembly and the National Council of Provinces. Both houses would participate in the law-making process, with the National Assembly electing the President and overseeing executive action. The President may serve for two five-year cycles. The members of both houses are, however, chosen by their parties, with the political parties elected in the national general election every 5-years. The proportional representation system allows for multiple parties to be present in Parliament (Deegan, 2011; Venter & Landsberg, 2006). On legal matters, the Constitutional Court ensures serves as the final arbiter (*Constitution of the Republic of South Africa*, 1996).

As of 2019, 13 of South Africa's political parties shares the 400 upper parliamentary seats. The African National Congress (ANC) holds 230 seats and has the authority to push most legislation through unilaterally (Independent Electoral Commission of South Africa, 2019). ANC policies are, challenged by the opposition parties which collectively hold 170 seats. Dominant issues before the Parliament as of 2019, include the amendment of the South African Constitution to allow for land-seizures without compensation, high unemployment, climate action and addressing a slowing economy (Climate Change Bill, 2018; Hall, 2017). These proposals are aimed at addressing inequality

Socio-political context of the US. Of the three nations in the study, the US has the oldest constitution. With the main text entering into force in 1789, 27 amendments have since added protections for liberty, justice, rights, powers of government authority, the Bill of Rights and clarifications on government processes and procedures (Edling, Edling, & Press, 2003; Kabashima & White III, 2014). At the core, the US constitution intended to incorporate

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the interests of all former colonial US States to ensure a single nation that safeguarded individual freedoms, protection against foreign influence and a stable central government.

In this endeavour, the US established a Federal Presidential Democracy with a separation of powers (Edling et al., 2003; Kabashima & White III, 2014). The executive branch (The White House) houses the president, which is elected indirectly through the Electoral College for a maximum of two 4-year terms (Kabashima & White III, 2014; Trent & Friedenberg, 2011). The US President is the Commander in Chief of the US Army, the Navy and, when needed, State Militias. The executive power of the President further allows him to preside over national trade, including the making of treaties and the appointment of people to public office. The Legislative branch, or Congress, consists of the House of Representatives and the Senate. Congress holds the sole right to legislate and oversee the Executive. Finally, the Judicial branch houses the legal system. Overseeing all the Federal courts, the Judicial branch ensures the implementation of laws and the interpretation of the Constitution (Edling et al., 2003; Kabashima & White III, 2014).

The US emphasis on freedom is reflected in the Bill of Rights (Edling et al., 2003). Notably, amendments 1 to 10 of the US Constitution collectively adds freedoms to US citizens, including the right to free speech. These rights reflect a national civic culture of citizen engagement on issues of social and political importance (Benford, 1993; Gamson & Modigliani, 1989; Giddens, 2011; Putnam, 1995). Figure 1.1 (see p. 5) shows that the US has the highest freedom scores between the three nations under study. This regard for freedom was also reflected in US foreign policy. Following World War II, the US has been highly engaged in international diplomacy to promote democracy and human rights (Gilpin, 2001; Kabashima & White III, 2014). In recent years, this trend has relaxed as foreign policy priorities shifted to terrorism, trade imbalance and climate change (Davenport, 2014; Jasparro & Taylor, 2008).

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Nationally, the US developed a two-party system. Initially, this system was dominated by elitism, where party bosses and those with the financial controlled political candidates (Trent & Friedenberg, 2011). The Bipartisan Campaign Reform Act of 2014 attempted to resolve this by favouring party caucuses. In practice, this gave political candidates access to unlimited small donations from third-party funds, as opposed to Federal funding. These funds shifted power to lobbies, political action committees and online micro-donations from individuals. Former US president, Barrack Obama, managed to raise about 500 million US$ through online micro-donations alone (Trent & Friedenberg, 2011). This change exposed candidates to a broader diversity of interest groups and contributed to a rise in bipartisan policies, including on oil pipelines, arctic oil drilling, fracking, health care policy, EPA emission regulations and climate change (Gilson, 2017; Nisbet & Kotcher, 2009; Obama, 2017). Party debates often fail, causing a bill to become stalled, subjected to executive veto or gets overturned when power shifts. As of the 2016 election, Republicans held both the Legislature and the Executive branches (2016) but have lost the House of Representatives to Democrats in 2018 (Politico, 2018).

1.1.2 Socio-economic characteristics. The three nations have also achieved various levels of economic development. China and South Africa are both classifiable as developing economies. China's economy, however, has industrialised and is in the process of having its focus redefined by the CPC. By comparison, South Africa's economic growth has remained limited, and its socio-economic considerations have worsened in recent years. The US economy, however, has remained strong and growing.

China's socio-economic context. The 1982 Constitution of the PRC provided the legal framework for liberal economic policies. Domestically, China refers to its economy as being part of a system of *socialism with Chinese* characteristics, and international observers continue to see it as an emerging market economy (World Bank, 2019a). Importantly, China

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shifted away from self-reliance and permitted limited direct investment and cooperative projects. That permitted an influx of foreign-owned technologies. The constitutional amendment of 1988 further encouraged a private economic sector, further reinforced in a 2004 amendment that allowed private property ("Constitution of the PRC," 2018; Koleski, 2017; World Bank, 2019a). These changes resulted in strong economic growth from foreign-owned factories and thriving exports.

China also encouraged its domestic industry. First, it encouraged rural farm owners to develop private enterprises ("Constitution of the PRC," 2018; Koleski, 2017; World Bank, 2019a). This move encouraged larger and more efficient farms. More recently, the focus shifted to developing a high-technology industry with recognisable brands. This move resulted in both private and state-owned Chinese enterprises, such as Huawei and the Sinopec, manufacturing smartphones and solar energy panels for export markets. At its peak in the 1990s, China's GDP growth reached 15%. This growth rate has since fallen to about 6.5% in 2018, but the GDP per capita has steadily grown to its current 7,755US$ per capita (constant 2010 US$) (see Figure 1.2).

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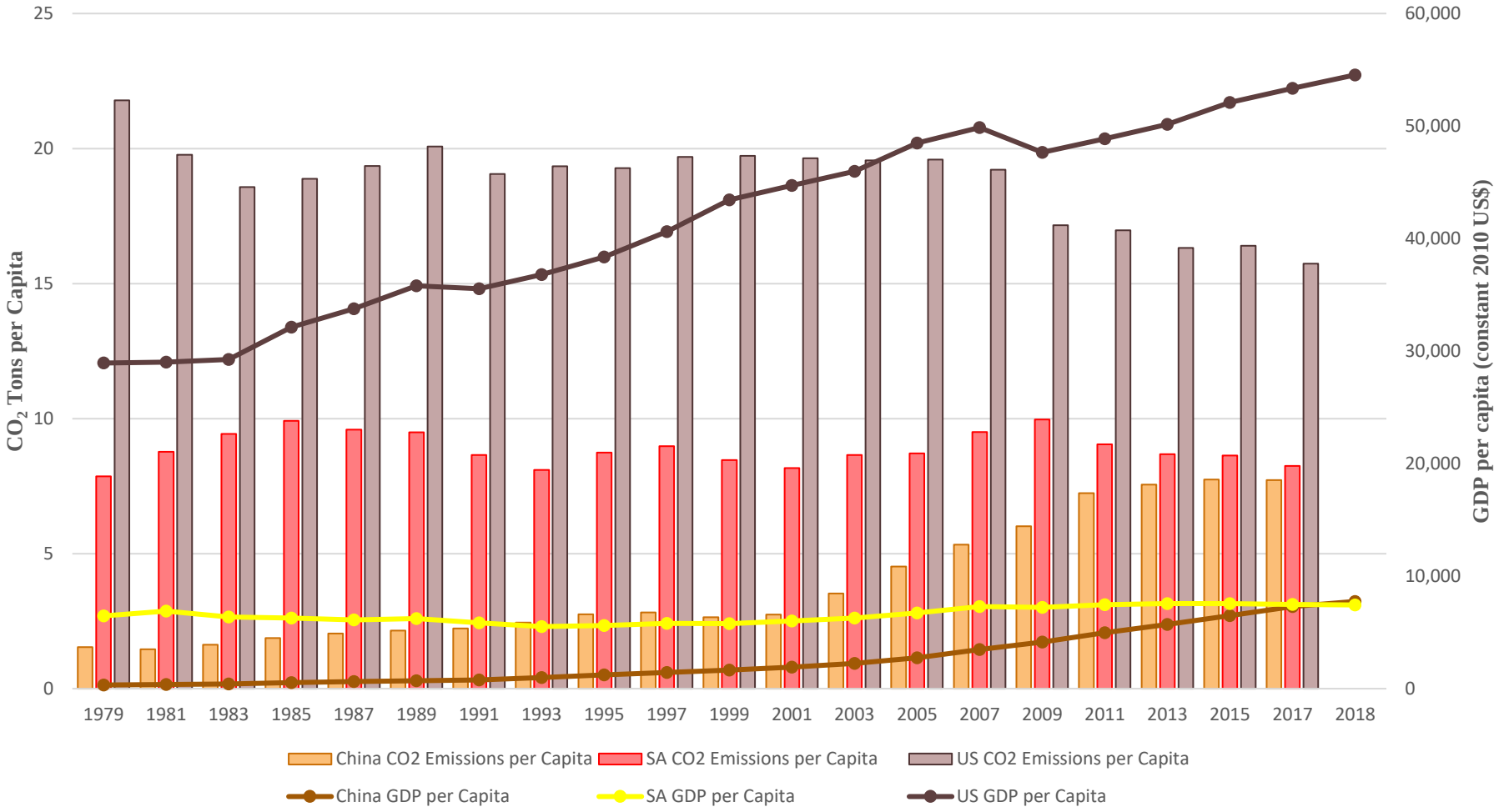
Figure 1.2 *Carbon Emissions by GDP and Country*



Sources. CO_2 emissions data collected from Muntean, M., Guizzardi, D., Schaaf, E., Crippa, M., Solazzo, E., Olivier, J. G. J., & Vignati, E. (2018). *Fossil CO_2 emissions of all world countries - 2018 Report*, EUR 29433 EN, Publication Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-97240-9, doi:10.2760/30158, JRC113738. World Bank. (2018). *GDP per capita (constant 2010 US$)*. Retrieved from: https://data.worldbank.org/indicator/NY.GDP.PCAP.KD

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China's rapid economic growth had societal consequences. The World Bank (2019a) notes that China had reached all its UN Millennium Development Goals (MDGs) by 2015. However, its economic growth contributed to inequality. By 2017, the World Bank (2017) measured China's GINI coefficient at .42, with over 373.1 million people still living below the $5.50 a day international poverty line. However, this inequality has fallen from .44 since the previous measurement, and the World Bank predicted that China (2019a) would eliminate absolute poverty by 2020. Second, China initially encouraged economic growth by linking it to the political success of party officials (Finamore, 2018; Liu & Chen, 2012). As a result, China also saw a sharp rise in pollution and GHG emissions. By 2005, China's absolute emissions exceeded that of the US, with two-thirds from its energy and manufacturing sectors (World Resources Institute, 2017). China's GHG emissions per Capita tripled to about 7.72 metric tons per person. The rise in emissions was marked by a notable a rise in air pollution, with some Chinese cities reporting PM2.5 levels as high as 121 (Finamore, 2018; Leonard, 2012; Wright, 2011; Yang & Zhang, 2011). As more industrial actors shifted their attention to the countryside, reports of illegal and corrupt land-seizures, severe health issues, water and soil pollution, and loss of farming and fishing grounds increased (Coonan, 2006, 2009; Duncan, 2015; Leonard, 2012; Womack, 2017; Wright, 2011; Yang & Zhang, 2011). Between 1996 and 2012, limited available data suggested as many as 180,000 mass protests per year with at least 980 directly attributable to environmental concerns (Leonard, 2012; T. Yang & Zhang, 2011).

Through the governance policy of Xi-Thought and the 13th Five-Year Plan, China is attempting to address both the social and environmental imbalances of its economic growth (Aglietta & Bai, 2016; Gosens, Kåberger, & Wang, 2017; World Bank, 2019a). These have included stricter laws, dedicated environmental courts, allowing NGOs to sue over polluters and harsher punishments, including jail time, fines and public shaming (Leonard, 2012; Mi,

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2016; The Supreme People's Court of the PRC, 2015; Zinda et al., 2017). Policy-level solutions have also lowered the growth outlook to 6.5% in search for a 'moderately prosperous society' society by 2020 and shifted the economic focus to renewables (Aglietta & Bai, 2016; Gosens et al., 2017). More recently, even a 6.5% growth rate has come into question as the US-initiated trade war continues to negatively affect China economic outlook (Li, He, & Lin, 2018; Liu, 2018).

South Africa's socio-economic context. After democratising in 1994, the South African economy was released from much of the international economic sanctions brought on by Apartheid (Clark & Worger, 2016; South African Market Insights, 2018). Political leaders subsequently opened the economy to global investment but was met with varying levels of success. Early efforts saw GDP growth rates as high as 10% (South African Market Insights, 2018; World Bank, 2018a). However, this growth was unstable and short-lived due to two factors. First, the increased foreign direct investment exposed unprepared corporations to international market volatility. During the 2008 monetary crisis, South Africa's economic growth fell into the negatives, before slowing to an average of 1.3% per year and slumping into recession in 2018 (South African Market Insights, 2018; World Bank, 2018b). Second, inadequately prepared corporations were exposed to international competition. Notably, the textile industry suffered closures due to cheaper Asian imports (South African Market Insights, 2018).

Twenty-five years after democratisation, President Cyril Ramapoza (2019) admitted that South Africa still faces the same issues as it had in 1994. Table 1.2 shows that since 1990, South Africa's GDP per capita has remained mostly stagnant and dwarfed by the US and Chinese economies (World Bank, 2018; World Resource Institute, 2017). The economic stagnation continues to contribute to high unemployment. As of 2019, data from the World Bank (2019b) shows a 27% unemployment, with 52% of the youth unemployed (Trading

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Economics, 2019). Furthermore, the gap between rich and poor has increased. As of 2018, the World Bank put South Africa's Gini coefficient at .69, up from .60 before 1994 (World Bank, 2018a).

Since 2008, an ongoing energy shortage has further crippled the economy (Sebitosi, 2008). South African energy utility company, Eskom, has suffered severe shortfalls in electricity production and has been plagued by old and failing infrastructure and high debt (Giglmayr, Brent, Gauché, & Fechner, 2015; McEwan, 2017; Msimanga & Sebitosi, 2014; Pegels, 2010). To remedy the situation, Eskom had by 2018 made and received 350% worth of electricity tariff increases from the National Energy Regulator of South Africa (NERSA). In 2019, they launched another pending request to increase tariffs by a further 80% (Daniel, 2019; Mdluli, 2019). About 77% of Eskom's energy capacity comes from coal. The previous government had defended the use of coal as part of its policies for poverty relief ("SA government defends its use of coal as pro-poor," 2018). However, the continued reliance on coal, lack of supply and tariff hikes have had adverse effects on the economy.

To solve the economic impasse, government policies have shifted. First, to address the energy shortage, the government has promoted national energy conservation strategies to reduce household use and improve efficiency. Second, this decision was supplemented by a pivot to renewable energy (McEwan, 2017; Msimanga & Sebitosi, 2014; Radebe, 2018; Standard Bank of South Africa, 2019). In this latter regard, the government has permitted the existence of independent power producers using renewable energy sources. This enterprise has been praised as a source of economic opportunity and social development (McEwan, 2017; Radebe, 2018). Furthermore, President Ramaphosa has also announced the need for further protectionist trade policies to guard domestic industry (Ramaphosa, 2019).

US socio-economic context. Compared to South Africa and China, the United States has long dominated global trade. They have been found to push for free trade since at least

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1856. However, it was the events of World War II that facilitated the US transformation into a global industrial powerhouse (Bodley, 2008; Gilpin, 2001). Starting with the rebuilding of the German and Japanese economies, the US Marshal Plan enabled a global free trade system. However, this also led to an exodus of US manufacturers to industrialising Asian nations. Consequently, the US economy refocused on services such as banking, transportation and logistics, high technology and consumption (Central Intelligence Agency, 2016; World Resource Institute, 2017). These changes have seen US emissions peak, while its GDP continued to grow (see Figure 1.2, p. 11).

However, under the current leadership of President Donald Trump, US energy and manufacturing has received a renewed focus (Dunlap et al., 2016; Trump, 2019). Since assuming the presidency, President Trump has repealed Obama-era Environmental Protection Agency (EPA) policies aimed at curbing industrial and power-plant emissions. Specifically, President Obama had pledged to reduce national power plants emissions by 80%, methane emissions by between 25 and 40%, and increasing taxes for the oil and coal-based industries ("Whitehouse announces…", 2015). President Trump's repudiation of these acts has made it easier for US corporations to go back to carbon-intensive production. In a preliminary press release in 2019, Rhodium group claimed that their findings suggested a 3.4% increase in US emissions since 2018 (Rhodium Group, 2019). While these findings are still preliminary, they would suggest that the data in Figure 1.2 (see p. 11), could show an increase in US emissions per capita for the first time since 2005.

These findings, if confirmed, are not surprising. National political disagreement on climate change as real has been visible since the signing of the Kyoto Protocol. The Republican-controlled Senate used economic arguments, including the rise of China's economy and emissions, as a pretext to not ratify Bill Clinton's, a former US president, the decision to sign the Kyoto Protocol (Buchner, Carraro, & Cersosimo, 2002; Cameron, 2002;

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Lisowski, 2002). When Republican President, George Bush, took the presidency in 2001, he repudiated the US signature of the Accord. Likewise, US President Donald Trump has used economic reasoning to withdraw from the Paris Accord (Liptak & Acosta, 2017; Trump, 2017; White House, 2017a, 2017b).

1.1.3 National responses to climate change. The three nations have also taken different approaches to address climate change. Of the three nations in the study, China has taken the most initiative-taking role. Domestically, it has instituted legislative efforts to reduce its emissions (Finamore, 2018; Zhao, Lyu, & Wang, 2019). This robust legal system was not, however, always the case. By comparison, South Africa has tended to rely more on international finance and technology transfer mechanisms that target climate change mitigation (Ramaphosa, 2019). In the US, there has developed a deep bipartisan split in the climate change debate. While Republicans oppose any international climate accord, often denying that climate change exists, Democrats actively push for climate solutions (Nisbet, 2009, 2016; Trump, 2017; White House, 2017b).

China's response to climate change. In June of 1991, China's Premier, Li Peng, announced China's intent to discuss climate change with a group of 40 developing countries (Finamore, 2018). This meeting resulted in the 1991 Beijing Ministerial Declaration on Environment and Development (Beijing Declaration), with many of its principles adopted into the 1992 United Nations Framework Convention on Climate Change (*1991 Beijing Ministerial Declaration on Environment and Development*, 1991; Finamore, 2018). However, China's economy was also at its peak, but dependent on coal-fired powerplants. Furthermore, local government leaders were often judged by their economic achievements (Leonard, 2012; Y. Liu & D. Chen, 2012; Wright, 2013). As a result, there was little political motivation to take climate action.

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It was not until 2012 that climate change took a more central position on the CPC's agenda. Domestically, more people began to take note of the deteriorating air quality and PM2.5 began trending online (Finamore, 2018). In 2012, a documentary by Chia Jing (柴静), *Under the Dome* (穹頂之下), was published online (Finamore, 2018; Lu, Chen, Li, & Zheng, 2018). The documentary gave the first detailed online commentary on the PM2.5 crisis and inspired a debate that evolved into public outcry despite online censorship efforts. As public anger grew, the government shifted its stand on air-quality. China's Ministry of the Ecology and the Environment set up measurement standards to better communicate with citizens on PM2.5 and the resulting health hazards (Finamore, 2018).

Efforts under the leadership of Hu Jintao included cancelling the construction of over 150 coal powerplants and banning of vehicles from the roads during severe periods of city smog. President Hu's laws also led to dedicated environmental courts that by 2015 saw over 8000 arrests and 2400 prosecutions for environmental crimes (Duncan, 2015). Further legislative efforts were taken under the leadership of Xi Jinping. These included emission caps, and the protection of farmland and forestry (Koleski, 2017; Leonard, 2012; Ministry of Ecology and the Environment, 2017; Wright, 2011; Xi, 2014; Zinda, Trac, Zhai, & Harrell, 2017). In 2015, China's Supreme People's Court applied further pressure on polluters when it ruled in favour of private actors suing over-polluting corporations (Mi, 2016; The Supreme People's Court of the PRC, 2015). This ruling resulted in cases of eNGOs suing corporations.

Internationally, China also expanded its diplomatic efforts concerning climate change. Aside from its early efforts to have developing nations' perspectives adopted into the Kyoto Protocol, China was pivotal in the outcome of the 2009 Copenhagen Accord (Finamore, 2018; Harris, 2010). Although China opposed developing nations making emission cuts, it was here that China first pledged to peak its emissions by 2030. China also pledged to implement a carbon trading system and increase its renewable energy sources to 20% of total

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national needs (Finamore, 2018). In the run-up to the Paris Accord, China again played a pivotal role. A meeting between former US President Obama and President Xi-Jinping resulted in a potentially stalled Paris Accord to culminate into a historic agreement. China repeated its pledge to become carbon neutral and vocally supported the Paris Accord (Davenport, 2015; Finamore, 2018).

By 2017, China had implemented many of its climate change pledges (Finamore, 2018; Liptak & Acosta, 2017; Trump, 2017, 2019; White House, 2017b). A crucial part of this strategy has been the development of its renewable energy sector, including solar, wind and hydroelectricity. Renewable energy has led to a reduction of as much as 30% in city pollution (Lu et al., 2018). Renewables have also been developed into a viable market, employing an estimated 4.5 million workers by 2018 (Finamore, 2018). China has also begun to market renewables through its *one belt one road* economic initiative. Furthermore, despite the adverse economic risks brought by the trade war, China's leaders have continued to assert its intent to comply with the Paris Accord. The governance ideology of Xi-Thought encapsulated this intent when it claims to pursue 'sound systems for building an ecological civilization' and modernise China 'in harmony with nature.'

South Africa's response to climate change. Despite being Africa's second-largest economy and its largest polluter, South Africa's response to climate change has been more muted. Much of South Africa's emissions stem from its over-reliance on coal. More than 77% of all its energy needs derive from domestically mined coal and its conversion to synthetic fuels (South Africa Inc., 2016). Indeed, coal has become a pronounced part of national debate under the government of former South African President, Jacob Zuma ("SA government defends its use of coal as pro-poor," 2018). Notably, the government argued at the time that its reliance on coal was 'pro-poor.' At the same time, South Africa has made the

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linkage between climate change, droughts and fires that have cost the National Treasury nearly US$338 million in 2018 alone (Mkhize, 2018; Ramaphosa, 2019).

At COP15, South Africa had joined with other developing nations in making voluntary pledges. Most of its emphasis has, however, been on the need for the Green Climate Fund and technology transfer mechanisms to enable developing nations to adapt to transition (African National Congress, 2011; Masupha, Moeletsi, & Tsubo, 2016; Roy et al., 2018). Unsurprisingly, the national focus has been on the use of these funds and technologies for adaptation. In this regard, the national response has focused on developing infrastructure, sustainable employment, and improved education to improve climate change resilience. One notable response has been the Renewable Energy Procurement Programme (REPP). The REPP, built with the assistance of foreign-owned renewable energy corporations, is an example of the technology transfer in action. Since 2014, the project has resulted in three wind and solar facilities (Giglmayr, Brent, Gauché, & Fechner, 2015; "Leading the global…," 2015; "South Africa's first solar…," 2015; Walwyn & Brent, 2015; Whitlock, 2015). It has also been credited with leading to a greener and more sustainable jobs and bringing robust community development (Radebe, 2018). Under President Ramaphosa, South African ministers have looked more favourably towards the role of renewable energy and opened the prospects of REPP producers to sell electricity directly to businesses ("Climate change bill," 2018; Radebe, 2018; Ramaphosa, 2019).

The government has also received support from the civic sector. Environmental NGOs work with the government on education, clean-up and conservation projects (Caniglia, Brulle, & Szasz, 2015; Doyle, 2007). Projects have included cleaning up plastic pellets spilt from cargo ships, oil spills, conservation and pushing for energy efficiency (Death, 2014; Lund-Thomsen, 2005). The corporate sector has also weighed in. In 1994, the Institute of Directors in Southern Africa (IoDSA) launched the King Report on Corporate Governance.

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King III and King IV, the most recent versions of the code, offer a set of mitigative actions that corporations can take (Institute of Directors Southern Africa, n.d.). To ensure a broader implementation of the King Code, the privately-owned Johannesburg Stock Exchange has made the code a listing requirement (Johannesburg Stock Exchange, 2019). In April 2019, two of South Africa's largest financial institutions also announced place to no longer finance non-renewable powerplants, citing the COP21 declaration (Standard Bank of South Africa, 2019; Yelland, 2019). Thus, South Africa has seen actions from all sectors in response to climate change, but this has usually been under the guise of development.

US's response to climate change. To a degree, the present case of China's environmental actions mirrored the US historical case. Rapid industrialisation in the aftermath of WWII led to unsustainable economic growth in the US, worsening environmental conditions, and leading to strong environmentalism (Heberlein, 2012; van de Veer & Pierce, 1993). In 1969, the Cuyahoga River caught fire from the pollution of 12 industrial plants upriver (Stradling & Stradling, 2008). This event resulted in public outcry and civic action, with US president Richard Nixon enacting the Clean Air Act of 1970 and establishing the EPA through executive action ("Clean Air Act," 1970). Later amendments to the Clean Air Act enabled emission controls over the automotive industry (Gerard & Lave, 2005) and more recently Obama instructed the EPA to further cut emissions (Murray, Pizer, & Ross, 2015; White House, 2014). However, efforts by Democratic politicians have been overturned by the Republican party. Climate action has become a bipartisan issue.

An early example of this political rivalry was the Republican decision to withdraw the US from the Kyoto Protocol. At the time, a Republican-controlled senate rejected arguments by President Bill Clinton and Vice-president Al Gore, both Democrats and refused to ratify the Paris Accord (Lisowski, 2002). On taking the presidency, Republican President, George Bush, repudiated the executive actions to sign the Kyoto Protocol and promptly withdrew the

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US from the COP. In both actions, he argued that it would result in the US losing its economic advantage to the China and India (Buchner, Carraro, & Cersosimo, 2002; Dunn, 2002; Lisowski, 2002; McCright & Dunlap, 2003). Republican politicians have also been linked to a conservative movement calling climate change science uncertain (Antilla, 2005; Dunlap & McCright, 2012; Dunlap, McCright, & Yarosh, 2016; McCright & Dunlap, 2011; Nisbet, 2009, 2016).

A comparable situation followed the Democratic Presidency of Obama. Former US president, Barrack Obama, had taken the US back to the COP and aggressively pursued bilateral climate negotiations. A notable event was a 2014 meeting between Presidents Obama and Xi Jinping, which was followed by a joint statement affirming that both nations supported the principles of the Paris Accord (Bodansky, 2016; Davenport, 2014). These bilateral efforts were pivotal in the adoption of the Paris Accord. Domestically, Obama also instructed the EPA to reduce overall emissions by 80% and methane emissions by between 25% and 40% (White House, 2014). Again, Republicans used economic reasoning to oppose the decision. After taking control of Congress and the White House, Republican actors repealed the Obama's orders and made it easier for corporate actors to pursue fossil fuel-dependent growth strategies and also withdrew the US ("Approval and promulgation of air quality...", 2018; Trump, 2017, 2019; White House, 2017b; White House, 2018). President Trump also cited financial ramifications as the primary reason for withdrawing from the Paris Accord (Liptak & Acosta, 2017; Nisbet, 2016; Shankleman, 2016).

The civic environment also appeared split. On the one side, eNGOs have long been opposed to a broader application of fossil fuels. President Nixon's 1970 legislation enabled additional legal pressure to be applied to corporate actors. Notably, laws passed in the 1970s enabled eNGOs and other private parties to pursue litigation on federal environmental legislation (Heberlein, 2012; Naysnerski & Tietenberg, 1992; van de Veer & Pierce, 1993).

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Private litigation was particularly permitted in cases where government agencies such as the EPA were unable to act or failed to act. Environmental NGOs also began to lobby political actors for more further steps to be taken against polluters (Endres, Sprain, & Peterson, 2009; Heberlein, 2012). One notable case was the Step It Up (SIU) campaign (Endres et al., 2009). Starting as a student movement, it rapidly developed into an eNGO and was instrumental in lobbying the 2008 presidential candidates to adopt an 80% carbon-cut pledge. A more recent civic case started with a youth group petitioning the Supreme Court for permission to sue corporations over climate change (Blumm & Wood, 2017). The case is ongoing.

Corporations also displayed characteristics of being divided on climate change. First, researchers and data analysts have pointed to the link between energy corporations' lobbying efforts and climate change denial (Centre for Responsive Records, 2018; Dunlap & McCright, 2012; Goldenberg, 2013; Heberlein, 2012; McCright & Dunlap, 2003, 2011). An often-cited example has been that of ExxonMobil. ExxonMobil has been linked to millions spent on lobbying and CSR projects aimed at influencing public opinion (Anderson, 2009; Goldenberg, 2013; Heberlein, 2012; Sinden, 2007). These efforts included launching and funding an eNGO, Human Rights 267. Conversely, voluntary mitigation appeared to dominate among actors in the high-technology sectors. The literature suggested that terms such as *green IT*, *green suppliers*, *recyclability* and *sustainability* have been adopted (Heberlein, 2012; Weinhofer & Hoffmann, 2010). Particularly, high-grossing corporations such as Apple Inc., Tesla and Microsoft have all invested in renewables, cleaner supply chains and technological efficiency. These same corporations have also formed political alliances, which in one instance saw them standing with California's Governor, Jerry Brown, to lobby against President Trump's decision to withdraw from the Paris Accord (Apple Incorporated, 2018; Elliott, 2000; Ruth, 2009; Shepardson, 2017).

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1.1.4 Summary of national cases. To summarise, the three nations differ significantly regarding their social, political and economic conditions as well as in their responses to climate change. They do, however, share characteristics that make them comparable. First, both China and South Africa are developing nations. China has been more successful at industrialisation, and World Bank (2019a) indicators show that their inequality and poverty levels are decreasing. In contrast, South Africa remains a slow growing, developing economy with high unemployment and inequality. As a result, its national policy agenda and its approach to climate change remain focused on social development. Second, both China and the United States have achieved strong industrial economies. However, the US has achieved a higher level of industrialisation while China has only begun to emerge from dependence on rapid, unsustainable, growth. Thus, China has higher overall carbon emissions even though it has a lower GDP per capita. Furthermore, while both nations developed a robust legalistic approach to address environmental and climate change issues, they differ starkly in their political systems. Finally, South Africa and the US are both democracies. However, they differ not only in the type of democracy that is present, but also in terms of GDP per capita and emissions.

Thus, the three nations could be labelled to reflect their respective characteristics. China can be characterised as a developing nation with an industrialising economy and an authoritarian model of governance. South Africa can be characterised as a developing democracy focused on solving developmental problems. Finally, the US can be characterised as a mostly industrialised democracy with a bipartisan approach to governance. Table 1.1 offers a summary of the key similarities and differences.

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Table 1.1 *Political and Socioeconomic Differences in China, South Africa, and the US*

	China	South Africa	USA
Political System	China is a semi-presidential socialist republic or a Single Party State. The CPC exercises authority with authority centralised under General Secretary Xi Jinping and the Executive organ of the NPC. In theory, the chair of the party is elected internally by the Party every 5-years and confirmed by the NPC. There is no maximum term limit.	South Africa is a parliamentary representative democratic Republic. It sometimes described as an emerging democracy. Power is exercised through the National Assembly, which is elected by national vote every 5 years. The lower house of the national assembly elects the president.	The US is a federal republic. The power is shared between the executive, legislative and judicial branches of government. The President is elected indirectly through ballots cast by the Electoral College every 4 years.
Policy Making	The CPC gives national guidance through 5-year plans and other reports. The 3000-seat National People's Congress (NPC) debates on specific policies. The CPC Politburo holds final authority on all laws.	Policies are discussed by the Lower House of Parliament, before being voted on by the 400-member Upper House of Parliament. Parties have proportional representation, with 13 parties currently in Parliament. The President must sign acts before it becomes law but has no veto power.	Congress is divided into the 100-seat Senate and the 535-seat House of Representatives. The Senate votes on policies and factional negotiations are common. The President has executive power to sign or veto policies.
Key Political Parties	The Communist Party of China.	The African National Congress (230 parliamentary seats), the Democratic Alliance (84 parliamentary seats), and the Economic Freedom Fighters 44 (parliamentary seats).	The Republicans (52 Senate seats), and the Democrats (46 Senate seats).
Economic System	Developing/Transitional economy; 2nd in GDP.	Developing economy; 41st in GDP.	Developed Economy; 1st in GDP.
Economy Sources	Agriculture 7.9%, Industry 40.5%, Services 51.6%.	Agriculture 2.8%, Industry 29.7%, Services 67.5%.	Agriculture 0.9%, Industry 19.1%, Services 80%.
Energy Sources	Fossil Fuels 62% (Coal, Oil & Natural gas); Hydroelectric 18%; Nuclear 2%; Renewables 18%.	Fossil Fuel 85% (Coal, Oil & Natural gas); Nuclear 4%; Hydroelectric 1%; Renewables 10%.	Fossil Fuels 70% (Coal, Oil & Natural gas); Hydroelectric 7%; Nuclear 9%; Renewables 14%.
Environmental Concerns	Key environmental issues include droughts, crop losses, pollution, water shortages, floods, mudslides, natural disasters, coal mining, deforestation, soil degradation, population growth, and protests.	Key environmental issues include droughts, wildfires, crop and livestock losses, biodiversity losses, pollution, water shortages, coal mining, deforestation, soil degradation, and social consequences.	Key environmental issues include droughts, crop losses, pollution, water shortages, floods, mudslides, natural disasters, coal mining, deforestation, soil degradation, oil spills, oil Drilling, oil pipelines, fracking, and biodiversity losses.

Sources. Summary by the author. CIA World Factbook Data. (2019). *Central Intelligence Agency*. Retrieved from https://www.cia.gov/library/publications/resources/the-world-factbook. *World Resources Institute*. Washington DC. Retrieved from http://cait.wri.org. Election Report: 2019 National and Provincial Elections. (2019). *Electoral Commission of South Africa [ECSA]*. Retrieved from http://www.elections.org.za. Politico. (2016). *2016 Senate election results*. Retrieved from http://www.politico.com/2016-election/results/map/senate.

1.2 Outline of the Study

To recapture, the impending disastrous change of the climate has enabled climate scientists, policymakers and other stakeholders to call for mitigation actions over the past twenty years. The study will investigate the organisations' positions towards climate change and prospective solutions. The study also aims to analyse patterns of differences across nations, by comparing the three politically and socio-economically varying nations, namely, China, South Africa and the United States.

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The study consists of five chapters. In addition to the first chapter that introduces the background and problematics of the study, Chapter two first reviews the literature on climate change negotiations before turning to the literature on framing. The conceptual explication will then establish a theoretical framework for further identification and analysis of the variables. Chapter 3 will introduce the strategies of data collection, reduction, and analyses. It also includes the operationalisation of the concepts derived from the literature review and the analytic framework. Chapter 4 and Chapter 5 will report the inductive and deductive findings of the study, respectively. Chapter 6 will then take an in-depth discussion of the results and their practical and theoretical implications. The study will end with a conclusion that addresses the limitations and future prospective research.

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2. Literature Review

To provide the contexts for the fundamental concepts used by the study, Chapter 2 first performed a thematically structured review of the climate change literature. Next, it discussed recent applications of framing and theory of fields. Finally, the theoretical framework was developed using van Gorp's (2007, 2010) cultural approach to framing and the theory of fields (Fligstein & McAdam, 2012; Kluttz & Fligstein, 2016).

2.1 International Climate Change Debates

Nisbet (2009) accentuated that presidential popularity is an insufficient condition to pass a climate change policy. What it needs, Nisbet advised, is widespread public support. If the State intends to intervene in pro-climate change policy, as Giddens (2011) argued it should, this engagement demands a broader inclusion of the markets and society. Political and communication researchers have echoed this view. The consensus has been that national policy-making entails or should entail a complex interaction of various actors who vie for preferred policy outcomes (Giddens, 2011; Kabashima & White III, 2014; Laumann & Knoke, 1987; Leonard, 2012; van Gorp, 2007). A review of the climate change literature reveals a current trend towards this ideal.

The exact process of policymaking differs by nation (Hammond, 2009; Kabashima & White III, 2014; Trent & Friedenberg, 2011). However, in all cases, the agents of political parties form the basis of policy decisions. These political parties take different policy positions in line with their electorates. As a result, policy discourse often reflects disagreement at the national level. This disagreement has in the past been reflected at the international level, where various nations' policy agents debated international climate change agreements. Table 2.1 and the following discussion summarises some of the key climate agreements and disagreements that have emerged since 1988.

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Table 2.1 *Important National and International Climate Change Agreements*

Event	International Agreements
1988	The IPCC (International Panel on Climate Change) was established.
1990	The first IPCC assessment report was published supposing anthropogenic climate change.
1994	The UNFCC (United Nations Framework Convention on Climate Change) was adopted by 196 nations, establishing the conference of the parties
1995 COP1	The Berlin Mandate laid the framework for stricter commitments by developed nations and exempts non-annexure A countries from additional obligations.
1997 COP3	The Kyoto Protocol was adopted, but not ratified, on December 11. It achieved consensus on: - legally binding emission targets for Annexure 1 members; - targeting carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride; - market-based mechanisms of emissions trading, the Clean Development Mechanism, and the Joint Implementation mechanism; - the need to monitor emissions and keep accurate records. The US Congress declined to ratify the Kyoto Protocol.
2001 COP7	The Marrakech Accord reached a formal agreement on: - implementation of international emissions trading, the Clean Development Mechanism, and the Joint Implementation mechanisms, establishing a compliance regime, and accounting procedures. - the establishment of the Special Climate Change Fund. It outlined mechanisms for financing adaptation projects, technology transfer and capacity building. - the founding of the Least Developed Countries Fund to support the preparation and implementation of national adaptation programmes of action; and - the opening of discussion on the use of carbon sinks as a carbon credit. The US Congress, under Republican leadership, repudiated the Kyoto Protocol.
2004 COP10	Members of the COP began discussions on adaptation options, including - the development and transfer of technologies; - improved land use, land-use change and forestry; - the UNFCCC's financial mechanism; - improved national communications infrastructure; - capacity building, education, training, and public awareness; and - improved response measures.
2005 COP11	After enough nations ratified The Kyoto Protocol, it entered into force in 2005. Several eNGOs and civic movements engaged in pressuring the adoption. These same movements criticised members of the COP for not doing enough. The EU launched a carbon emissions trading mechanism.
2006 COP12	The Clean Development Mechanism was launched. The subsidiary for Scientific and Technological Advice was launched to oversee programmes that address impacts, vulnerability and adaptation to climate change.
2007 COP13	The Bali Action Plan was launched for future climate change negotiations.
2008 COP14	The Joint Implementation mechanism was launched.
2009 COP15	Before the Copenhagen meeting, China volunteers to peak its emissions by 2030 and increasing its renewables to 20% of national capacity. China's State Council votes for carbon reduction of 40-50%

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	by 2020. However, in the Copenhagen negotiation, China opposed any binding limits to its emissions and blocked international efforts to pledge 80% emission cuts to achieve 2ºC goal.
	The Copenhagen Accord pledged USD$30 billion to fast-start finance for the period 2010-2012.
2010 COP16	The Cancun Agreements set up a comprehensive package to aid developing nations through: - Green Climate Fund; - Technology Mechanism; and - Cancun Adaptation Framework.
	The Cancun Agreement established the principles to: - limit global warming to 2^{O}C; and - protect vulnerable forests.
2012 COP18	The Doha Amendment extended the Kyoto Protocol in the intermediate.
2013 COP19	The Warsaw Outcomes agreed to set up the: - United Nations Reducing Emissions from Deforestation and Forest Degradation mechanism - loss and damage mechanisms to address long-term climate change impacts on lesser developed nations, and especially small island nations.
2014	In the run-up to COP21, UN Secretary-General Ban Ki-moon hosted a climate summit in New York and called for cooperation from Heads of State and Government, business, finance, civil society, and local leaders.
	President Obama and President Xi Jinping meet and make a joint announcement to commit to the Paris Accord. President Obama announces plans to cut US emissions by 20-25% over 2005 levels, while Xi Jinping commits to peak Chinese emissions by 2030.
2015 COP21	President Obama and President Xi Jinping meet and agree on the importance to address climate change. Both eventually sign the Paris Accord.
	The Paris Accord was reached and ratified in 2016.
	NGOs protests the Paris Agreement's lack of specific language.
2017	US President, Donald Trump, indicated US intent to withdraw from the Paris Accord, drawing protest from other nations.
2018 COP24	COP24 focused on three aspects. First, it identified critical climate-friendly technologies that allow for sustainable urban development, clean air and modern jobs. Second, it sought to emphasise the need to include all people to achieve solidarity in a sustainable and fair transformation. Third, it identified solutions that would benefit nature and aim for climate neutrality, including sustainable forest management.
2019	US Democrats take control of the Senate and pass a bill to keep the US in the Paris Accord.
	Democrats in the US House of Representatives launched a non-binding resolution calling for a green new deal. The deal calls for a carbon-neutral US economy by 2030 and opens debate on a *Green New Deal*.

Source. The author.

2.1.1 Defining climate action. Initial climate change negotiations led to the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The UNFCC, in turn, established the International Panel on Climate Change (IPCC) and the Conference of the Parties (COP) mechanisms (Mace, 2005; Torvanger, 1998; United Nations, 1992). Tasked with climate change research, the IPCC outlined the anthropogenic connection in its first report (International Panel on Climate Change, 1990). By 1994, most member nations of the

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COP agreed on the existence of anthropogenic climate change and the need for action. However, the debates on responsibility and what actions to take continued (Breidenich, Magraw, Rowley, & Rubin, 1998; United Nations, 1998).

The Berlin Mandate, signed at COP1 in 1995, designated the responsibility for climate action to industrialised nations (Breidenich et al., 1998; Torvanger, 1998). The resolution was outlined in the Kyoto Protocol. This attribution resulted in significant disagreement. In the US, President Bill Clinton, a Democrat, signed the Kyoto Protocol in 1997. However, the Republican-dominated Senate declined to ratify it (Lisowski, 2002). Five years later, the succeeding Republican President, George W. Bush, repudiated the order and withdrew the US from the COP (Lisowski, 2002). Canada and Australia followed (Giddens, 2011). In their decision to withdraw, the US, Canada and Australia had argued that they would sustain unfair losses to their economic competitiveness against fast-developing nations like China and India, who also generated large amounts of GHGs (Giddens, 2011; International Panel on Climate Change, 2014; Jasparro & Taylor, 2008). The proliferating disagreement resulted in the Kyoto Protocol not being ratified by enough nations until 2005.

By 2009, most nations did, however, acknowledge the fundamentals of the Kyoto Protocol. Developing nations had also pledged voluntary emission reductions, with China and South Africa promising cuts of 45% and 18%, respectively (Giddens, 2011; Rong, 2010). However, the Copenhagen Accord failed to reach its goal of legally binding cuts. The blame was placed in large part on China's refusal to agree to legally binding cuts (Finamore, 2018). Furthermore, China blocked a pledge by developed nations to cut 80% of their emissions as they believed it would pressure them to make up the remainder (Finamore, 2018). Before the Paris Accord, a turnaround was reached. In an important meeting in 2014, US President Obama and President Xi Jinping reached a consensus on the need for strong action on climate change. China pledged to peak its emissions by 2030, to which China's State Council

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acceded by voting to reduce emission by as much as 40-50% by 2020 (Finamore, 2018). For the US, President Obama announced that US emissions would be cut by 20-25% over 2005 levels (Davenport, 2014; de Gouw, Parrish, Frost, & Trainer, 2014). The Paris Accord was subsequently agreed to in 2015 and ratified by enough nations to enter into force in 2016. Most nations, including the US, agreed that through their signing that there is a 95% probability that climate change cannot be explained without accounting for anthropogenic causes[2] and an urgent need for action (Davenport, 2015; Robbins, 2016).

At the 24th meeting of the COP, attention shifted towards the implementation of the Paris Accord. Amongst the solutions emphasised were the development of climate-friendly technologies, sustainable and green city infrastructure, sustainable forest management and green job creation (COP, 2018; de Coninck et al., 2018; "IPCC, 2018: Summary for Policymakers.," 2018; Roy et al., 2018). In the United States, Senator Cortez, a Democrat, subsequently introduced the *Green New Deal* to the US House for Representatives to open debate (Cortez, 2019). As a result, the US House of Representatives also introduced a non-binding resolution to make the US economy carbon-neutral by 2030.

2.1.2 Flexible mechanisms. To overcome the objections to climate action, the Berlin Mandate advised flexible mechanisms. The flexible mechanisms were intended to replace pricing mechanisms, such as carbon taxes, and to incentivise climate actions instead (Hieronymi & Schüller, 2015; McKibbin & Wilcoxen, 2008). One of the earlier mechanisms was carbon emissions trading. This mechanism proposed a national carbon market with an emissions cap and tradable carbon permits. By making carbon a tradable resource, negotiators hoped it would incentivise emission frugality. By 2016, members of the European Union had begun to experiment with carbon trading (Alexeeva & Anger, 2016).

[2] Carbon emissions are frequently cited as the primary culprit of anthropogenic climate change. Recent measurement put carbon emissions from the transportation, energy production, and manufacturing sectors at about 65%, with deforestation contributing another 11%. The rest emanates from Methane (CH_4), Nitrous Oxide (N_2O) and F-gasses, as the by-products of farming and other industrial activities (IPCC, 2014a).

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A second instrument, the Joint Implementation (JI) mechanism, received broader adoption. It sought to incentivise developed nations to cooperatively invest in cleaner energy (Bird, Brown, & Schalatek, 2011; Boyd & Schipper, 2002). In principle, it would reduce corporate risk with a carbon credit reward. The EU, parts of Eastern Europe and Russia launched this mechanism in 2008. Next, the Clean Development Mechanism (CDM) was introduced to encourage the developed nations to invest in cleaner energy projects in the developing nations (Gillenwater & Seres, 2011; Hieronymi & Schüller, 2015). The Marrakech Accord laid the groundwork for funding JI and related initiatives. These funds included the Least Developed Country Fund, the Kyoto Protocol Fund, and the Green Climate Fund (GCF). By COP 16, these funds had received pledges of about $100 billion.

The 2001 Marrakech Accord was also the first to give attention to legislative and mandate mechanisms (International Panel on Climate Change, 2014). The protection and enhancement of natural carbon sinks received extensive attention. As part of its GHG diminution strategy, China was an early proponent pushing for the protection of natural carbon sinks (Duncan, 2015; Leonard, 2012). The UN mechanism for Reducing Emissions from Deforestation and Forest Degradation (REDD+) resulted from these debates. Another mandate centred on cleaner energy. COP members were encouraged to adopt policies that advanced renewable energy adoption (Heidari & Pearce, 2016; "IPCC, 2018: Summary for Policymakers.," 2018). As result of its 2008 energy shortage, South Africa saw it as an opportunity to legislate a phase-out plan for inefficient lighting and initiated the Renewable Energy Procurement Programme (REPP) (Cherni & Kentish, 2007; Giglmayr, Brent, Gauché, & Fechner, 2015; Sebitosi & Pillay, 2008; Walwyn & Brent, 2015). In the US, legislation targeted emissions, efficient and cost-effective solar panels and carbon capture (Dauenhauer & Huber, 2014; Hankamer et al., 2007; Rosenberg, Oyler, Wilkinson, & Betenbaugh, 2008; Schenk et al., 2008).

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COP members also negotiated adaptation measures. These measures sought to reduce vulnerability and exposure to a climate-altered world (de Coninck et al., 2018; Rogelj et al., 2018; Roy et al., 2018). The 2001 Marrakech Accord elaborated on the Special Climate Change Fund (SCCF) as well as the Least Developed Countries Fund for adaptation purposes (Dupont & Pearman, 2006; National Research Council, 2012). As a result, both funds contributed to the preparation and implementation of national adaptation programmes of action (NAPAs). These funds have since been used to push for water-source diversification, vulnerable population relocation programmes, improved disaster response systems, and infrastructure development (Mace, 2005; Roy et al., 2018). The Poznan Strategic Programme on Technology Transfer also supplemented the financial mechanisms with technology transfers (Dupont & Pearman, 2006; Martinot, Sinton, & Haddad, 1997).

2.2 Framing Theory

As international and national pressure mounted, organisational actors are increasingly communicating their positions on climate change. Framing theory, which has a well-established history of applications in economics, anthropology, political science, sociology, communication and psychology, is well suited to study these organisational communications (Bateson, 1972; Cacciatore et al., 2016; Kahneman & Tversky, 1979; D. A. Scheufele & Tewksbury, 2007; Tannen, 1993; Tewksbury & Scheufele, 2009). In his 1974 sociological seminal, Erving Goffman (1974) defined the frame as a synthesis of composite information and experiences that enabled individuals ‘to locate, perceive, identify, and label’ (p. 21) and thereby to construct a shared understanding of reality. Various researchers have since expanded on its applications.

The *frame* has been conceptualised as both an independent and a dependent variable (B. T. Scheufele & Scheufele, 2010; Tewksbury & Scheufele, 2009). As an independent variable, researchers focused on the frame’s ability to generate cognitive effects that result in

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the construction of individual's reality (for more on cognitive framing, see: Kunreuther & Weber, 2014; Lakoff, 2010; Reese, 2007; Tewksbury & Scheufele, 2009). As a dependent variable, researchers focused more on the framing process. Tewksbury and Scheufele (2009) defined framing processes as 'the creation and social negotiation of frames in at least three related areas: journalistic norms, political actors, and cultural contexts' (p. 22). In relation to the present study, the following literature review focused on the frame as a dependent variable.

2.2.1 Framing in news production. The earlier efforts to define framing theory revolved around differentiating it from *agenda-setting* and *priming* in especially the production of news. McCombs, Shaw, and Weaver (1997) proposed that framing acts as a second level of agenda-setting. Agenda setting argued that the emphasis by mass media was correlated to the importance that the public assigns to the same issue (Entman, 2007; McCombs & Shaw, 1972; McLeod, Dietram, & Moy, 1999; Nisbet, 2009; Scheufele, 1999; Scheufele & Tewksbury, 2007). Framing extends on this by selectively forwarding a specific aspect of the reality set in play by agenda-setting. This extension is done either through strategic highlighting or strategic omission to create a selective view or perception. Bryant and Oliver (2009: p.2) argued that this 'concept of selective perception…locates central influence within the individual and stratifies media content according to its compatibility with an individual's existing attitudes and opinions.' Thus, framing came to be understood as a process through which framers may, intentionally or not, aim to influence human behaviour by selectively choosing the information that reflects existing beliefs and values.

A considerable body of research has investigated the role of journalists in the frame building process. A commonly shared view was that journalists developed frames through a convenient, selective packaging of complex information that drew on frames of reference familiar to the target audiences (Cacciatore et al., 2016; Entman, 2007; D. A. Scheufele &

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Tewksbury, 2007; Tewksbury & Scheufele, 2009; van Gorp, 2007). Researchers generally agreed that the primary reason for doing so was to enable readers, mostly non-specialists, to understand complex issues. Furthermore, in this framing process, internal and external sources often influence frames.

Internal organisational factors affecting frames. Internally, researchers found that reporters' preconceptions, beliefs, and values enabled bias (Chong & Druckman, 2007; Entman, 2007). Political affiliation, for example, may introduce a news slant. Entman (2007) defined news slant as the tendency of a news report to be inclined more positively or negatively to one side or the other. If a slant persisted over time, it could give way to bias. This bias, in turn, may distort reality (distortion bias) and cause the unequal treatment of sides (content bias). It may also affect the mindsets or motivations of the reporters (decision-making bias).

A well-cited example occurred after the 2001 terror attacks on the US. News reporting following the attacks consisted of a mix of anger and patriotism (Reese, 2007). Researchers found that the news reports covering the invasion of Afghanistan and Iraq were often episodic and emphasised the bravery, sacrifice and patriotism of individual American soldiers. The individual focus came at the cost of the bigger picture and detracted from the effect of the US war on the Middle East. When the bigger picture was reported, it was limited to Iraqi sponsorship of terrorism and weapons of mass destruction (B. T. Scheufele & Scheufele, 2010; van Gorp, 2007, 2010).

External organisational factors affecting frames. Externally, reporters habitually rely on sourced information. Corporate, scientific and political representatives routinely serve as such sources through interviews, news releases and press conferences (D'Angelo, 2002; Entman, 1993; Nisbet, 2009; Nisbet, Brossard, & Kroepsch, 2003; B. T. Scheufele & Scheufele, 2010; D. A. Scheufele & Tewksbury, 2007; van Gorp, 2007). As a result, these

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external actors exert influences, either intentionally or unintentionally, over the reporters' frames. Some researchers argued that it turns the news media into channels through which external actors vie for frame dominance (Antilla, 2005; Entman, 2007; Nisbet et al., 2003; Price, Tewksbury, & Powers, 1997; Reese, 2007; van Gorp, 2007). Within this context, Kuypers (2009) defined framing as a targeted and strategic rhetorical process through which organisations seek 'to influence our personal and collective behaviours through having us voluntarily agreeing with the speaker that a certain action or policy is better' (p. 6).

A typical example can be found in governments such as China that have exerted top-down influences through censorship (Han, Sun, & Lu, 2017; Leonard, 2012; T. Yang & Zhang, 2011). Researchers investigating government interference in the South African media also noted this. Before democratisation, offending newspapers had their licenses withdrawn by the Apartheid government for criticising policies (Fourie, 2010). In post-apartheid South Africa, Fourie (2010) cited an example where former South African President, Nelson Mandela, met with the editors of leading newspapers. Mandela intended to ask them for more positive coverage of the ANC's efforts to reform the nation. Other efforts in democratic societies tended to be more indirect. For example, the US Republican and Democratic candidates tended to use repetitions, labels, symbols and other rhetorical devices in their speeches (Dunlap et al., 2016; Fletcher, 2009; Trent & Friedenberg, 2011). Republicans repeated the term *uncertain* concerning climate science, and Democrats did that using terms such as *green jobs* (Nisbet, 2009; Nisbet & Myers, 2007). Corporate actors also participated. Anderson (2009) noted that organisations have an increasing number of public relations tools through which to affect public discourse.

Episodic and thematic frames. Researchers, studying news framing, distinguished between episodic and thematic framing. Iyengar (1996) identified episodic framing as the depiction of public issues in the form of concrete instances or specific events while thematic

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newscasts do so on a more abstract level. Thus, thematic newscasts focus on specific events. Therefore, the bigger picture would get lost, and the episodic frame could be made to fit a more catered narrative. Other research found that western news networks often relied exclusively on episodic framing (Iyengar, 1996; Nisbet & Lewenstein, 2002; Pfau et al., 2005) (Iyengar & Simon, 1993). By comparison, eastern news networks such as Al-Jazeera often preferred a thematic focus (Kolmer & Semetko, 2009).

Scheufele & Tewksbury (2007) demonstrated how episodic framing was used to support the dominant agenda. In their study regarding news reporting on the Iraqi War, they found that CNN reports highlighted the bravery, sacrifice and patriotism of the individual US-soldier. Other studies confirmed this finding and added that news reports also framed anti-war protestors as unpatriotic and the enemy as terrorists (Kolmer & Semetko, 2009; Pfau et al., 2005). This focus served the national agenda of creating emotional and patriotic support for the war in Iraq and lost the bigger political narrative, including the hunt for chemical weapons. By contrast, Al-Jazeera was found to emphasise the big picture. Al-Jazeera showed the general extent of human suffering caused by the invasion and the search for weapons of mass destruction, which were never found (Kolmer & Semetko, 2009).

2.2.2 Framing in social contexts. Outside the news industry, B. T. Scheufele and Scheufele (2010) defined framing as a ‘competition among policymakers, interest groups, NGOs, journalists, and other groups over establishing dominant frames to influence public attitudes or policy outcomes’ (p. 113) to ‘promote specific frames to gain public support for their interests, positions, and concerns’ (p. 111). From this perspective, Researchers contended that the success of the frame depends on the degree to which an organisation can align its framing efforts to the dominant social issues in the target audience’s cultural context (Gamson & Modigliani, 1989; Reese, 2007; B. T. Scheufele & Scheufele, 2010; Tewksbury & Scheufele, 2009; van Gorp, 2007, 2010).

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From this perspective, framing has also been defined as a rhetorical process. Goffman (1974) first argued that frames were not static but subject to *keying* and *rekeying*. By this, he meant that frames could change often and be clarified to manufacture consensus. Kuypers (2009) explained that the intent was often to persuade an audience and get their support on trending issues, a widespread practice in political speeches and corporate communications. The following examples elaborate.

Corporate framing on mining and oil spills. Heberlein (2012) offers another example from a corporate perspective. In the 1970s, ExxonMobil, then Exxon Minerals, identified a concentrated minerals deposit in Wisconsin. Deciding that they wanted to develop it, they initiated the application procedures but encountered public resistance. To garner public support, Exxon Minerals initiated a detailed public relations campaign that drew heavily on emotional and rhetorical framing. In one advertising campaign, Heberlein described the range of metaphors whereby Exxon Minerals 'tied mining to farms, state history, our flag, the badger, small towns, and community identity' (p. 77). This combination of metaphors, he admitted, instilled even in him 'warm, fuzzy feelings about mines' (p. 77). This campaign was supplemented with press releases of new jobs and other benefits to the community. That effort, however, failed as it did not account for locals' attachment to the recently restored Wisconsin river, which would have been contaminated by mining runoffs.

A more recent study contemplated the corporate rhetorical framing of a 2010 British Petroleum (BP) oil spill in the Gulf of Mexico. Wickman (2014) investigated BP's use of traditional media to characterise their efforts to clean-up the oil spill. The study found that BP made active use of various PR strategies to stabilise their clean-up activities. Most notably, BP would actively communicate positive developments to affected communities and work with them. Wickman (2014) found that BP built a narrative of successful disaster management by placing itself as an innovative and conscientious environmental actor and a

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friend to the affected community. These efforts were also picked up by the local news organisations who further contributed to the narrative.

Political and social organisations framing of nuclear energy. Another case is the framing of nuclear energy. Gamson and Modigliani (1989) discussed the historical case of nuclear energy, which debuted in the Second World War as a feared weapon of mass death and destruction. However, when the war subsided, social movements rallied around the slogan *Atoms for Peace* and reframed nuclear power as a means of peaceful development. This movement gave rise to the *social progress frame*. Using various framing devices, proponents highlighted the problem of social development and the nearly limitless positive consequences of implementing nuclear energy as a cleaner and cheaper source of electricity (Entman & Rojecki, 1993; Gamson & Modigliani, 1989; Snow, 2007; van Gorp, 2007). Gamson and Modigliani (1989) found that this positive interpretation of nuclear power dominated US media discourse even during the 1966 Fermi nuclear reactor crisis in Detroit.[3]

It was not until the more publicised Three Mile Island incident[4] that a rival perspective emerged. The *runaway science* frame arose as a counter-frame to the social progress frame. It shifted the nuclear debate through media labels such as *Pandora's box* and a *Frankenstein's monster* (Gamson & Modigliani, 1989). Central to the argument was the fear that nuclear energy posed an immediate threat to human and environmental safety. In their research on anti-nuclear social movements, Snow and Benford (1988) identified three types of framing. First, they demonstrated that social movements often engaged in diagnostic

[3] The Fermi reactor, located outside Detroit, experienced a partial meltdown on October 5, 1966. The automatic shutdown system also failed, requiring a manual shutdown. While the radiation leak was contained, the investigation phase held serious risk of further contamination. The fault was later attributed to a component that had loosened due to vibrations before blocking the flow of reactor coolant. While there was discussion of mass evacuations of up to 1 million residents, eventual action was not required (Gamson & Modigliani, 1989; Union of Concerned Scientists, n.d.).

[4] The Three Mile Island incident is the most serious nuclear incident in the US. The incident started because of a technical failure in a secondary system and a human operated valve that got stuck on open. Human error compounded the issue as operators misread warning messages and mistakenly reduced the coolant to the reactor. A partial reactor meltdown resulted (Gamson & Modigliani, 1989; Union of Concerned Scientists, n.d.).

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framing. During this stage, movements would often identify a problem, focus on its causality and attribute blame. This phase was followed by prognostic framing. During a number of NGO meetings that they were able to attend, they noted that these solutions varied between more reserved actions such as education and awareness campaigns, while but did occasionally call for more extreme efforts such as sabotage (D. A. Snow, 2007; David A. Snow, Soule, & Kriesi, 2007). They considered this motivation framing as the decisive step before motivating people to action.

It is during this last step that Snow and Benford (1986) explained why framing efforts sometimes fail. In a concept they identified as *frame alignment*, they argued that unless social movements could align their positions to the existing beliefs, values and attitudes in their target group, they would be unlikely to motivate a favourable action. They suggested that alignment could be achieved through frame bridging, linking the frames with related ideological structures, or by bridging the gap between distinct groups by emphasising shared interests, beliefs and values (Snow et al., 1986).

The nuclear debate has more recently resurged with the Fukushima nuclear incident. International media had wasted no time in associating the incident with existing nuclear fears. For instance, all nuclear reactors in Germany were immediately shut in response to the public outcry (Thomas, 2012; Wittneben, 2012). Another example could be seen in Taiwan. Social movements with an anti-nuclear sentiment saw an opportunity to bridge the events in Japan to existing ideological perspectives and shared values to gather public and political support (Ho, 2014; Ming-Sho, 2003; Wei, 2016). The significant safety concerns of nuclear plants in geologically active regions gave a resurgence to the anti-nuclear movement, a mass mobilisation of protestors and political support.

Political framing on climate change. There have also been efforts by political candidates to frame climate change, much of it in the US. In the US, researchers have pointed

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to a deeply divisive political climate (Dunlap & McCright, 2008; Dunlap & McCright, 2012; Dunlap et al., 2016; McCright & Dunlap, 2011; Nisbet, 2009, 2016; Nisbet & Kotcher, 2009). Nisbet (2009: p.14) referred to this phenomenon as the 'Two Americas of Climate Perceptions.' Speeches by Republican and Democratic political candidates were found to reflect this division often.

A prominent instance has been that of climate change denial. Researchers found that Republican candidates used labels, symbols and other rhetorical devices to deny climate change and to raise doubts about climate science and the anthropogenic connection (Dunlap et al., 2016; Fletcher, 2009; Nisbet, 2008, 2009, 2016; Nisbet & Kotcher, 2009; Nisbet & Myers, 2007; Trent & Friedenberg, 2011). Democrats have actively opposed. Earlier attempts relied on emphasising the consequences of climate change. Statements were found to often repeated terms *severe weather, rising sea-levels, floods* and others (Dunlap & McCright, 2012; Goldenberg, 2013; Nisbet, 2016). However, the exaggerated nature of the claims tended to add to Republican labels of alarmism. This framing approach came to be known as the *scientific and technical uncertainty* frame.

In the 2008 elections, Democratic candidates adopted a new counter-frame strategy. The new strategy evolved from a published book that called the Republican position *a war on science* (Dunlap, 2008; Mooney, 2007; Nisbet, 2009}. This label evolved in a call by Hillary Clinton and Barrack Obama for more scientific certainty in the making of policy and for corporate and public officials to be held accountable for their decisions (Davenport, 2014; Dunlap et al., 2016; Nisbet, 2009). This frame came to be known as the public accountability and governance frame and promoted terms such as *transparency*, *participation*, *responsiveness* to climate change, and taking *ownership*. Their argument was based on the appropriate use of science in policymaking.

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Republicans soon responded by increasing their emphasis on economic arguments. Dr Frank Luntz (2007), a principal advisor to Republicans, admitted in his book that he had advised the Republican on this approach. His studies had shown that the mere suggestion to Americans of rising costs would be enough to dampen political support for climate change. While the frame does have earlier roots, it was most notable during the 2016 US Presidential campaign of Donald Trump (Liptak & Acosta, 2017; Nisbet, 2016). President Trump extensively argued and implied that climate action was an expensive and unnecessary burden to the US economy and that it unfairly disadvantaged US market competitiveness (Nisbet, 2016; Shankleman, 2016; White House, 2017a, 2017b). When withdrawing from the Paris Accord, President Trump explicitly cited the need for a better deal (White House, 2017a, 2017b). More recently, President Trump offered financial and job creation arguments in support of his decision to repeal the EPA emission guidelines on the energy industry (Trump, 2019; White House, 2018).

Democrats made extensive efforts at countering this frame. Both Senator Hillary Clinton and former US President Obama referenced economic opportunities and job gains as positive outcomes. In speeches and reports, they proposed that new, greener industries would emerge in the US and provide an overall benefit to the economy (Mathews & Tan, 2014; White House, 2014). In the final year of Obama's presidency, the White House (2014) released a report arguing that the economic costs of inaction would be of far greater concern. On land, severe weather events, disruptions to agriculture, and constrained water supplies would lead to more significant financial damage (Hossain & Selvanathan, 2011; White House, 2014). White House (2014) data showed that for every ten-year delay in action, mitigation costs would increase by about 41%. A report by the US Department of Defense (2019) further added that climate change would cause an unbearable mass-immigration from poor to rich countries which could strain and collapse critical infrastructure.

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2.2.3 The importance of context to framing. A recurring finding in the literature has been the importance of context. In studies on news framing, the literature noted that a successful frame tended to draw on the existing societal values and beliefs (Cacciatore, Scheufele, & Iyengar, 2016; Scheufele & Scheufele, 2010; Tewksbury & Scheufele, 2009). Outside of news framing, culture has been identified as a needed condition for the attainment of frame resonance (Boesman, Berbers, d'Haenens, & van Gorp, 2017; Boesman & van Gorp, 2017; Pan, Opgenhaffen, & van Gorp, 2019; van Gorp, 2005). In fact, van Gorp (2007) argued that culture had been a central part of Goffman's (1974) and needed for the frame to form 'the linkage between, on the one hand, the journalistic approach of shaping the news within a frame of reference' (van Gorp, 2005, p. 485). To facilitate the return of culture to framing, van Gorp (2007) defined the frame as 'a cluster of logical organized devices that function as an identity kit for a frame' (p. 64). The identity kit consisted of both manifest and latent devices that aim to bridge the gap between the frame and existing social issues. It achieved this by activating specific audience-held beliefs and suggesting a set of logical, relevant conclusions and actions within the cultural context. The more the resulting package resonates to social and cultural issues, the higher the probability of the frame's adoption (van Gorp, 2007, 2010).

To prove his point, van Gorp's (2005) inductively reconstructed two frames, namely 'asylum-seekers are innocent victims' and 'asylum-seekers are intruders.' First, van Gorp (2005) used qualitative content analysis to identify the framing devices that made up the two frame packages. He then used axial coding to identify underlying reasoning devices that held these devices together. These reasoning devices included a problem, causes and consequences, moral evaluations and solutions. Using the resulting framing matrix, van Gorp (2005) then constructed a quantitative content analysis codebook to code for the prevalence of the frames. In his analysis on eight Belgian newspapers, he found that the victim-frame

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was more dominant in the broadsheet press, while the intruder frame was more abundant in the popular press. He further found that the progressive press was more likely to apply the victim frame than the left-leaning press.

In a more recent study, Pan et al. (2019) applied van Gorp (2010) framing approach to media coverage of COP21. The study investigated news media in the United Kingdom, the United States and China. In their inductive analysis, they identified ten media frames on climate negotiations. Their subsequent deductive analysis found that the prevalent frames reflected those values held by the key political powers engaged in international climate policy discussion. Specifically, the study found that British and American media forwarded Western views. These views included a tendency of both to reference the *apocalypse frame*, which focused on the dire consequences of climate change. The press in both Western nations also relied heavily on the *sustainability frame*, which considered more economically sound methods to mitigate climate change. By comparison, the Chinese media was found to reflect a China in search of global recognition. Chinese media relied more heavily on the *sustainability frame*, with more than half of analysed reports containing relevant references, but also positioned China as the *vanguard of climate change*.

2.3 A Sociological Theory of Fields

The literature would suggest that the culture and socio-political setting could have a considerable impact on the framing devices and frames forwarded actors. Furthermore, national and international climate change debates have drawn in a proliferating number of national actors. As a result, framing efforts span an ever-diverse number of settings, both within and across nations. From this perspective, it is also worth taking a closer look at the characteristics that define how actors exist and interact in their respective national settings. The sociological theory of fields, an effort to combine and expand on theories of organisational change, helps to contextualise these settings (Fligstein & McAdam, 2011,

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2012; Kluttz & Fligstein, 2016). Fligstein and McAdam (2012, p. 3) proposed the sociological theory of fields to explain the stability and change among actors in circumscribed social arenas.

2.3.1 Strategic fields and actors. Fligstein and McAdam (2012) argued that strategic action occurs in identifiable fields. They defined these fields as,

> a constructed mesolevel social order in which actors (who can be individual or collective) are attuned to interact with one another on the basis of shared (which is not to say consensual) understandings about the purposes of the field, relationships to others in the field (including who has power and why), and the rules governing legitimate action in the field. (p. 3)

The boundaries of the strategic action fields continually shift and depend on the issue at hand (Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016; Laumann & Knoke, 1987). Fligstein and McAdam (2012) demonstrated how social movements with aligned goals might form a collective action. They argued that this was the case in the emergence of the nuclear movements discussed in other literature (Benford, 1993; Entman & Rojecki, 1993; Gamson & Modigliani, 1989).

Fligstein and McAdam (2012) also pointed out that incumbents inclined to dominate strategic fields. Incumbents are those members of a field who are more powerful and have better resources. These incumbents have a personal stake in retaining their dominance. Thus, they may attempt to reframe a given issue in their favour. Governance units also partake in fields. Often, the governance units are state-sponsored and tasked with maintaining field stability (Fligstein & McAdam, 2012; Heberlein, 2012; Kluttz & Fligstein, 2016; Martin, 2003). In practice, it means they shared the view of the field's incumbents. In South Africa, for example, the Department of Environmental Affairs would tend to share the views of eNGOs concerning environmental concerns (Bodley, 2008).

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From the perspective of the study, these sociological fields of strategic action also include the culture within which organisational would select and forward their given frames. For instance, the study by Pan et al. (2019) found evidence that Western media tended to frame climate change in the context of the pre-existing societal values in their respective nations. These values reflected in the media also reflected those forwarded by the respective nations in their climate change negotiations (Brandi et al., 2018; Nisbet, 2009). The same finding was evident in China. At the national level, Chinese politicians have extensively begun a pivot to pro-climate action. This pivot is evident in their speeches and policy actions (Finamore, 2018; Womack, 2017; Xi, 2014a, 2015). Thus, it is within these circumscribed social arenas, or strategic fields of action, that actors engage in framing and vie to maintain or gain an advantage. Framing is one social skill actors may use to vie for dominance (Fligstein, 2001; Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016).

2.3.2 Contention and social skill. While skilled actors are always trying to gain an advantage in a field, most interaction occurs during periods of contention (Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016). A period of contention begins when actors in a field perceive a significant threat to the existing order. Incumbent actors would tend to act defensively to reassert their dominance over the field, while smaller actors attempt to push for a new order (Fligstein & McAdam, 2012; Kluttz & Fligstein, 2016). Kluttz and Fligstein (2016) pointed out that the old equilibrium, preferred by incumbents, is usually restored because governance actors usually have a personal stake to do so. The exception is when the contention continues for an extended period, and defections begin to occur. The period of contention ends when the old equilibrium is restored, or a new one is reached.

To illustrate, the study first draws on an earlier study of organisational change. In a five-year study targeting US energy and health policymaking, Laumann and Knoke (1987) explained how a government vote calling for a rise in energy taxes set off a period of

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contention. A corporate CEO saw the policy change and immediately sought allegiances with other skilled social actors who were similarly affected and together activated lobbying resources to mobilise political allies. This lobbying included writing letters and engaging in public relations campaigns through an energy lobby.

Climate change has become such a contention. Studies engaged in understanding organisational adaptation to climate change have demonstrated resistance from especially the energy sector. Few cases have been as notable as ExxonMobil, an incumbent of the energy field (Dunlap & McCright, 2012; Heberlein, 2012; McCright & Dunlap, 2011). ExxonMobil has a history of resisting political and public efforts towards a climate-friendly policy. In these efforts, ExxonMobil was accused of investing in campaign contributions to persuade political candidates, lobbying and public relations campaigns (Dunlap & McCright, 2012; Heberlein, 2012; McCright & Dunlap, 2003). More recently, the US State of New York sued ExxonMobil for allegedly deceiving their shareholders by understating the seriousness of climate change (Weinstein, 2018). More recently, its former CEO, Rex Tillerson, served as the 69th US Secretary of State and was quoted as seeing climate change as an engineering solution geoengineering (Gunderson, Stuart, & Petersen, 2019).

2.4 Theoretical Framework

The research drew from both political and communication literature for the theoretical framework. From the communication literature, the study drew on van Gorp's (2005, 2007, 2010) cultural approach to framing analysis, Nisbet's (2009) typology of frames and the rich literature discussing frames and framing (see section Chapter 2.2., p. 32). From the political literature, the study drew on theories of organisational change, with a focus on the sociological theory of fields (Fligstein & McAdam, 2012; Laumann & Knoke, 1987; Kluttz & Fligstein, 2016).

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2.4.1 A cultural approach to framing. First, the study acknowledged the argument of van Gorp (2010) on the importance of culture to framing. As discussed in Chapter 2.2.3 (p. 42), *culture* often features in framing studies and was an intended part of the original definition (Goffman, 1974; van Gorp, 2007). Van Gorp (2007) argued that there was an existing cultural stock of frames from which organisations would often draw. Thus, to remedy the omission of culture, van Gorp proposed the reconstruction of a limited number of frames using inductive qualitative content analysis. The result of the inductive phase is a framing matrix where each row represents a framing package and each column a framing and reasoning devices.

Van Gorp (2010) explained that framing packages consist of framing devices that 'contribute to the narrative and rhetorical structure of the text' (p. 91) and may include:

> [m]etaphors, historical examples from which lessons are drawn, catchphrases, depictions, and visual images are five framing devices Gamson and Modigliani (1989) referred to. Other devices that can be taken into account are themes and subthemes, types of actors, actions and settings, lines of reasoning and causal connections, contrasts, lexical choices, sources, quantifications and statistics, charts and graphs, appeals (emotional, logical, and ethical), all of which contribute to the narrative and rhetorical structure of a text.

These framing devices are typically held together by reasoning devices that define a problem, identify causes and consequences, offer solutions and make a moral evaluation (Entman, 1993; van Gorp, 2007, 2010). The resulting framing package serves as an identity kit for a frame and enables the construction of a codebook to deductively assess for the prevalence of the frames (van Gorp, 2010).

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Through the review of the literature (see Chapter 2.2, p. 32), the study identified five framing packages that were likely to appear.[5] The following discussion details the frames.

Social progress frame. First, the study identified the *social progress frame.* Historically, the social progress frame developed alongside media framing of nuclear energy. Following the World War II deployment of atomic weapons against Japan, nuclear technology received its first civic applications as an authoritative energy source (Benford, 1993; Entman & Rojecki, 1993; Gamson & Modigliani, 1989). Its social benefits gave rise to the social progress frame, which Nisbet (2009) defined as 'a means of improving the quality of life or solving problems' or to live 'in harmony with nature instead of mastering it' (p.18).

This frame has received notable counter framing efforts. Specifically, a series of crises and disasters involving nuclear reactors saw a surge in social movements targeting nuclear technology (Benford, 1993; Entman & Rojecki, 1993; Gamson & Modigliani, 1989; Snow, 2007). Counter framing efforts underscored the unintended consequences. From this emerged the *runaway science* frame, which Nisbet (2009, p. 18) defined as 'a need for precaution or action in the face of possible catastrophe and out of control consequences' of a given technological solution. Researchers have also pointed to the adverse effects of renewable energy. The problem included the environmental costs inherent in its manufacturing, as well as the harmful effects of solar and wind power to biodiversity (Eakle et al., 2013; Kagan, Viner, Trail, & Espinoza, 2014; Pagel et al., 2013).

The study adapted and merged the above two frames, acknowledging the name *social progress* as a frame with two sides. The positive side of the merged social progress frame is defined as 'a means of improving quality of life or solving problems' or living in harmony with nature; the oppositional side is defined as 'a need for precaution or action in the face of

[5] While other literature do identify more frames pertinent to climate change, they are often duplicates (see for example the 'apocolyptic frame' by Pan et al., 2019) or applicable to specific situations (see for example the journalist-driven conflict and strategy frame byNisbet, 2009).

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possible catastrophe and out of control consequences' (Nisbet, 2009, p.18). Thus, based on prior studies, the constituent framing devices of the social progress frame could reflect issues of development and social improvement, on the one side. Specifically, it could feature technological advancements such China's photovoltaic solar panels, European windfarm technology in South Africa, US biofuel technologies, fuel and energy efficiency technologies or to social development benefits (Giglmayr et al., 2015; Gosens et al., 2017; McEwan, 2017; Radebe, 2018; Scott et al., 2010; Searchinger et al., 2008; Walwyn & Brent, 2015; Wang et al., 2017). Conversely, one could expect framing devices that emphasise unexpected consequences and problems with technological solutions, such as adverse social or environmental outcomes, such as *avian mortality* associated to renewable energy (Eakle et al., 2013; Pagel et al., 2013) and *market disruptions* from biofuels (Searchinger et al., 2008). It is conceivable that both sides of the frame may draw on metaphors, hyperbole and other forms of emotional appeal, as well as comparisons and case studies.

Public accountability and governance frame. Next, the study identified the *scientific and technical uncertainty* frame. Nisbet (2009) defined this frame as relating to the matters 'of expert understanding or consensus…over what is known versus unknown' (p. 18). In the literature review, related statements often originated from politicians opposed to climate science. Much of the applicable discourse concerned questioning the validity of climate science and the anthropogenic connection (Dunlap & McCright, 2012; Goldenberg, 2013; Nisbet, 2016). When targeting climate science, they would often target dire and apocalyptic consequences with a label of *alarmism*, *uncertain science* or *unsubstantiated claims*. Nisbet (2009) argued that the more dramatic claims by Democrats and media reports often worked in favour of the Republican alarmism label.

Democratic proponents of climate action developed the *public accountability and governance* frame as a counter-position. Nisbet (2009) defined this frame as 'governance or

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policy either in the public interest or serving special interests, emphasising issues of control, transparency, participation, responsiveness, or ownership; or debate over the proper use of science and expertise in decision making' (p.18). With its origin in the *Republican War on Science* by Mooney (2007), its broader adoption can be traced first to Senator Hillary Clinton's 2008 US presidential bid. After assuming the US presidency, Obama accentuated scientific research as a cornerstone of environmental and climate policy (Davenport, 2014; Dunlap et al., 2016; Nisbet, 2009).

The study merged the scientific and technical uncertainty with the public accountability and governance frame, keeping the name of the latter. On the positive side, this frame may adopt framing devices that emphasise the role of science to make informed policies. Furthermore, it may focus on actors' responsiveness to climate action, especially informed climate action. It could, therefore, see the emissions being quantified using the EPA's Greenhouse Gas Reporting Program, the Global Reporting Initiative (GRI) and the World Resource Institute's (WRI) GHG Protocol (IPCC, 2018; World Resource Institute, 2017). On the opposing side, the frame may raise the scientific and technical uncertainty frame. Opponents may, for example, decide to oppose the validity of science or decry it as alarmism (Nisbet, 2009, 2016; Shankleman, 2016). The opposing position is likely to make use of emotional appeals.

Economic development and competitiveness frame. Another prominent frame has been the *economic development and competitiveness* frame. Nisbet (2009, p. 18) defined this frame as an 'economic investment; market benefit or risk; or a point of local, national, or global competitiveness.' Internationally, there has been a broader adoption of climate science as indicating a legitimate threat with and anthropogenic connection (Liptak & Acosta, 2017; Nisbet, 2016). As a result, the scientific and technical uncertainty frame has become a harder argument to make. In its place, the literature suggested that especially Republican candidates

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have shifted towards economic arguments (Liptak & Acosta, 2017; Trump, 2017; White House, 2017a, 2017b). Most recently, President Trump has emphasised the economic consequences of climate action in the US. He made a point of emphasising job and revenue losses, often adding the loss of competitive advantages.

Democrats have made two reframing efforts. First, both Senator Hillary Clinton and former US President Obama reframed climate action as a boon to the economy (Mathews & Tan, 2014; White House, 2014). From this perspective, it could lead to new markets such as the manufacturing and sale of modern solar and wind technologies. Another benefit has been *green jobs*. These efforts have, however, needed to compete against the arguments that renewable energy sources are more expensive to manufacture (Mathews & Tan, 2014). Second, there have been efforts to reframe it as the cost of inaction. In this regard, Obama's presidency released reports arguing that the economic costs of inaction far outweigh the costs of acting (US Department of Defense, 2015, 2019; White House, 2014).

Thus, the study adopted the economic development and competitiveness frame as a two-sided frame. On the one side, it sees climate action as having negative financial implications. In this regard, potential framing devices could include organisations lamenting the loss of competitiveness, additional costs from government policy, tariffs on high pollution goods and detrimental experiences from carbon trading schemes ("IPCC, 2018: Summary for Policymakers.," 2018; Rogelj et al., 2018). Furthermore, since both South Africa and the US have legislation requiring the release of corporate risk assessments on climate change, it could be expected to see direct assessments raising the financial implications of climate change ("Companies Act no. 71 of 2008," 2008; U.S. Securities and Exchange Commission, 2000). On the other side, the frame may focus on the cost of inaction or the benefits of action. Therefore, framing devices may include long-term financial losses from increased security risks and conflict. Alternatively, framing devices might include green jobs, new market

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opportunities, and sustainability efforts (Burin Gabriel, 2018; Mastrorillo et al., 2016; Nisbet, 2009; US Department of Defense, 2015, 2019; White House, 2014). Supporting materials may include financial arguments and data.

Environmental morality and ethics frame. Finally, the study includes the *morality and ethics* frame. Nisbet (2009) defined this frame as 'a matter of right or wrong; or disrespect for limits, thresholds, or boundaries' (p. 18). Environmental framing has seen significant application amongst media practitioners and social movements (Abrams & Hall, 2010; Bodley, 2008; Lakoff, 2010; Snow et al., 1986; van de Veer & Pierce, 1993). The frame saw one of its earlier applications to climate change by E. O. Wilson, an atheist, in his book *The Creation: An Appeal to Save Life on Earth* (Nisbet, 2009; Wilson, 2006). Intending the book to be an open letter aimed at a Baptist Minister, he framed environmental stewardship as an issue of morality and ethics, a notion he hoped could be shared across ideological borders. More recently, Nisbet (2009) identified this frame in AL Gore's *WE campaign* in 2008. However, later advertising efforts for the *WE campaign* shifted to the economic development frame.

While the frame has no obvious counter-frame, it ought to be noted that the degree of freedom experienced by eNGOs differ by nation and is likely to have a considerable effect on their application of the frame. Specifically, Chinese law manages what actions eNGOs are permitted to take, often limiting them to specific education and awareness functions (Bratcher, 2017; Leonard, 2012). In South Africa, eNGOs often lack financial independence, yet are often in possession of skills needed by the government. It is therefore not uncommon to see South African eNGOs provide specific services in tandem with the government and receiving financial aid (Swemmer et al., 2017; Western Cape Government, n.d.).

The study adopts the morality and ethics frame with a slight name change to emphasise the environmental focus. In this regard, the review of the literature suggests that

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framing devices may include typical eNGO actions, such a focus on pollution reduction, biodiversity protection, environmental justice, conservation and the raising of environmental awareness (Bodley, 2008; US Aid, n.d.; van de Veer & Pierce, 1993). Occasionally, it is also likely to see Chinese and US eNGOs take legal action as legislation permits this (Blumm & Wood, 2017; Mi, 2016; Naysnerski & Tietenberg, 1992; Zhao et al., 2019).

Middle way or alternative path. Aside from the above frame packages, it is also necessary to allow for a novel approach not previously considered. Nisbet (2009) acknowledged this need and included what he termed the *middle way or alternative path* and defined as a 'third way between conflicting or polarized views or options' (p. 18). In practice, the framing devices of this framing package may, therefore, appear less like a frame and more so as a compromise between two or more frames. Another possibility is an entirely novel approach to addressing climate change.

Thus, the importance of the cultural approach to framing lies its ability to reveal the frame and its fundamental characteristics as they are applied by organisational actors in their respective sociopolitical and cultural contexts. Therefore, the initial interest of the study was to determine the constitution of these framing packages. Therefore,

RQ1: What are the reasoning devices and framing devices like in the consequential actors' framing of climate change?

Contained within this first research question are the two elements of the framing package. Hence,

RQ1a: What are the reasoning devices like in consequential actors' framing of climate change?

RQ1b: What are the framing devices like in consequential actors' framing of climate change?

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Furthermore, Berger and Luckmann (2011) reasoned that all knowledge is socially constructed. Van Gorp (2007) sought to remind further that frames are cultural manifestations of that social knowledge and is embedded in the national social, political and cultural environments (Pan, Opgenhaffen, & van Gorp, 2019; van Gorp, 2005, 2007, 2010). This raised the following research question of the study,

RQ2. How does the framing of climate change by consequential actors reflect the socio-political context?

2.4.2 Consequential actors and fields of strategic action. Second, the conceptualisation of the study focuses on identifying the actors most likely to function as frame sponsors. In this regard, Van Gorp (2010) defined the frame as a dependent variable constructed by frame sponsors vying for dominance of their respective framing packages (Boesman, Berbers, d'Haenens, & van Gorp, 2017; D'Angelo, 2002). Thus, the constitution of the framing matrix depends in large part on the positions taken by frame sponsors. Gamson and Modigliani (1989) proposed that all frames have organisational sponsors. The framing literature has variously labelled these organisational frame sponsors as *signifying agents* (Snow et al., 1986), *social forces* (Bryant & Oliver, 2009; Gamson & Modigliani, 1989; Nisbet, 2009; Nisbet et al., 2003) *frame sponsors* (van Gorp, 2007; 2010) and strategic actors (Fligstein & McAdam, 2012). Regardless of the label, the literature agreed that frame sponsors include at least policymakers, interest groups, NGOs, and corporations. However, not all organisations have an interest in serving as frame sponsors (van Gorp, 2007).

When identifying the consequential actors, it is worth noting first the environment in which they function. In this regard, Berger and Luckmann (2011) reasoned that all knowledge is socially constructed and van Gorp (2005, 2007) argued for the importance of the cultural environment in which organisations act. The sociological theory of fields acknowledges this by identifying the nation as a field of strategic action within which actors

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vie for the dominance of their frames (Fligstein & McAdam, 2012; Kluttz & Fligstein, 2016). However, Fligstein (2012) argued that within this national field, *strategic actors* function in embedded *strategic action fields* that may overlap. The study, however, prefers the terminology of Laumann and Knoke (1987) who argued that *consequential actors* engage in *policy domains* for two reasons. First, the term policy domain more directly reflects that the study is investigating organisations' framing responses to national climate change policies. Second, the term consequential actors acknowledge that not all organisational actors are likely to partake in the framing processes. The following discussion elaborates.

Defining the policy domain. Laumann and Knoke (1987) advised that the national scope should first be limited to the primary policy domains to identify consequential actors with an interest in affecting change. They defined a policy domain as an area of policy action where interested parties attempt to influence the policy outcome, and which may overlap with other policy domains. Fligstein and McAdam (2012, p. 33), who saw policy domains as strategic actions fields, defined such a field as,

> a constructed mesolevel social order in which actors (who can be individual or collective) are attuned to interact with one another on the basis of shared (which is not to say consensual) understandings about the purposes of the field, relationships to others in the field (including who has power and why), and the rules governing legitimate action in the field.

Furthermore, such a field may often be defined by its centrality to a period of contention (Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016; Laumann & Knoke, 1987). Noting that climate change is a central focus of the study, such a field or policy domain may be identified as the *climate change policy domain.*

Laumann and Knoke (1987) also acknowledged that the primary policy domain might itself overlap with other policy fields. In terms of the sociological theory of fields, two types

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of overlaps exist. On the one hand, proximate fields are ‘strategic action fields with recurring ties to, and whose actions routinely affect, the field in question’ (Fligstein & McAdam, 2012, p. 18). In other words, these are fields close enough to affect each other. Distant fields lack any such ties cannot affect a given strategic action field. Another type of overlap occurs when fields are dependent or interdependent. A dependent field relies totally on another, while an interdependent field experiences mutual influence.

The policy domain of climate change can be said to be interrelated with at least four other policy domains. Evidence of these overlaps can be seen by reference to the solutions reached through international climate change negotiations ("IPCC, 2018: Summary for Policymakers.," 2018; Rogelj et al., 2018). First, the climate policy domain overlaps with the economic policy domain. That is, any policy targeting a reduction in carbon emission would have implications for the carbon-heavy industry. For example, a carbon tax would require an economic policy, while a pro-economic policy that repeals carbon taxes would negatively affect climate policy. Second, climate policy overlaps with the environmental policy domain. Climate policy aimed at protecting biodiversity calls for pro-environmental legislation that forces environmental restoration and conservation laws. Third, the climate policy domain overlaps with social development policy. For example, adaptation measures aimed at building self-sufficient communities more resilient to climate change requires social development policies. Fourth, there is an overlap with the energy policy domain. This domain is strongly interrelated to climate change, especially regarding carbon emissions and renewables. The policy domains may also be interrelated with each other, and they are not exhaustive. They are, however, the focus of the study.

Defining consequential actors. With the policy domains defined, Laumann and Knoke (1987) suggested that consequential actors can be more clearly defined. According to the theory of fields, strategic action fields are socially constructed by actors with different

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abilities and resources who vie for advantage (Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016). Fligstein and McAdam (2012) identified three types of actors. First, incumbents are 'skilled social actors [who] work to improve their position in an existing strategic action field or to defend their privilege' (p.7). These actors have more influences and their 'interests, and views tend to be heavily reflected in the dominant organization of the strategic action field' (p. 13). The challengers occupy less privileged roles. They tend to have fewer resources and are thus unable, at least as singular units, to have a significant effect on a given strategic action field. Third, the governance units are those institutions established to enforce compliance with the field rules. Typically, these actors mediate between strategic action fields and maintain field stability, often in the interest of the incumbents (Fligstein & McAdam, 2012). An example of such an actor is the US EPA.

The study focused on those incumbents, or consequential actors, who dominate the climate change policy domain. According to the theory of fields, incumbents determine the rules and culture of a field (Fligstein & McAdam, 2012; Kluttz & Fligstein, 2016). Laumann and Knoke (1987) defined these as *consequential actors* who are complex organisations 'with concerns about a substantive area, whose preferences and actions must be considered by other domain participants' (p. 1). In this definition, they deliberately exclude non-complex actors such as social movements and individuals. These consequential actors may, therefore, include corporations, eNGOs and political parties who are most affected and thus have an interest in affecting, the policy outcome in the climate change field.

Three types of consequential actors were identified. First, the study identified corporations engaged in the carbon-heavy industry (see Figure 2.1). Mostly active in the economic policy domain, carbon-heavy industries have long been the target of COP mitigation policies and have been the source of discord (Duncan, 2015; Heidari & Pearce, 2016; International Panel on Climate Change, 2014; "IPCC, 2018: Summary for

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Policymakers.," 2018; van de Veer & Pierce, 1993). Data on GHG emissions (see Figure 2.1) suggested that the corporations most affected are those from electricity and heat, manufacturing, agriculture, and transportation sectors (CAIT, 2017). The corporate actors have also been found in the literature as likely to engage in public relations campaigns and corporate governance efforts to improve their public image and support (Heberlein, 2012; Institute of Directors Southern Africa, n.d.). Second, the environmental policy domain was dominated by eNGOs. This group was drawn into the debate on moral and ethical grounds (Knight & Greenberg, 2011; Nisbet, 2009; Severson & Coleman, 2015). Most eNGOs have a moral mission to affect environmental policy positively and may also directly engage in the climate change and energy policy domains (Endres, Sprain, & Peterson, 2009; Entman & Rojecki, 1993; Gamson & Modigliani, 1989). The third group of actors included political parties. Political parties occupy the law-making institutions of nations and are, therefore, always the target of lobbying and framing efforts. These political parties may also partake in framing efforts to appeal to their constituents and attract or retain voters. The most salient example can be found in the US presidential campaigns where Democrats and Republicans have taken opposing sides on climate change policy (Davenport, 2014; Endres et al., 2009; Giddens, 2011; Kaplan & Uchimiya, 2015).

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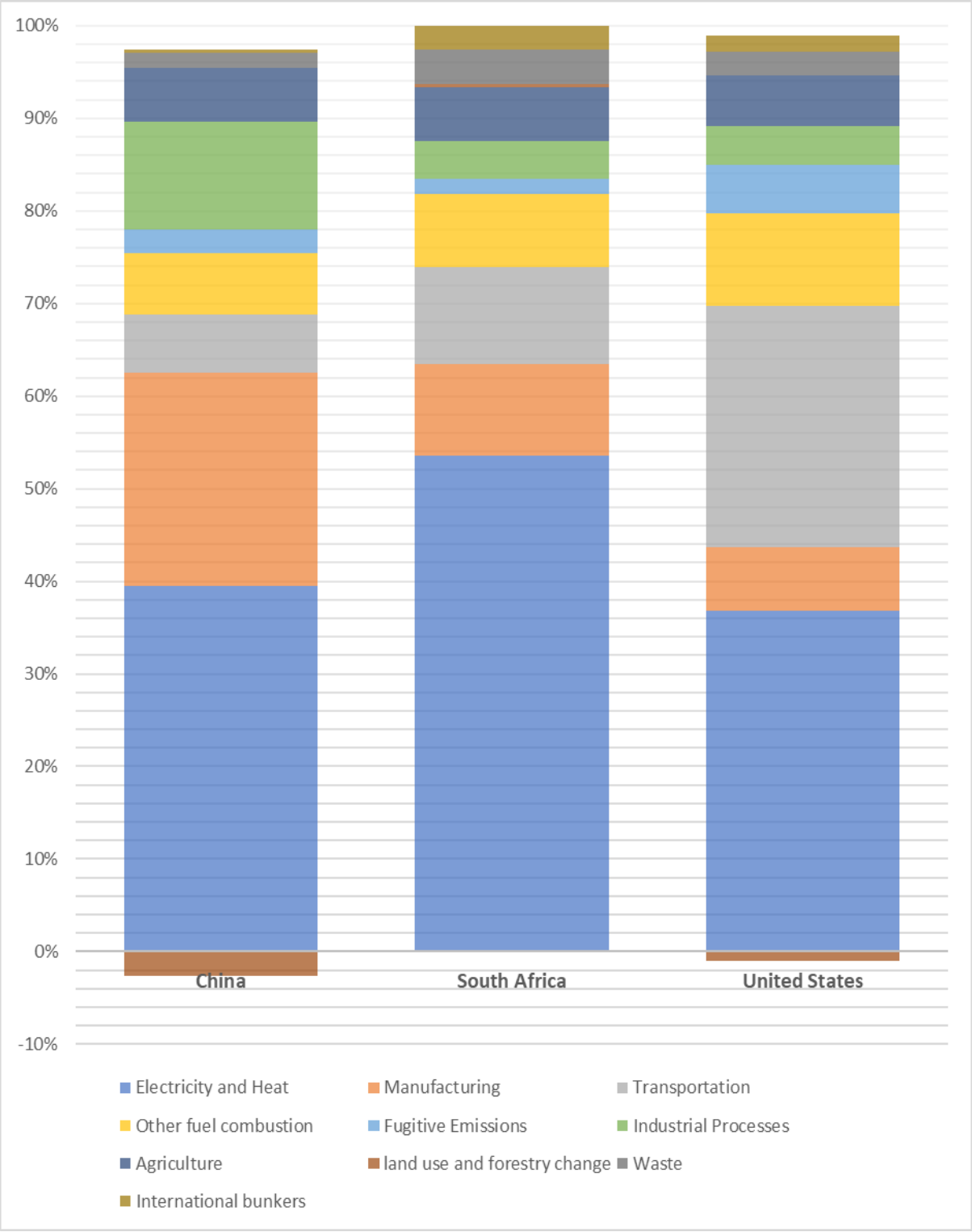
Figure 2.1 *Percentage Anthropogenic CO_2 Emissions by Economic Sector*



Sources. Data adapted from 'CAIT – Historical Emissions Data,' by CAIT, 2017. Washington DC. World Resources Institute. Available online at http://cait.wri.org. Land-use and forestry.
Note. Data are measured in million metric tonne carbon dioxide equivalent ($MtCO_2e$). Transportation includes domestic vehicles and pipelines. *Other fuel combustion* refers to the use of biomass and secondary combustion. Fugitive emissions refer to the disposal of gas for safety reasons such as gas flaring. Bunker fuels relate to the international transportation of trade goods. Negative emissions from forestry and land-use pertain to carbon credit for forestry cover and reforestation.

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Framing and the sociological theory of fields agree that consequential actors vie for the dominance of their respective frames. However, these actors do not necessarily agree on the solutions, and as van Gorp's (2010) cultural approach to framing analysis would suggest, different national characteristics are likely to lead to different frames being applied. The study is furthermore interested in exploring how various consequential actors frame their positions on climate change both within and across countries. Therefore,

RQ3: How are consequential actors' framing of climate change similar or different across and within countries?

This research question can be divided into two focuses. Hence,

RQ3a: How are consequential actors' framing of climate change similar or different across countries?

RQ3b: How are consequential actors' framing of climate change similar or different within countries?

Underlying research question 3a is the assumption that the dominant socio-political culture of a nation affects frame formation. With this assumption in mind, it is possible to develop hypotheses specific to each state field concerning the dominant socio-political and cultural characteristics of each nation. The following discussion draws on the more indicative characteristics identified in Chapter 1.1 (see p. 2).

In China, the socio-political setting has seen a dramatic shift from the Deng Xiaoping's three national goals of affluence, stability and power to a more legalistic model that priorities an ecological civilisation (Finamore, 2018; Leonard, 2012; Vogel, 2011; Wright, 2011; Xi, 2014). Since the 19th National Congress of the Communist Party, *Hu Jintao's Scientific Outlook on Development* and *Xi Jinping Thought on Socialism with Chinese Characteristics* were both adopted to the Chinese constitution. Foundationally, this new governance model called for a moderately prosperous society through modernisation and

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with all decisions legally mandated ("Full text of resolution on CPC Central Committee report," 2017). To date, this approach has included an economic refocus to sustainability, dedicated environmental courts, stricter emission regulations, farmland and forestry legislation, and permission for civic actors to sue polluting corporations (Finamore, 2018; Koleski, 2017; Leonard, 2012; Mi, 2016; Ministry of Ecology and the Environment, 2017; Wright, 2011; Xi, 2014; Zinda, Trac, Zhai, & Harrell, 2017). It is anticipated that emphasis on a top-down policy-driven and legalistic approach would be reflected in organisations' websites. Thus,

H1a: The websites of the Chinese actors were more likely to be framed by the public accountability and governance frame than those of South Africa and the US.

By comparison, South Africa is marked by a developmental mindset. While South Africa experienced a dramatic economic transformation after democratising in 1994, its markets did not enjoy elevated levels of growth (Bodley, 2008; Deegan, 2011). In fact, twenty-four years after democratisation, President Cyril Ramapoza still declared South Africa as a developmental nation (Ramaphosa, 2019). Part of the focus on development is the result of high inequality, with the Gini coefficient at .69, unemployment at 27.3%, and youth unemployment at 52.8% (Trading Economics, 2019; World Bank, 2019b). The need for development is also broadly reflected in the public discourse (Institute of Directors Southern Africa, n.d.; Ramaphosa, 2019; South African Market Insights, 2018). Most notably, the Johannesburg Stock Exchange (2019) requires corporations wishing to trade on its platform to sign the King III code on corporate governance, which emphasised social development. It can be expected that this socio-political focus on development would be reflected amongst organisational actors through the adoption of the social progress frame. Therefore,

H1b: The websites of the South African actors were more likely to be framed by the social progress frame than those of China and the US.

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The literature on the US socio-cultural settings has been more diverse, although there has been a tendency towards the economy-focused frame. The US has enjoyed a much earlier and more significant economic development than the other two nations in the study. Its dominant position at the end of the second world war further facilitated this growth, developing the nation into a global industrial powerhouse (Bodley, 2008; Gilpin, 2001). More recently, economic growth has been at the centre of Republican's reasoning to withdraw the US from the Paris Accord, repudiate EPA regulations enacted under Obama, and make it easier to exploit US natural energy resources (Liptak & Acosta, 2017; Nisbet, 2016; Shankleman, 2016; Trump, 2017, 2019; White House, 2017; White House, 2018). At least from the Republican perspective, climate action would be considered costly and prohibitive to economic growth while Democrats emphasise the benefits of action and the costs inaction. The study thus expects the economic development and competitiveness frame to be more dominantly present on the websites of organisational actors in the United States than in the other two nations. Thus,

> H1c: The websites of the US actors were more likely to be framed by the economic development and competitiveness frame than those of China and South Africa.

Finally, the US can also be expected to reflect the environmental morality and ethics frame. While eNGOs are active in all three nations, the literature suggested that in China, eNGOs are legally constrained under CPC legislation, while in South Africa eNGOs are financially constrained (Aylett, 2010; Bratcher, 2017; Western Cape Government, n.d.). In the US, however, eNGOs have a more extended history of civic action and legal rights. Since the 1970s, US eNGOs have been active in lobbying political actors and have also been permitted to sue corporations under federal environmental law (Blumm & Wood, 2017; Endres et al., 2009; Heberlein, 2012; Naysnerski & Tietenberg, 1992; van de Veer & Pierce, 1993). Although there have been cases of eNGOs averse to climate change, such as those

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pointed out by Heberlein (2012), almost all eNGOs can be expected to support an environmental morality and ethics frame. Therefore,

H1d: The websites of the US actors were more likely to be framed by the environmental morality and ethics frame than those of China and South Africa.

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3. Methods

The study adopted van Gorp's (2010) combined inductive and deductive approaches to framing analysis to address the research questions of the study. Briefly, van Gorp (2010) proposed to determine a frame within a given cultural context and that it should be inductively reconstructed using qualitative context analysis. In the inductive phase, open coding to identify framing devices, axial coding to group codes with reasoning devices and selective coding to identify frame packages and fill in the framing matrix. Also, during the inductive phase, the study employed archival analysis as a complementary method to place findings into their relevant socio-political settings. During the deductive phase, the study used the findings from the previous phase to construct a content analysis codebook before performing quantitative content analysis on the sample. The following discussion first turns to the sampling and data collection procedures, before providing a more in-depth discussion on van Gorp's (2010) framing analytic scheme and the archival method.

3.1 Sampling

As has already been discussed, the study was interested in analysing the websites of those consequential organisational actors with the motivation to function as frame sponsors in the policy domain of climate change (see section 2.3.1, p. 45). These organisational actors included corporations who profit from polluting activities, chiefly those from the electricity and heat, manufacturing, transportation and logistics, industrial processes, agriculture, and waste management sectors (see Figure 2.1, p. 62), as well as environmentally-minded NGOs[6] and political parties with representation in the national law-making institutions.

The first step of the study was to establish a population registry of these organisational actors. Since there was no single registry, multiple registries were consulted to

[6] It should be noted that the application of the consequential actor methodology of Laumann and Knoke (1987) led to the exclusion of all non-complex organisations, such as ad-hoc social movements. It likely also led to the exclusion of eNGO that may have been established or funded by corporate or political actors for more personally beneficial reasons. At least, the study sample was found not to include any such eNGOs.

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compile the population list. For corporations, these included wealth indices[7] and industry-specific registries.[8] The researcher scrutinised the population to ensure that they followed the definition of consequential actors. Further examination was applied during the sampling and data collection stages. This process resulted in 2,908 corporations, with 979 from China, 568 from South Africa and 1,361 from the US.

As for the eNGOs, multiple approaches were used to build a population. The researcher used a Wikipedia[9] registry as a starting point. From there, various other registries were identified through examination of eNGO websites. However, these registries were often filled with inaccurate listings, requiring the researcher to visit each eNGO website to verify that the listed organisation was an eNGO and that it had a presence in one of the three nations under study. The verification process yielded 244 eNGOs with 47 from China, 27 from South Africa and 168 from the US. However, as China's NGO environment is volatile, additional verification was required during data collection (see Bratcher, 2017; Leonard, 2012; Wright, 2011; T. Yang & Zhang, 2011). Lastly, political parties with representation in the national law-making institutions of the three nations were added. In total, the study added 16 political parties to the population, including one from China, 13 from South Africa and 2 from the US.

The previous selection procedure generated 3,166 organisations. To ensure that all three types of organisations were represented in the sample, the study used proportional sampling for corporations and eNGOs but included all political parties. First, due to a large population of corporations and a large amount of data on each website (the unit of analysis),

[7] These indices included: Forbes Global 2000 (https://www.forbes.com/global2000), the Fortune 500 (http://fortune.com/fortune500), the Shanghai Stock Exchange (http://english.sse.com.cn), the Johannesburg Stock Exchange (https://www.jse.co.za), the New York Stock Exchange (https://www.nyse.com), and South Africa's Top 500 (http://top500.co.za).

[8] Industry registries include: Energy (http://sessa.org.za), agriculture (https://www.mbendi.com; http://www.fyple.co.za), waste management (http://www.thebrenthurstfoundation.org; http://waste360.com/waste-age-100), and transport/logistics sectors (http://www.ttnews.com/top50/logistics/).

[9] These lists included: Wikipedia (https://en.wikipedia.org/wiki/Category:Environmental_organizations_by_country), ranbownation.com, NGOpulse.org, daff.gov.za, chinadevelopmentbrief.cn, Big5.China, and c-can.cn (As of 2018, the last-named directory can no longer be accessed).

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the study drew a 15% target sample from the population of corporations. Furthermore, to account for missing organisations and those found not to be consequential actors, the study purposefully oversampled. The final valid sample, after verification, was 458 corporations with 145 from China, 72 from South Africa and 241 from the US. Table 3.1 summarises the population and valid sample size.

Table 3.1 *Population and Valid Sample Characteristics*

	POPULATION			VALID SAMPLE		
NATIONS	Corporations	eNGOs	Parties	Corporations	eNGOs	Parties
CHINA	979	47	1	145	28	1
RSA	568	27	13	72	14	13
US	1,361	168	2	241	79	2
TOTAL	2908	242	16	458	121	16

For eNGOs, the study initially drew a 25% proportional random sample from the population of eNGOs. This sample, however, inadequately represented eNGOs in China and South Africa. Thus, the researcher doubled the proportion to half of the eNGO population. Again, the researcher oversampled to account for organisations that did not comply with the definition of consequential actors or which were no longer accessible. Chinese eNGOs, especially, were often found to be unlocatable. After verification, the sample included 121 eNGOs, with 28 from China, 14 from South Africa and 79 from the US. Finally, the study included all 16 political parties due to their limited population size.

3.2 Data Collection and the Unit of Analysis

Data for the study were collected and analysed between September of 2018 and February of 2019. For qualitative data, the researcher used the NVIVO software package, and for quantitative data Microsoft Excel and SPSS. The study defined the unit of analysis as the website of each sampled organisation and analysed all texts and images published on the websites. However, the embedded pdf documents, such as news releases and corporate social responsibility reports, were limited to those published after 2015. Furthermore, if multiple copies of the same document surfaced, the researcher only selected the most recent ones to

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avoid repetitive information. Where conflict existed between different web pages or between web pages and attachments, priority was given to the more prominent web pages, particularly the *About*, *Corporate Governance*, and *Investor Relations* pages.

3.3 Inductive Phase: Constructing the Frame Matrix

At the inductive phase, the study conducted a frame analysis on a randomly selected subsample of about 10% from which the framing packages were reconstructed. Van Gorp (2010, p. 64) defined a framing package as 'a cluster of logical organized devices that function as an identity kit for a frame.' This approach allowed the researcher to reconstruct a limited number of framing packages inductively from the manifest and latent framing devices and reasoning devices that appear within the cultural, social, or political contexts of the three nations under study. The result of the reconstruction was a frame matrix where each row represented a framing package and each column a framing device (see also Boesman et al., 2017).

3.3.1 Open coding. The first phase applied open coding. In line with van Gorp (2010), the researcher systematically analysed the sampled texts for framing and reasoning devices. Initially, the researcher classified more than 80 framing and reasoning devices. These included themes, rhetorical lines of reasoning, qualifications, statistics, causal connections, in-text quantifications, tables, graphs, infographics and lexical choices. The researcher regularly went back amongst the texts to ensure mutual exclusivity and valid categories. When mutual exclusivity could not be achieved, the researcher merged overlapping items.

3.3.2 Axial coding. Next, the researcher applied axial coding. The axial coding focused on dimension reduction by classifying items into overarching themes (van Gorp, 2010). The researcher followed van Gorp (2010) in consulting the literature, including Entman's (1993) reasoning devices, as well as climate change and the environmental

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literature (International Panel on Climate Change, 2014; "IPCC, 2018: Summary for Policymakers.," 2018; National Research Council, 2012). The researcher subsequently classified related items into latent framing and reasoning devices that defined a problem, made causal statements, moral evaluations and solution statements.

The study classified four problem statements. A first problem statement pointed to ineffective legal and management controls contributing to emissions and pollution. A second identified climate change action or related laws to rising expenses. A positive variation of this problem statement saw opportunity instead. A third problem statement blamed climate change for negative social impacts. Inefficient technology was often proposed as a contributing agent. The fourth problem statement focused on environmental damage. These tended to suggest that environmental limits were being stressed.

The study also found causal statements. These were occasionally together with the problem statements and supported with lexical choices such as data. One such causal statement posited that unsustainable management practices directly contributed to increased emissions. Climate change was on occasion, a stated consequence. A second causal statement implicated climate change and related laws in causing increased costs. The consequence, often implied rather than stated, was a loss of competitiveness or investor value. A variation of the second causal statement instead saw new business opportunities. A fourth causal statement blamed old and inefficient technologies for high emissions. These were claimed to contribute to emissions and climate change, and thus indirectly to the problem. A final causal statement argued that human industrial actions, especially mining, caused environmental destruction. Proponents of this statement alluded or stated that this was the result of a lack of respect or awareness of environmental limits. The consequences were seen to include losses to biodiversity, damage to the environment and habitat losses. Lexical choices, such as data or emotional argument, often accompanied causal statements.

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Moral evaluations were often inferable rather than explicit. One moral evaluation proposed that legal compliance was essential for achieving a healthy business. A second moral evaluation proposed economic sustainability to continue or maintain economic growth. Sustainable and environmentally aware business practices were considered essential. A third evaluation proposed developing technological humans' climate resilience in harmony with nature. A fourth evaluation called for an improvement to environmental awareness. Environmental NGOs, in particular, took this position and argued that education was the key to achieving an improved awareness.

Solutions were more prominent and prevalent. In most cases, the solutions reflected the flexible mechanisms outlined in the IPCC's (2014) fifth assessment report. The first set of solutions focused on policy issues. In drawing from the literature, the study reduced these into emission reduction, waste and energy reduction, environmental management practices, employee and stakeholder engagement, and renewable energy adoption policies. The second set of solutions focused on economic and market solutions. These solutions argued for the reducing of costs, increasing efficiency, investing in climate change solutions, and exploring new products or market opportunities. The third set of solutions focused on social improvement. These solutions focused mostly on innovating existing technological solutions by improving their efficiency and durability, although some also referenced developing emissions capture technologies. Aside from technology, cases also focused on building social robustness through technology or other efforts. A final set of solutions focused on the environment. These solutions included conservation, rehabilitation, and raising environmental awareness. Some solutions were accompanied by data and rhetorical devices.

3.3.3 Selective coding. Last, the researcher assigned the framing and reasoning devices to framing packages in the framing matrix. The items identified during the axial coding phase fit the framing packages identified in the literature. These included the *public*

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accountability and governance frame, the *social progress frame*, the *economic development and competitiveness frame*, and the *morality and ethics* frame. The study also identified partial indicators of what could be labelled as a *conflict* frame. This partial frame tended to define the problem as climate change causing a social conflict, which was in line with the publications of the US Department of Defense (2015, 2019). However, this partial frame was fragmented in that there was a limited causal structure, no apparent moral evaluation and no solution that could be exclusively associated with this frame. As a result, the study discarded this frame. The following discussion focuses on those frames that were detected as anticipated through the literature review (see Chapter 2.4.1 p. 47) for the theoretical discussion).

The *public accountability and governance frame* was defined as a 'research or policy either in the public interest or serving special interests, emphasizing issues of control, transparency, participation, responsiveness, or ownership; or debate over proper use of science and expertise in decision making' (Nisbet, 2009, p. 18). Briefly, problem statements focused on substandard production and management processes (see Table 3.2, for example). These problem statements were causally linked to pollution, GHGs and waste discharges during production. Negative consequences included damages to the environment and the climate. Actors applying this frame forwarded emission reduction, stakeholder engagement, environmental, renewable energy, and waste reduction policies. They tended to offer a moral evaluation where environmental compliance and corporate welfare were intertwined. Some actors tended to hedge their arguments, while others were more assertive. Many cases supported their positions with reference to scientific facts, experts, cases and data.

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Table 3.2 *Example* of *Framing Package 'Public Accountability and Governance'*

Framing package	Public accountability and governance frame (Examples)
Definition of the problem	State Grid Corporation of China (SGCC): China's development 'is faced with challenges of energy supply, the capacity of the ecological environment and the emission of greenhouse gases.'
Cause and Consequences	SGCC: Our 'energy- and resource-intensive and a major emitter of greenhouse gases'
Solution	SGCC: *Integrated CSR programme*; *integrated management; renewable energy* adoption; Alcoa Inc.: GHG reduction strategies.
Moral Evaluation	Alcoa Inc: We conduct 'business in compliance with applicable health, safety and environmental ("HSE") laws, rules and regulations in a manner that has the highest regard for the health and safety of human life and the environment'
Lexical choices	SGCC: 'We human beings have only one earth. This earth is home to all.' (emotional appeal); 'carbon dioxide emission reached 6000 million tons' (data-driven arguments); Smart grid technology; renewable energy; scientific outlook; technology innovation (keywords).

The second identified frame was the *economic development and competitiveness* frame. Nisbet (2009) defined this frame as an 'economic investment; market benefit or risk; or a point of local, national, or global competitiveness' (p. 18). Proponents of this frame typically saw the problem as increasing costs (see Table 3.3 for example). Causally, they tended to cite stricter environmental or pollution legislation as causes and evaluated it as a need to focus on economic sustainability to ensure continued growth. Solutions took two formats. On the one side, solutions targeted cost reductions. These solutions focused on cost-cutting, efficiency investments, and investment in climate change solutions. On the other side, solutions targeted new business opportunities, products and markets. Organisations applying this frame tended to make use of argumentative statements, expert opinions, case studies, quantifications, and tables and graphs. The data tended to be limited to percentages.

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Table 3.3 *Example* of *Framing Package 'Economic Development and Competitiveness'*

Framing package	Economic development and competitiveness frame (Examples)
Definition of the problem	Costs from climate change or climate change action.
Cause and Consequences	Causes included *legal costs*, *liabilities*, *payments*, and *compensation;* Actuant Corporation: Costs from 'more frequent and severe occurrences of extreme weather conditions.'; Often compelled by government to 'contribute to the cost of investigating or remediating certain matters'
Solution	Actuant Corporation: Need to improve efficiency and increase cost savings such as a reusable drilling fluid 'to minimize cost and reduce disposal expense.'
Moral Evaluation	Actuant Corporation: The need to achieve 'sustainable business practices that are aware of environmental considerations.'
Lexical choices	*Cost of legal compliance*, *environmental liabilities*, *(environmental) restoration costs*, and *risks of* future financial *losses* or *liabilities* (Keywords)*;* Actuant Corporation: There is a need for 'solutions to complex and *potentially* costly environmental issues' (hedged statements).

The third frame was the *social progress frame*. Nisbet (2009, p. 18) defined the social progress frame as 'a means of improving quality of life or solving problems' or 'as a way to be in harmony with nature instead of mastering it.' Actors applying this frame found the problem as the negative impacts of climate change on society or social development. The problem was linked causally to inefficient technologies. Consequences included direct (see Table 3.4, for example) social impacts, such as weather disrupting lives. More indirectly, the consequences were also seen to affect society through diverted or lost development funds. The moral evaluation tended to emphasise technological innovation and social resilience in harmony with nature. As a result, solutions focused on product durability, carbon capture technologies and social resilience. This frame applied limited quantification and data, with most supporting materials being cases, comparative statements, and lexical choices.

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Table 3.4 *Example* of *Framing Package 'Social Progress'*

Framing package	Social progress frame (Examples)
Definition of the problem	Climate change is mostly defined as a problem due to negative social impacts.
Cause and Consequences	Key terms included *stressed development funds*, *failed (development) projects* and *severe weather events*.
Solution	Guodian Nanjing Automation: we are dedicated 'to develop smart grid, digitalized power plant, hydropower, renewable energy, rail transportation and public utilities, [energy saving] and emission reduction, and smart electric equipment.'; RPC Adcock Ingram: 'water for life' project to aid farmers in drought-stricken areas.
Moral Evaluation	D*eveloping in harmony with nature* and by *boosting social resilience to climate change* (Key terms)*;* EDF Renewables: 'to conduct its business in an ethical manner, which strikes an appropriate and well-reasoned balance between the economic, social and environmental needs of the areas in which the Company operates.'
Lexical choices	*Reducing community risks*, developing *social*/*community resilience* or *independence*, *infrastructure*, *education* and *business opportunities*.

The fourth identified frame is the *morality and ethics frame.* Nisbet (2009, p. 18) defined this frame as a 'matter of right or wrong; or of respect or disrespect for limits, thresholds, or boundaries.' In line with the definition, the most common associable problem statement was of disrespect for environmental limits. Accompanying causal statements linked a lack of education, mining and polluting industries as the causes, with environmental damage resulting therefrom. Those who pursued this frame evaluated their position as the need to stop environmental harm through improving humans' environmental awareness. The preferred solutions focused on conservation and rehabilitation and raising environmental awareness through education. Most statements drew on cases, environmental experts, anecdotes and emotional appeals. These frames were further explored in chapter 4.

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Table 3.5 *Example* of *Framing Package 'Environmental Morality and Ethics'*

Framing package	Environmental morality and ethics frame (Examples)
Definition of the problem	Concerns of *stressed* or *ignored environmental limits* (Key terms)*;* ConservAmerica: while 'natural gas-fired electricity is much cleaner than coal; it still emits about 850 pounds of pollution per megawatt-hour.'
Cause and Consequences	*Polluting industries, fracking, fossil fuel use, mining*, a lack of *environmental awareness* and *inappropriate environmental interaction* (Causes). A*ir, water* and *soil pollution, toxic spills* and *run-offs* (Consequences).
Solution	ConservAmerica: better *inform* and *educate* individuals, governments and corporations on a sound *environmental ethic* in addition to pursuing *conservation, environmental protection* and *environmental rehabilitation*.
Moral Evaluation	ConservAmerica: Need to 'educate the public and elected officials on common sense, economically sound approaches to today's environmental, energy, and conservation challenges.'
Lexical choices	*Conservation, environmental awareness, education*; Honor the Earth: A climate scientist called full exploitation of tar sands 'game over' for the climate (hyperbole/emotional appeal).

3.3.4 Archival analysis. Central to the interpretation of the findings was its placement into a relevant socio-political context. The need for this arises partially from the supposition by political and communication scholars that national policymaking is best treated as a product of national debate by various interested social actors (Giddens, 2011; Leonard, 2012; van Gorp, 2007). In their efforts to affect these policies, organisational actors participated in framing efforts in their respective cultural settings (van Gorp, 2007; 2010) of which the socio-political setting a singular manifestation of that culture. The archival analysis enabled the researcher to gain added insight into the role of socio-political conditions on consequential actors' framing of climate change.

Researchers defined archival analysis as a primary data collection method of documents such as historical accounts, government policies and diaries (Bantin, 1998; Hill, 1993; Neuendorf, 2016). Traditionally, these records are kept in libraries or specific buildings. However, electronic record-keeping has expanded, making online repositories available, and it now sees an extensive application by corporations and governments for

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record-keeping. In recognition of this abundance of data sources, the study employs a broad approach in defining the archival documents for the study as online and printed policy documents, speeches, and public opinion data that may further shed light on the underlying social and political conditions that underlie national climate policy discourse.

A toolkit of the relevant subject matter may, therefore, include administrative documents[10] and bills published in the *Government Gazette* in South Africa, while in the US similar documents may be acquired on the *Archives* website.[11] Additionally, the White House routinely publishes press releases, research reports and speeches that offer further context. In China, archives can be accessed primarily in the form of policy speeches, 5-Year plans and full-text press releases by the *National People's Congress* and the *State Archives*[12] and through State-run newspapers.[13] Further sources included collections of published speeches, such as those by China's former and current leadership (Vogel, 2011; Xi, 2014).

3.4 Deductive Phase: Quantitative Content Analysis

The second part of the method implements van Gorp's (2010) deductive method. In the deductive phase, the study used the frame packages and its' constituent framing and reasoning devices, identified in the inductive phase, to develop a codebook. The codebook (see Appendix A, p. 168) was then used to assess the prevalence of the identified frames on the consequential actors' websites. The codebook was divided into two main parts with the second part explicating each of the four frames.

In the first part of the codebook, the study collected descriptive data. This data included indicators to show the name of the organisation, the website address, the

[10] The webpages can be found at: https://www.gov.za/documents/parliamentary-documents; https://opengazettes.org.za.

[11] The webpage can be found at: https://catalog.archives.gov/advancedsearch; https://www.whitehouse.gov/issues.

[12] The webpages can be found at: http://www.npc.gov.cn/englishnpc/Speeches/node_2866.htm; http://www.saac.gov.cn/xxgk/node_141.htm.

[13] Full texts of these plans can be found at: http://19th.cpcnews.cn/english/index.html.

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organisation type, and the country of the organisation. Categorical scales were used for country, where 1=China, 2=South Africa, and 3=The United States. A categorical scale was also employed for organisation type, where 1= corporate actor, 2=eNGO, and 3=political party. These items were pre-coded during data collection.

The second part of the codebook created coding instructions for the four identified frame packages. Specifically, van Gorp (2010) proposed that it is useful during the quantitative phase to cluster framing and reasoning devices and simplify them into a series of yes-no questions that focused on identifying the definition of the problem, causal indicators, moral evaluations and solution statements. The study thus formulated a series of questions to ascertain whether the devices were 1=present or 2=not present. Frames could be coded as present if most of the questions were answerable as 1=present. Where possible, the researcher only coded the first three frames and attempted to discern the dominant frame. If, however, the unit of analysis was found to contain more than three frames or no clear dominant frame was visible, it was coded as a mixed frame. Take for example the *public accountability and governance* frame. The first questions asked whether the unit of analysis identified the problem as due to corporate-produced GHG emissions, pollutants or carbon footprints. The causal question asked whether the unit of analysis identified ecological or environmental damage or impacts, biodiversity disturbance and landscape changes as possible results. The moral evaluation item asked whether the unit of analysis evaluated the need to focus on legal compliance in line with national restrictions and legislation. Each of the solutions identified in the inductive phase was phrased into a policy question. For example, one question asked whether renewable energy adoption policies were being implemented to reduce (carbon) emissions. Lexical choice questions were also posed to ascertain whether tell-tale data, for example, was present. The codebook lists a more detailed account for the proposed question (see Appendix A, p. 175).

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3.4.1 Pre-test. Before the formal coding, the researcher and one other coder conducted a pilot study on a 10% (50 units) randomly selected subsample. During the training phase, the independent coder was instructed in the use of the codebook and how to determine the presence of a framing package. As far as possible, the focus was on manifest framing and reasoning devices. An example, unrelated to the sample, was used to demonstrate the coding procedure. All questions were dealt with during this phase. The two coders then separated and independently coded the same subsample of websites.

During the coding, difficulties did arise that required the clarification of coding instructions. First, although it was the initial intent to code only manifestly present devices, it became apparent that it was necessary to create coding instructions to interpret underlying framing devices. A specific example was when an actor evaluated the need for legal compliance. An organisation would often claim to have been subjected to legal action but made no obvious statement such as *we will become more legally compliant*. Thus, it was needed to formulate instructions that could infer the item. For example, if the organisation took corrective action in response to legal action, the item could be conferred. Second, the question arose when the text was linked to the context of climate change and when it should be treated as a passing reference. For example, framing devices emerged in unrelated contexts. For example, legal compliance statements often emerged in the context of employee safety and wellbeing. Coding instructions were adjusted to clarify when a framing device could be considered relevant. A third issue arose in relation to the South African corporation, InnoWind. After the researcher had already coded the website, the second coder brought it to the researcher's attention that the website would not load. On reviewing the case, the researcher found that InnoWind had rebranded itself to EDF Renewables and changed its website. Except for the name change, the website content had not changed. Thus, the researcher kept the item.

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Cohen's Kappa was selected as the testing method due to its widespread application in content analyses, as well for its ability to reduce chance error (Benoit, 2011; Hänggli, 2012; Neuendorf, 2016). While researchers do not agree on what constitutes an acceptable level of reliability, it has been proposed that a score ranging between .61 and .80 is 'substantial' and a score of between .40 and .75 is fair to good (Fleiss, Levin, & Paik, 2013). In selecting an adequate score, the researcher followed van Gorp (2005), who applied .70 as the minimum reliability score. The inter-coder test of the study showed an average agreement of .76. The reliability scores were tabulated in Table 3.6. After the pre-test, the researcher continued as the primary coder. To guard against bias, the researcher often went back to the framing matrix and previous codes to verify and review.

Table 3.6 *Intercoder Reliability*

Variable Name	Cohens Kappa
Public accountability and governance frame	.720
Economic development and competitiveness frame	.722
Social progress frame	.717
Environmental morality and ethics frame	.751
Mixed frame	.878

3.4.3 Data analysis. The numerical data for the study were analysed using a combination of descriptive and inferential statistics. In addition to the qualitative data, the researcher also conducted supplementary archival analysis. The study also conducted Chi-square tests for any statistically significant differences across the three nations. For the final statistical test, however, a Chi-square could not be conducted, and thus the researcher used frequency analysis to table the findings. The analysis enabled the researcher to shed light on the three research questions and four hypotheses of the study.

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4. The Inductive Analysis of Framing Climate Change

The first research question of the study asked: What are the framing devices (RQ1a) and reasoning devices (RQ1b) like in consequential actors' framing of climate change? The study adopted van Gorp's (2010) inductive method of framing analysis to address this question.

Van Gorp's inductive approach involves three stages of coding (for a detailed discussion, see Chapter 3, p. 67). First, an open coding via NVivo, a qualitative data analysis software, was used to uncover about 80 framing devices, including themes, rhetorical devices, quantifications and lexical choices. The researcher then inferred the reasoning devices and applied axial coding to classify the items into comprehensible framing packages (Pan et al., 2019; van Gorp, 2010). Finally, the framing packages were entered into the framing matrix (see Table 4.1). By doing so, four frames[14] were identified, including the public accountability and governance, economic development and competitiveness, social progress, and environmental morality and ethics frames.

One notable early finding was the absence of the counter-frames for the public accountability and governance frame as well as for the social progress frame. In other words, these frames were only framed towards one side. The economic development and competitiveness frame did, however, see elements of both sides of the frame being present.

[14] The study also found the frequent presence of an *employee health and safety frame*. This frame was often on a dedicate subpage that was clearly labelled as a health and safety section. This frame was mostly not linked to any climate change text and was therefore excluded from the framing matrix as it did not form part of the study. Occasionally, however, this frame was mixed with the environmental text. Under these circumstances, the study considered whether the text represented the presence of an environmental policy for the public accountability and governance frame or another framing device.

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Table 4.1 *Framing Matrix of Consequential Actors on Climate Change*

Frame	Definition of the phenomenon or problem	Cause and Consequence	Solution/ Action	Moral evaluation	Lexical Choice
Public Accountability and Governance	Climate change is mostly defined as a problem due to corporate-produced GHG emissions, pollutants or carbon footprints.	Ecological/environmental damage or impacts, biodiversity disturbance and landscape changes result from corporate produced GHGs.	Focusing on policies such as (scientific) environmental management, environmental stewardship, renewable energy adoption, carbon management plans, waste reduction, recycling and stakeholder inclusion.	Focusing on legal compliance with national restrictions and environmental legislation.	Including hedging devices, scientific facts and evidence, data, infographics and metaphors.
Economic Development and Competitiveness	Climate change is mostly defined as a problem due to increasing (opportunity) costs or financial implications.	Future financial losses, risks, liabilities, restoration costs or new business opportunities that result from increased legislation or legal action.	Focusing on cost-cutting, investment in climate change and efficiency solutions, and new market opportunities.	Balancing and increasing economic growth through improved economic sustainability practices.	Including hedging devices, exaggerated attributions, and theme-specific lexical terms such as liabilities, costs, risk(s) and green/clean economy.
Social Progress	Climate change is mostly defined as a problem due to negative social impacts.	Negative social/community impacts and failed (development) projects from stressed development funds or climate impacts such as severe weather events.	Focusing on building community resilience, innovating technological efficiency and durability, carbon capture technology, and green(er) products.	Developing technology and community resilience in harmony with nature.	Including themes, reports, infographics, proportional quantification, comparative arguments and appeals to authority.
Environmental Morality and Ethics	Climate change is mostly defined as a problem due to ecological/environmental problems or ignored limits.	Pollution (Air, water and soil), toxic spills and run-offs from stressed or ignored environmental limits, fracking and industrial pollutants.	Focusing on conservation, environmental protection, rehabilitation and raising environmental awareness.	Focusing on building an informed environmental behaviour or a sound environmental ethic.	Including themes, quotations from experts, case studies of disasters and emotional appeals.

4.1 Public Accountability and Governance Frame

The public accountability and governance frame defined the phenomenon of climate change as a problem due to corporate-produced *greenhouse gas emissions*, *pollutants* or

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carbon footprints. The consequential actors of this frame would support their problem statements with quantified data using identifiable measurement standards such as the EPA's Greenhouse Gas Reporting Program, the Global Reporting Initiative (GRI) and the World Resource Institute's (WRI) GHG Protocol. For example, US manufacturer of Bauxite, Alcoa Inc., declared in its annual report that it uses the GRI standard to calculate its emissions (see www.alcoa.com). Furthermore, although the causal statements were implicit for most consequential actors applying this frame, GHGs were the leading cause of climate change. This attribution further contributed to *ecological/environmental damage* or *impacts*, *biodiversity disturbance* and *changes to the landscape* (consequences). For example, Alcoa Inc. acknowledged in its CSR report that its primary income source, aluminium production, was 'energy- and resource-intensive and a major emitter of greenhouse gases.' Alcoa continued in its report to associate the carbon market with 'impacts on land and biodiversity.'

The preceding discussion of causes and consequences in the public accountability and governance frame further called for *legal compliance* with *national restrictions* and *environmental legislation* (moral evaluation). For example, Alcoa Inc. stated in its annual report that 'our operations must adhere to all applicable environmental laws and regulations wherever they are located and, in certain cases, our more stringent internal standards.' To attain legal compliance, consequential actors of the public accountability and governance frame agreed on policy solutions to reduce GHGs, including *HSE management*, (scientific) *environmental management strategy*, *environmental stewardship*, *renewable energy adoption*, *carbon management plan*, *waste reduction*, *recycling* and *stakeholder inclusion*. In this regard, varied lexical choices such as metaphors, slogans and alliterations were common. US logistics company, FedEx, for example, applied the tricolon of *reduce, reuse, and recycle* as a slogan for its waste reduction policy. Other lexical choices included repeated references to *science*, *scientific methods* and *scientific outlook*. For example, Alcoa's CEO, Esra Ozer,

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reported in its CSR report that 'Alcoa Foundation has been a [long-time] supporter of STEM education and environmental science and literacy initiatives.'

Even though the consequential actors of the public accountability and governance frame shared the similarities as discussed above, some differences among them deserve our attention. First, Chinese actors showed a higher tendency of using assertive languages. In its CSR report, the State Grid Corporation of China (SGCC), for example, assertively pointed to its reliance on coal as a driving force of GHGs (see www.sgcc.com.cn). By comparison, South African and US actors hedged its statements. For example, Rolfe Holdings (see https://www.rolfesza.net), a South African supplier of agricultural chemicals, offered in its *environmental policy* page to 'eliminate *or reduce as far as possible* the release of emissions or any pollutant that *may* cause environmental damage' (emphasis added). South African and US actors also hedged statements by preferring the term *emission intensity* to *greenhouse gas emissions* to mitigate overall emission increases.

Moreover, the consequential actors of the three nations differed in its moral evaluations. Apart from complying with ISO14000 environmental standards, Chinese actors were inclined to limit their compliance statements to national law and policy. The consequential actors in South Africa and the US extended compliance with foreign *legal jurisdictions* and *ethical standards*. Finally, Chinese actors would apply integrated solutions, while South African and US actors emphasised policies separately. To illustrate, the SGCC repeatedly referred to an integrated waste management strategy which it described as a 'scientific outlook on CSR Management.' The plan called for 'a culture of conservation by shaping an environmentally-friendly, energy- and resource-efficient structure of the industry, [a] pattern of growth and mode of consumption.'

The second research question of the study asked: How does the framing of climate change by consequential actors reflect the socio-political contexts? With regards to the public

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accountability and governance frame, an examination of the archival data shows that in China, Xi-thought championed a scientific outlook on environmental management alongside legal compliance. Examples can be seen in the speeches by Xi (2014) and the *Full Text of the Resolution on CPC Central Committee Report* (2017). Likewise, archival data from South Africa and the US demonstrated long histories of environmental legislation, targeting the mining, energy and manufacturing sectors (Bodley, 2008; Van de Veer, 1993; White House, 2014). In South Africa, these were also encapsulated in non-government ethical codes such as King III (Institute of Directors Southern Africa, n.d.).

These differences among the consequential actors can also be explained by the socio-political foundations in all three nations. Take China, for example. Xi's thought propagated loyalty to the State alongside the scientific management solution. As shown in the *Full Text of the Resolution on CPC Central Committee Report* (2017), all members of society should 'Ensure party leadership' and that all decisions must be legally mandated. Specifically, China's Supreme People's Court ruled in 2015 that private parties may sue over-polluting companies (Duncan, 2015; The Guardian, 2015; The Supreme People's Court of the PRC, 2015). The All-China Environment Federation successfully sued Zhenhua Company (Mi, 2016) is one example of this type. Second, in response to keeping all national actors under Xi-thought's legal mandate, Chinese authorities revised the non-profit law to limit the roles of all non-profit organisations (International Center for Not-for-Profit Law, 2018). Chinese consequential actors thus emphasised national legal compliance, as supported by the use of assertive language and the solution of an integrated managerial strategy.

While China's Xi-thought endorsed a governance-centric role through national legislation, civil society in South Africa and the US was more active with legal and non-governmental ethical codes. This difference resulted in higher sensitivity to legal environments and ethical standards of the latter two nations, as evidenced by the higher use

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of rhetorical wordings, such as hedging. First, the US has undergone dramatic policy shifts along partisan lines. Specifically, under the presidency of Obama, the EPA was given new executive orders to reduce emissions by 80%, and methane emissions by between 25% and 40% (White House, 2014). However, Republicans have since reversed this legislation in favour of economic growth ("Approval and promulgation of air quality...", 2018; Trump, 2019; White House, 2017). A similar shift occurred earlier between former Presidents Bill Clinton (Democrat) and George W. Bush (Republican) (Giddens, 2011; Lisowski, 2002). Likewise, South Africa has employed strict environmental legislation. In contrast to the US, the application has remained consistent even as parliamentary debate called for a climate change bill (Bodley, 2008; "Climate change bill," 2018; Van de Veer & Pierce, 1993).

To further illustrate how the framing devices and reasoning devices of the public accountability and governance functioned in consequential actors' framing of climate change, the researcher selected one Chinese case, the State Grid Energy Corporation (SGCC), and one US case, Antero Resources. These two nations made the most significant application of frame and best exemplify the similarities and differences discussed in the text above. Both cases served as typical examples of the public accountability and governance frame, as evidenced by their respective nation's typical applications of the framing devices and reasoning devices.

4.1.1 China: SGCC. Briefly, the SGCC is a state-owned corporation that supplies power to over 1.1 billion people—about 88% of China's population. It also owns and operates electrical facilities abroad. Although the SGCC's homepage (see Figure 4.1) contained elements of other frames, elements typical elements of the public accountability and governance frame were found to be dominant.

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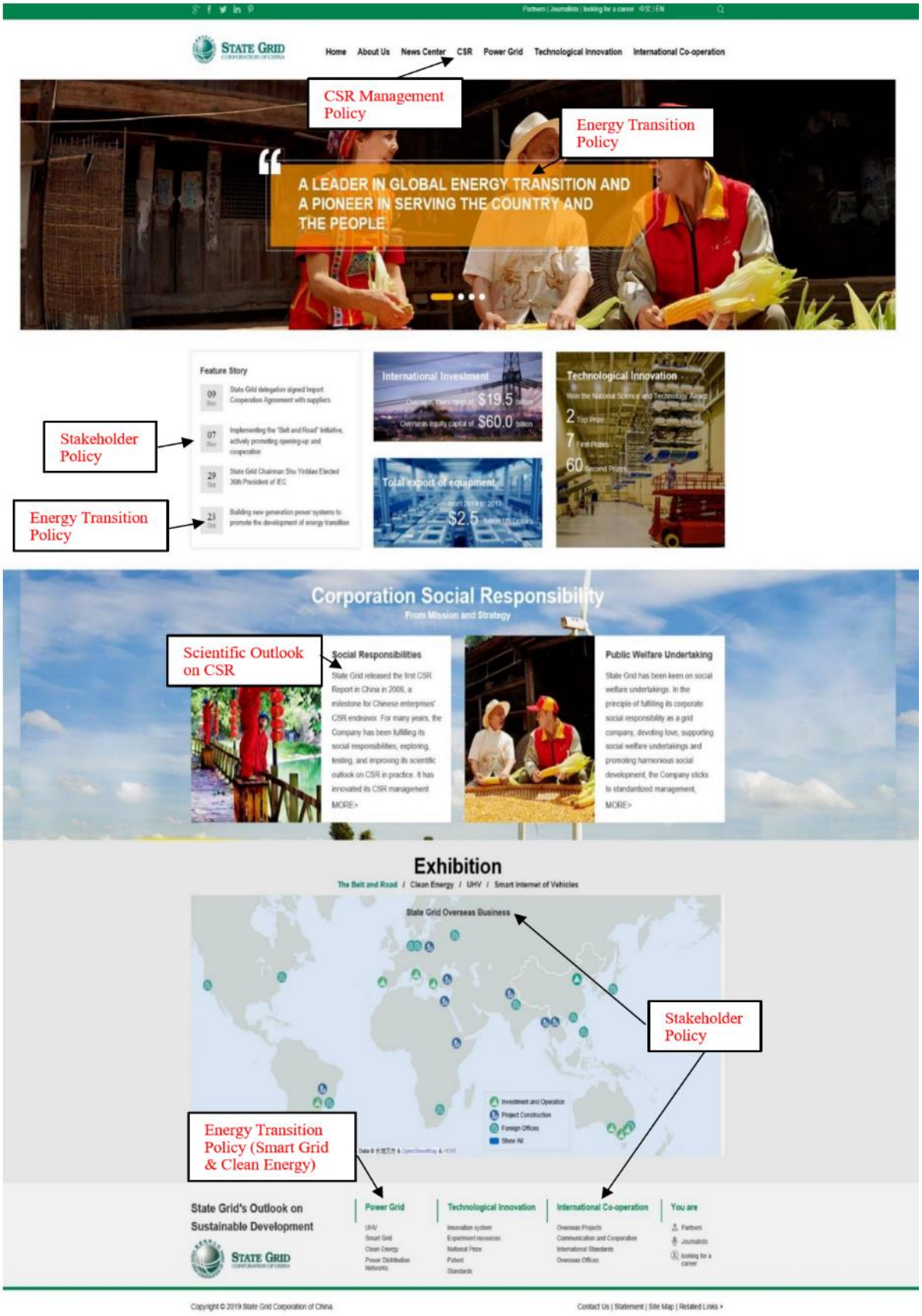
Figure 4.1 *Screenshot of SGCC's Homepage*



Source: SGCC Homepage. Retrieved from http://www.sgcc.com.cn/ywlm/index.shtm

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On the top of the page, a visual image was found to be supported by a slogan stating that the SGCC is 'a leader global energy transition and a pioneer in serving in serving the country and the people.' The emphasis on serving was further exemplified by two other references to the Corporate Social Responsibility (CSR) management policy. The CSR policy was first found at the top of the homepage and received a dedicated sub-page. A second, more significant, instance can be found further down the page where SGCC outlines its social responsibilities and public welfare policies. It is also here where the SGCC mentioned its *scientific outlook on CSR Management*. A second feature on the homepage referenced to its renewable energy transition plan. Being China's largest energy utility company, the vast majority of the SGCC energy production comes from coal. However, its homepage made comparatively more references to renewable energy. For example, one reference was suggestive of a policy-driven effort to adopt and spread green energy and another to modernise it. The modernisation efforts were, however, indicative of the social progress frame. A final finding on the homepage was found to display evidence of a stakeholder policy. This policy went under the *belt and road initiative*, a policy-driven effort to establish international trade routes.

A further observation of SGCC's website revealed lexical choices from both the public accountability and governance frame and the social progress frame. However, the prevalent lexical choices of *greenhouse gas emissions, integrated waste management strategy* and the *adoption of renewable energy* tended to suggest the dominance of the public accountability and governance frame. The SGCC' also assertively made its problem statement as its own GHG emissions. It quantified this combustion data to about 6000 million tons using the WRI measurement tool. The consequences, they continued, 'led to very serious air pollution' that contributed to environmental and social harm, pollution, GHGs and climate change.

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Often citing national legislation and party policy as its motivation, the SGCC conceived of a scientifically guided integrated management plan, on its own dedicated subpage. First, the plan called on all national stakeholders to implement 'a culture of conservation by shaping an environmentally friendly, energy- and resource-efficient structure of the industry, [a] pattern of growth and mode of consumption.' Second, the plan promoted the use of smart grid technology, which they defined as 'a comprehensive energy transporting system that is able to realize the transmission of coal and electricity simultaneously.' It made the argument that by combining these two energy sources into a single grid, it could eliminate the physical transportation of coal and oil and eventually phase out non-renewables by transporting renewable energy to coal dominant regions. Through its foreign assets and the Belt and Road Initiative, the SGCC also promoted this strategy to its stakeholders.

4.1.2. Antero Resources. Second is the case of Antero Resources. Antero Resources is a US-based hydrocarbon exploration corporation (see www.anteroresources.com). A closer examination of the homepage of Antero Resources (see Figure 4.2) found indicators that placed emphasis not only on its business opportunities but also the creation of a *green* image. First, the homepage was found to place a visual contrast on the colour green. The study found the colour green to be dominant throughout the webpage and the logo, except for smaller sections dedicated to investment and community activities. One notable example was that of a mining facility with an extensive, unspoiled, green forest as the backdrop. The image implied that Antero Resources' mining operations have a small environmental footprint. The homepage also contained two prominent references to Antero's *environmental policy* and to its *community & sustainability*. The environmental policy is boldly placed near the middle of the page and accompanied by a mid-sized image of a green clearing surrounded by a green, saturated forest. Under this image, the homepage referenced the Antero Resource's *community & sustainability* actions along with the slogan '*invested in the community*.'

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Figure 4.2 *Screenshot of Antero Resources' Homepage*

Source: Antero Resources Homepage. Retrieved from https://www.anteroresources.com

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While the second link appeared to be from the social progress frame, a further study of Antero's website showed that both the environmental policy and community and sustainability links went to the same set of subpages. These sub-pages emphasised the issues of *environmental stewardship, natural resources and biodiversity, methane and climate change* and offered a detailed Antero's management and policy efforts. Furthermore, Antero Resources was found to attribute the phenomenon of climate change mostly to the emission of GHGs and measured it with the US EPA's Greenhouse Gas Reporting Program. The consequences, as reported in Antero Resources' CSR report, included environmental risks and biodiversity damage. Furthermore, in its health, safety and environmental policy, Antero Resources clearly stated that it intended to conduct 'business in compliance with applicable health, safety and environmental ("HSE") laws, rules and regulations in a manner that has the highest regard for the health and safety of human life and the environment' (moral evaluation). To achieve this compliance, it claimed a commitment to 'broad based efforts to effectively manage and reduce operations-related greenhouse gas (GHG) emissions, including methane (CH4)' (waste reduction policy). The policies included direct leak detection systems and water reuse facilities. The water recycling facilities alone, Antero Resources judged, could lead to a 'nearly 50 percent reduction in water-related truck travel [that] not only further reduces roadway impacts, but will also cut greenhouse gas emissions by an average of more than 30,000 tons each year.' Furthermore, on its dedicated climate change pages, Antero discusses its voluntary efforts to reduce its GHGs. For example, it emphasised its cooperation with the EPA's Natural Gas Star project to mitigate its methane emissions. It also claimed to be improving its emission data collection technology and to improve further its capacity to mitigate emissions.

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4.2 Economic Development and Competitiveness Frame

The economic development and competitiveness frame focused on the financial implications of climate change. However, the problem statement was only occasionally backed up by financial data. The financial implications included an increase in *the cost of legal compliance, environmental liabilities, (environmental) restoration costs*, and *risks of* future financial *losses* or *liabilities* (consequences) resulting from increased laws, legal actions and extreme weather events (causes). The languages employed were quite similar across all actors in the three nations. For example, US-based Parsons Brinkerhoff (see www.wsp.com) often referred to 'solutions to complex and potentially costly environmental issues' amongst its commercial releases.

As a result, those actors applying the economic development and competitiveness frame evaluated its situation as needing to *maintain growth* by increasing *sustainability* (moral evaluation). In South Africa, Sibanye Stillwater, an energy and mining service provider (see www.sibanyestillwater.com), evaluated its position as the need to achieve 'sustainable business practices that are aware of environmental considerations,' which is published on a dedicated *sustainability* page. One identified solution was cost reduction. In the US, Newpark Resources (see www.newparkresources.com), a supplier of drilling fluids and services to the mining sector, *cut costs* by selling or closing polluting assets. A second solution to climate change involved investments in long-term efficiencies, including geothermal air-conditioning units and the purchase of modern equipment. The third solution to climate change, particularly evident amongst South African and US corporations, included (new) *green products* or *services*. For example, Newpark Resources stated in its product pages and financial disclosures that it offered new products to reduce liability, improve efficiency and increase cost savings such as a reusable drilling fluid 'to minimize cost and reduce disposal expense.'

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Notable differences were found among the three nations. First, only a few Chinese cases were found to apply complete instances of the economic development and competitiveness frame. There were more cases in which actors would make only partial and secondary use of the frame. Take China's SGCC for example, it applied the public accountability and governance frame in full, but which also implicated financial liabilities from new state regulations. Second, some South African and US actors were found to implicate property damage from extreme weather events as consequences. For example, Parsons Brinckerhoff, on its stockholder page, linked rising costs to 'more frequent and severe occurrences of extreme weather conditions.' Third, the US actors were found to be more likely to use metaphors, adverbials and hedging devices to allay or redirect investor concerns. For example, Newpark Resources claimed in an earnings call that it was 'one step ahead' in dealing with the added costs brought by climate change regulations.

As for the second research question, which asked how the framing of climate change by consequential actors reflect the socio-political context, the governmental archival data offered clarification. First, China's limited adoption of the economic development and competitiveness frame could be explained by the same political ideology as applied in the first frame as well as the higher degree of state ownership and top-down legislation controlling economic activity ("Full text of resolution on CPC Central Committee report," 2017; "National Security Law of the PRC," 2015). Furthermore, the presence of the economic development and competitiveness frame for both South African and the US could be explained by the existence of open market systems. In the US, there is a more prolonged open-market history, more recently starting with the Bretton-Woods system (Gilpin, 2001; Lee & Osgood, 2019). By comparison, South Africa can trace the market economy to opening-up efforts after democratisation in 1994 ("Companies Act no. 71 of 2008," 2008). However, protectionism remains a characteristic (Ramaphosa, 2019).

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These differences can be partially explained by the national socio-political differences. First, while it could be argued that wealth creation was central to China's opening strategy, China's political ideology and legal system have placed limitations on the full adoption of a free market system. Specifically, Xi-thought has explicitly called for a shift from rapid growth models to more sustainable growth that prioritised environmental preservation and socialist principles (see for example "Full text of resolution on CPC Central Committee report," 2017; Xi, 2014, 2015). To ensure compliance, laws have become increasingly strict, with one allowing private parties to sue companies for over-polluting (Mi, 2016; The Supreme People's Court of the PRC, 2015) and another calling for private corporations to come to contribute to national security ("National Security Law of the PRC," 2015). It follows that Chinese corporations have limited incentive for free-market adoption.

Consequential actors in South African and the US functioned in environments more conducive to free trade. South Africa, for example, adopted free trade on democratisation (Anand et al., 2016; Clark & Worger, 2016). However, it has a developing economy with protectionist policies. For example, the textile industry is protected through import tariffs on competing products, as one example ("Companies Act no. 71 of 2008," 2008; Flatters & Stern, 2007). Protectionism has also been evident in the State of the Nation address, President Ramaphosa (2019) stated his intention to increase domestic consumption while reducing foreign consumption. In comparison, the US has been more open and dominant. Nevertheless, its legal environment has given impetus for careful word selection. First, US corporations are subject to the International Organization of Securities Commissions of September 1998 which requires those corporations to disclose 'any environmental issues that may affect the company's utilization of the assets' (U.S. Securities and Exchange Commission, 2000). Second, the partisan regulations have caused future uncertainty on legal liabilities especially on the availability and development of fossil energy resources (Trump,

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2017, 2019; White House, 2014; White House, 2018). At the same time, the US civic sphere is more active as it allows, through the Private Securities Litigation Reform Act (Naysnerski & Tietenberg, 1992), limited private-party litigation.

To further illustrate the economic development and competitiveness frame and how the framing devices and reasoning devices functioned in consequential actors' framing of climate change, the researcher selected the US case of the Actuant Corporation as an exemplar. Actuant Corporation was selected for two reasons as the US most prominently invoked this frame and has illustrative examples for analysis. Actuant Corporation (see www.actuant.com) is a multinational corporation with $1.2 billion-dollar global portfolio in the manufacturing of farming and industrial equipment, oil and gas pipelines and energy services. In Figure 4.3, Actuant's homepage was found to display framing devices that reflected the economic development and competitiveness frame.

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Figure 4.3 *Screenshot of Actuant Corporation's Homepage*

Source. Actuant Corporation Homepage. Retrieved from http://www.actuant.com/#home

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For instance, the terms *sustainability goals*, *investor information* and *market* information were prominently displayed throughout the homepage. References to *investment* and *markets* occur multiple times and were accompanied by images of stock markets and assets. For instance, at the top of the homepage, an image of men at work go with the mission statement 'Providing mission critical tools, systems and services.' The emphasis was clearly on the core business functions. Directly under that, reference is made to *sustainability* which Actuant defines on a separate page as relating to economic sustainability. Furthermore, under the *news and events* section, Actuant had a dedicated section for *investors* with an image of a stock market as the background. This was followed by a section on Actuant's global business segments, also with complementing images that reflected an investor and market focus.

Furthermore, in Actuant's investor reports, the study found evidence of its definition of climate change as one causing financial implications through rising *legal costs*, *liabilities*, *payments*, and *compensation* (causal attributions). Actuant tended to defend its financial position in two ways. First, it would attribute factors to outside actors. For example, government authorities were alleged to have compelled Actuant to 'contribute to the cost of investigating or remediating certain matters' and exaggerated that government 'regulations are complex, change frequently and have become more stringent over time.' Second, the study found Actuant to hedge statements. For example, when discussing legal action in its financial statement, Actuant said: 'We are, *from time to time*, a party to litigation that arises in the *normal* course of our business operations' (emphasis the author).

Thus, Actuant was found to agree that it needed a more sustainable business model that promoted growth with reduced environmental liability. In this regard, it implemented cost-cutting strategies by selling or closing business units labelled as *liabilities* and by settling outstanding lawsuits. For example, during the 2018 fiscal year, it closed one facility associated with soil 'and groundwater contamination.' Second, Actuant was found to *invest* in

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infrastructure that would reduce long-term environmental liabilities. For example, the *LEAD Revitalization* strategy focused on investment 'in new and more efficient equipment, including multi-tasking CNC machines and sought to bring 'all of our facilities to fully lean status.' Actuant projected a 10% *return on investment* in five years. Finally, Actuant was also found to have pursued new business opportunities stemming from issues related to climate change. For example, it added environmental compliance services for energy industry clients.

4.3 Social Progress Frame

The social progress frame defined the phenomenon of climate change as a problem due to negative social impacts. The consequential actors of this frame focused on the consequences of the social implications of climate change coming from *stressed development funds*, *failed (development) projects* and *severe weather events* (causes). For example, RPC Astrapak, a South African manufacturer of plastics (see www.rpc-astrapak.com), identified extreme weather events such as droughts and its community impacts.

The abovementioned causal attributions further gave rise to calls to reduce negative social impacts by *developing in harmony with nature* and by *boosting social resilience to climate change* (moral evaluation). The study uncovered two types of solutions. First, actors would propose the development and innovation of *efficient* or *durable technology*. Specifically, Guodian Nanjing Automation, China's first high-tech enterprise (see www.sac-world.com), stated on its product page that it was dedicated 'to develop smart grid, digitalized power plant, hydropower, renewable energy, rail transportation and public utilities, [energy saving] and emission reduction, and smart electric equipment.' The promotion of these products was found to emphasise energy efficiency and emissions reduction. Second, consequential actors of this frame would promote the reduction of *community risks* by developing *social*/*community resilience* or *independence* that targeted *infrastructure*, *education* and *business opportunities*. For example, RPC Astrapak, a South

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African manufacturer of plastics, supports community development through working ‘with schools to support the development of science and innovation skills, and we’re keen to support charities who work on environmental campaigns aligned to our business.’ It emphasised that its projects are decentralised to find and promote those aspects most immediate and vital to the target communities.

Some differences merit special attention. First, South African and a few US cases tended to highlight the consequences of severe weather. To illustrate, Adcock Ingram, a South African healthcare company (see www.adcock.co.za), indicated on its corporate social investment page a ‘water for life’ campaign that targeted drought-stricken farming communities with donations of water and other essentials. Second, while both Chinese and US actors tended to emphasise technological development, South African actors would often refer to achieving this goal in cooperation with international stakeholders. For instance, Lesedi Nuclear Services, a South African provider of engineering, procurement and construction services in the energy sector (see www.lesedins.co.za), noted in its service pamphlets that it had partnered with international leaders to supply advanced technologies.

The archival data further helped address research question two, which asked how the framing of climate change by consequential actors reflect the socio-political context. In China, Xi-thought emphasised ‘humans developing in harmony with nature’ with a focus on technological modernisation ("Full text of resolution on CPC Central Committee report," 2017) and China’s Ministry of Ecology and the Environment (2017) offered a list of such projects to date. By comparison, South Africa’s political and civic actors continually linked climate change to social and community resilience. This linkage was also in the 2019 State of the Nation address, a draft Climate Change Bill (2018), and among civic coalitions (Institute of Directors Southern Africa, n.d.). Finally, the US application could be at least partially explained by a historical tendency for privatisation as a driving force of technological

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advancement, but also by more recent Democratic moves to emphasise social vulnerabilities from climate change (Cortez, 2019; Nisbet, 2016; US Department of Defense, 2015, 2019).

These findings can be explained by the national socio-political differences. First, China's Xi-thought and state actors' actions manifested Chinese consequential actors' application of this frame. Notably, state-owned enterprises often explicitly referenced the 'Full text of resolution on CPC Central Committee report' (2017). This governance system also explicitly called for 'sound systems for building an ecological civilization' and included 'a new model of modernization with humans developing in harmony with nature.' Further examples of this can be found in speeches by General Secretary Xi-Jinping (Xi, 2014, 2015), who underscored the importance of the environment to Chinese socialism. Furthermore, the *State of the Environment*, published by the Ministry of Ecology and the Environment (2017), highlighted this vital linkage. It particularly archived cooperative projects between the State and corporations that targeted environmentally harmonious modernisation of China.

Similarly, the archival data further helped address question two in South Africa and contributed to explaining how the framing of climate change by consequential actors reflect the socio-political context. This finding was represented in various government speeches, policies and even civic actions, much of which focused on social resilience. First, in the State of the Nation Address president Cyril Ramaphosa (2019) pointed to 'extreme weather conditions damaging livelihoods, communities and economies.' He went on to argue in favour of improving social resilience. In another case, Minister of Cooperative Governance and Traditional Affairs, Dr Mkhize (2018) blamed climate change, droughts, fires and storms for costing the National Treasury nearly US$338 million in 2018. In 2019, the Western Cape government had to reallocate another US$5.9 million from the national Emergency Housing budget ("Western Cape government provincial treasury budget 2019 speech," 2019). In a third example, the South African parliament drafted a Climate Change Bill for public

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comment in late 2018 ("Climate change bill," 2018). The preamble of the bill explained the purpose as a 'justifiable and sustainable social development and resilience to climate change.' Outside government, the Institute of Directors in Southern Africa (IoDSA) launched in 1994 the King Report on Corporate Governance. The most widely implemented version, King III, recognises the linkage between climate change and social development (Institute of Directors Southern Africa, n.d.). The privately-owned Johannesburg Stock Exchange made adoption of the King Code a listing requirement (Johannesburg Stock Exchange, 2019).

Finally, the archival data also shed light on the social progress frame in explaining how consequential actors' framing of climate change reflects the socio-political context. On the one hand, Republicans have historically favoured less government oversight and more privatisation as drivers of economic and technological innovation (Trump, 2019; White House, 2018). On the other hand, Democrats perceived a need to focus on social resilience. Specifically, a 2014 White House report argued that the cost of climate inaction would not only cost the world economy 0.9% per year but lead both directly and indirectly to a social crisis (White House, 2014). The US Department of Defense (2015, 2019) backed up these claims, calling climate change the biggest threat to US national security. The reports recognised in 2015 that climate change 'is an urgent and growing threat to our national security, contributing to increased natural disasters, refugee flows, and conflicts over basic resources such as food and water' and added in 2018 that it posed present and future risks to military installations and capabilities. More recently, Democratic Senator, Cortez (2019), presented the *Green New Deal* to the US House of Representatives for comment. To summarise, the draft bill reflected both positions. It prioritised a green-growth model driven by high technology development, green jobs and social resilience to climate change.

To further illustrate how this frame functioned in the actors' websites, the study chose the cases of SINOPEC Shanghai Petrochemical (Sinopec) in China and EDF Renewables in

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South Africa. The study found these two cases to be good exemplars for two reasons. First, Sinopec best represented Chinese actors' focus on developing newer and more efficient technologies to address climate change. Second, EDF Renewables forms a central part of South Africa's Renewable Energy Procurement Programme (REPP). The REPP programme is fundamental to reduce South Africa's reliance on coal and open the energy sector to development and modernisation.

4.3.1. Sinopec. Sinopec (see http://www.sinopecgroup.com/group/en) is one of China's largest producers and refiners of petroleum. Their homepage (see Figure 4.4) is, however, characterised by renewable energy projects. The banner covering the top of the webpage emphasised a green colour scheme. A hand holding a green leaf up to the sunrays indicated the human element in achieving this *greenness*. To the right, a message reads, 'What you're doing for a greener life is what we've been doing for you.' The message seemed to suggest that Sinopec is engaged in helping people achieve a greener life through the offering of greener products. Directly below this banner, a section titled *Hot Topics* contains the slogan 'smart energy better life' that also appears to refer to greener energy products.

Near the middle of the webpage, under the headings *company news* and *business development,* Sinopec was found to makes references to traditional energy. Specifically, it noted that new shale resources have been discovered and highlighted that the core of its business remains fossil fuels. However, also under the *company news* section was a reference to geothermal energy. Directly surrounding this section, on the left and the right, were also references to community development and corporate social responsibility. On closer observation, these sections were found to respectively discuss the role of Sinopec in satisfying the energy needs of communities and pursue environmental responsibilities.

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Figure 4.4 *Screenshot of Sinopec's Homepage*

Source. Sinopec Homepage. Retrieved from http://www.sinopecgroup.com/group/en

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The social responsibility report further documented Sinopec efforts at poverty alleviation and its shift to a *low-carbon eco-system*. This latter term encapsulated its efforts to develop biofuels, other renewables and carbon efficiency technologies. This focus on renewable effort was further underlined at the bottom of the homepage with dedicated links to the *technological innovation* efforts of the company. On a final note, while Sinopec was found to display elements of the public accountability and governance frame, for example through a stated desire for national legal compliance, the overall trend was to the social progress frame. In fact, in one notable quote, Sinopec cemented its social progress frame by stating that it 'is necessary to remain alert to technological solutions to reduce the impact on the environment and the climate.'

4.3.2. EDF Renewables. EDF's homepage (see Figure 4.5) comprised various lexical terms reflective with social progress frame. First, the term *renewables* was found prominently displayed and formed part of the company's name. This term was accompanied by a logo that resembled a wind turbine, its primary focus. Directly below the logo is a link to various subpages, with *community development* receiving a dedicate subpage. In the background of the logo, an image was displaying a wind farm in a large open field. This image introduced the focus of the business operations but also created the image of a minimal environmental impact. In the middle of the homepage, EDF Renewables further elaborated on its services and explicitly referenced *clean energy*. The accompanying images showed wind turbines in various stages of construction. At the bottom of the homepage, EDF Renewables highlighted its community development efforts. Here, it was found to explicitly state that each wind farm 'contributes a percentage of its revenues towards Enterprise Development (EnD) and/or Socio Economic Development (SED) initiatives within a 50 km radius from the Wind Farm.' InnoWind explained that these Grassroots Youth Development (GYD) Programme aimed for 'lasting social and economic progress.'

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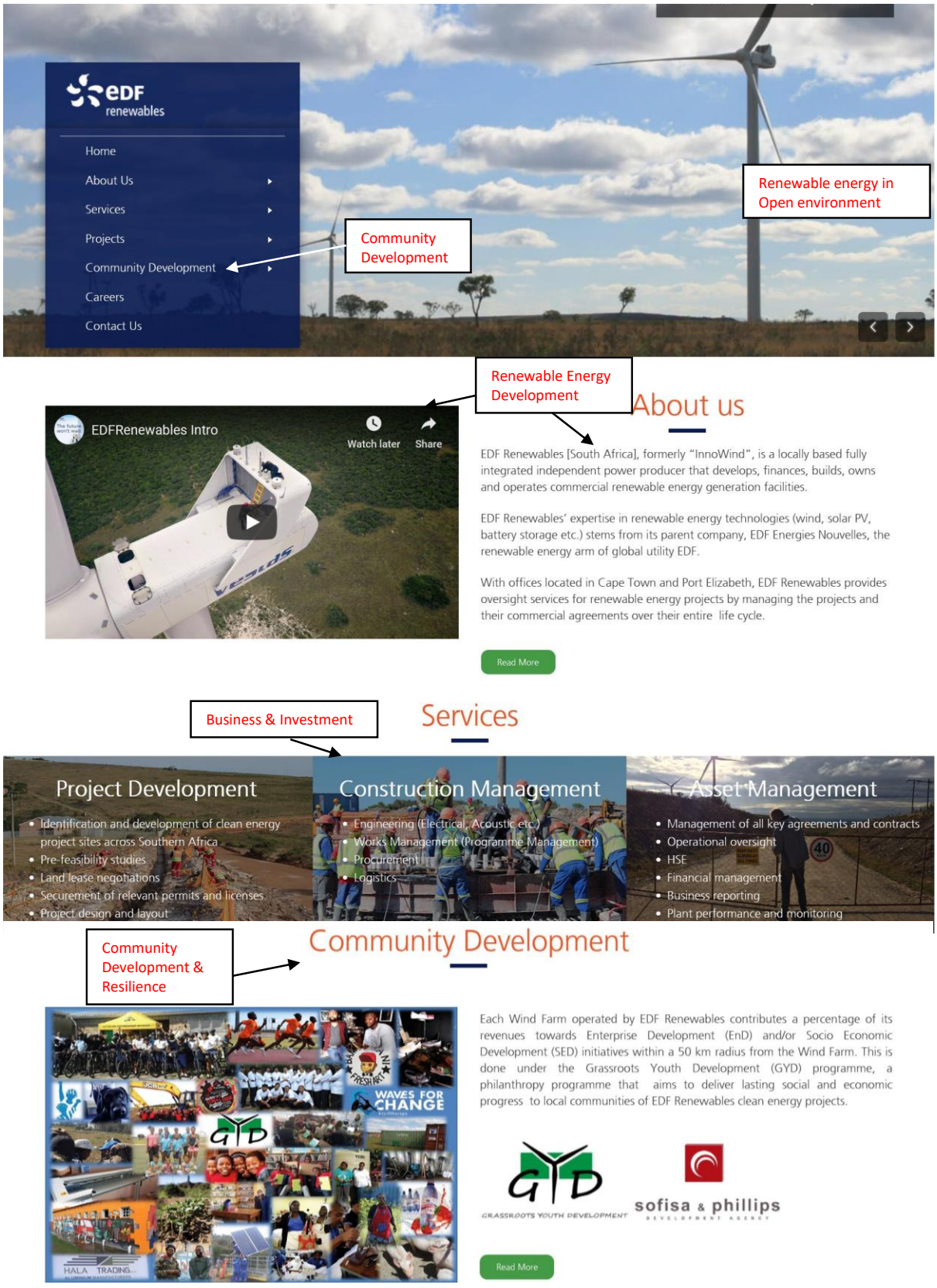
Figure 4.5 *Screenshot of EDF Renewable's Homepage*



Source. EDF Renewables Homepage. Retrieved from https://edf-re.co.za
Note. The webpage was cropped to make it fit. The excluded portion contains a map of energy projects.

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Elsewhere on the EDF website, the study found references to *drought* and further statements on the intent to improve *social resilience* to climate change. Through these statements, EDF seemed to agree that climate change had negative *community impacts*. To allay these impacts, it specified that it intends 'to conduct its business in an ethical manner, which strikes an appropriate and well-reasoned balance between the economic, social and environmental needs of the areas in which the Company operates.' It aimed to achieve this balance through feasibility assessments, collaborating with local communities and the continued innovation of *wind turbines*, *solar PV*, and *energy storage*. Specifically, with regards to its wind farm projects, it expanded on each case and its community projects. Take for example the Chaba Wind Farm which 'contributes up to 2.1 % of its revenues towards Socio-Economic and Enterprise Development initiatives' which helps 'small businesses with much-needed mentorship, skills transfer and development capital as a way to create sustainable businesses.' A portion of the money was also found to go to infrastructure development through cooperation with NGOs. EDF claimed that the intent is to create a cycle of skilled youths, sustainable development and employment. It offered a slogan for this goal: 'energising our youth, powering our future.'

4.4 Environmental Morality and Ethics Frame

The environmental morality and ethics frame defined the problem of environmental concerns as *stressed* or *ignored environmental limits*. Consequential actors of this frame recognised the causes as *polluting industries*, *fracking*, *fossil fuel use*, *mining*, a lack of *environmental awareness* and *inappropriate environmental interaction*. These actors tended to agree that these origins would come at the cost of *air*, *water* and *soil pollution*, *toxic spills* and *run-offs*. The problem and consequence statements would often be accompanied by emotional appeals and quotations from environmental experts. For example, US eNGO,

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Honor the Earth (see www.honorearth.org), cited a climate scientist who called full exploitation of tar sands 'game over' for the climate.

Furthermore, the previously stated causes and consequences led to consequential actors of the environmental morality and ethics frame to determine that there is a need to build a more informed environmental ethic (moral evaluation). In pursuing this evaluation, actors proposed to better *inform* and *educate* individuals, governments and corporations on a sound *environmental ethic* in addition to pursuing *conservation*, *environmental protection* and *environmental rehabilitation*. For example, US waste disposal corporation, American Waste Control (see www.americanwastecontrol.com), targeted citizens with a blog post, *4 Ways to Celebrate Earth Day with your Family*, and proposed hiking, planting trees, scavenger hunts and volunteering as family activities to raise awareness. US eNGO, Honor the Earth, took this a step further. It called not only for conservation but organised protest actions, wrote letters to political leaders and launched media campaigns to protect land and oppose fracking and other mining activities on tribal lands.

Amongst actors applying the environmental morality and ethics frame, the study found limited differences. The most significant disparity was that eNGOs in China and South Africa tended to be single-issue focused. For example, the Rhino Orphanage, a South African eNGO, exclusively focused on conservation of Rhinos and their habitats and related education/awareness efforts. By comparison, US eNGOs often had broader focuses. Republicans for the Environment (see www.conservamerica.org), for example, targeted environmental, conservation and climate policy issues. Second, US consequential actors of the environmental morality and ethics frame had a higher tendency for activism in efforts to raise environmental awareness. Chinese and South African actors of the environmental morality and ethics frame tended to work alongside government more often. One example of

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this type, the Rhino Orphanage (see https://therhinoorphanage.co.za), worked alongside the South African National Parks group.

In addressing research question two, that asked how the framing of climate change by consequential actors reflect the socio-political context, the archival data from government websites helped explained the findings. First, eNGOs in China and South Africa often depend more closely on the government (Bond, 2008; Bratcher, 2017; Death, 2014; Zhan & Tang, 2013). Either legally, or financially, eNGOs often find themselves limited to specific functional areas. In contrast, US eNGOs have a long history of independence and see it as their duty to address areas underserved by the government (US Aid, n.d.). Indeed, civic action is often seen both as a fundamental right of the US democracy and a duty of citizenship (Putnam, 1995; Van de Veer & Pierce, 1993; US Aid, n.d.).

These differences can be explained by the socio-political differences. In China, the governance system limited NGOs actions to approved environmental projects (Leonard, 2012; Mi, 2016; Tsang & Lee, 2013; A. Yang & Taylor, 2010). Expressly, these actions are limited to education, with activation seldom allowed, and often alongside government institutions. More recently, however, China's Supreme Court permitted eNGOs to sue over-polluters (Mi, 2016). By comparison, South African eNGOs are not legally compelled to cooperate with the government. However, they often do. The South African government, which sees NGOs strategic partners able to assist it in its policy mandates, has at times made limited funding available under NPO laws to encourage NGOs to work with government on specific projects (Bodley, 2008; Van de Veer & Pierce, 1993; "Western Cape government provincial treasury budget 2019 speech," 2019). In nature conservation, for example, the South African National Parks group has long worked with eNGOs, such as the Rhino Orphanage and the World Wildlife Foundation, to achieve monitoring and conservation goals (Swemmer et al., 2017).

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In contradistinction, the US legal environment affords eNGOs more freedom. As in South Africa, NGOs in the US are deemed essential to economic growth, social sustainability, and addressing areas underserved by the government (Putnam, 1995; US Aid, n.d.). In this regard, they have broadly participated in various actions both independently and in combination with corporations and even government (Eakle et al., 2013; Endres et al., 2009; Heberlein, 2012; Weber & Partzsch, 2018). US eNGOs relative funding independence and free speech protections have also seen some more aggressively actions. In extreme cases, this has led to the label of *eco-terrorism* being applied by, amongst others, the FBI (Jarboem, 2002; Jasparro & Taylor, 2008).

To further illustrate this frame, the study Birdlife South Africa, which is focused on the single issue of bird conservation, and ConservAmerica, a US eNGO focused on multiple issues. The first case aptly reflects the effects of reduced eNGO independence, while the second case reflects the comparatively freer environment of the US.

4.4.1 Birdlife South Africa. Birdlife South Africa (see https://www.birdlife.org.za) serves as a typical South African example. To start, the homepage (see Figure 4.6) demonstrated a limited, single-issue focus. Birdlife South Africa was found to focus most of its efforts on the conservation of birdlife in South Africa, as evidenced by both its name, emblem and slogan on the top left of the homepage. The accompanying slogan read, ‘giving conservation wings’ and the emblem represented a flying bird. The terms *bird* and *conservation* were repeated across the homepage. In the middle of the homepage, Birdlife South Africa included a visual of an island. In the accompanying text, the eNGO made an impassioned appeal for support to the continued conservation and restoration of the island. Another distinct element across the homepage were education materials on birds and conservation. These efforts included published magazines and a bird exhibition.

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Figure 4.6 *Screenshot of Birdlife South Africa's Homepage*

Source. Birdlife South Africa Homepage. Retrieved from https://www.birdlife.org.za
Note: The homepage was cropped to fit. The excluded section includes bird education materials and sponsors.

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The homepage also contained calls to action. First, a *donate* button was repeated in the middle and end of the page. This feature is typical of an eNGOs seeking financial independence. However, the researcher found Eskom, the government-owned energy utility company, on their list of sponsors. This finding was consistent with the expectation that South African eNGOs lacked financial independence. Second, the eNGO was found to promote a competition aimed at public involvement and to raise their awareness.

The eNGO was also found to state the problem statement as environmental impacts due to ignored limits or a lack of understanding. The causal statements tended to insinuate, rather than state, that it was human intervention that brought about these effects. For example, in their appeal for conservation efforts on the Marion island, the eNGO emphasised the unintentional introduction of mice by humans. Amongst their blog posts, the eNGO also emphasised climate change. In one post, they discussed the impacts of climate change on migratory birds and pointed to their engagement with the City of Cape Town to discuss ways to pursue renewable energy and reduce its impacts on birds. Furthermore, their moral evaluation focused on the raising of awareness. Their solutions, as already identified above, included engagement with government, conservation, rehabilitation and education.

4.4.2. ConservAmerica. Next, ConservAmerica was a typical example of the environmental ethics and morality frame in the US. Particularly, lexical choices, including *conservation, environmental awareness, educate the public* and emotional appeals dominated. On its homepage, ConservAmerica referenced its environmental mission (see Figure 4.7) with an expert-attributed quotation. A question on a moral duty to future generations is asked and answered to generate an emotional appeal. The backdrop to this header is a sunset over a green field with wind turbines. The image further appeal to the emotions through a beautiful scene. However, the image could also convey that renewable energy is a moral duty to environmental protection and necessary to assure future sunrises.

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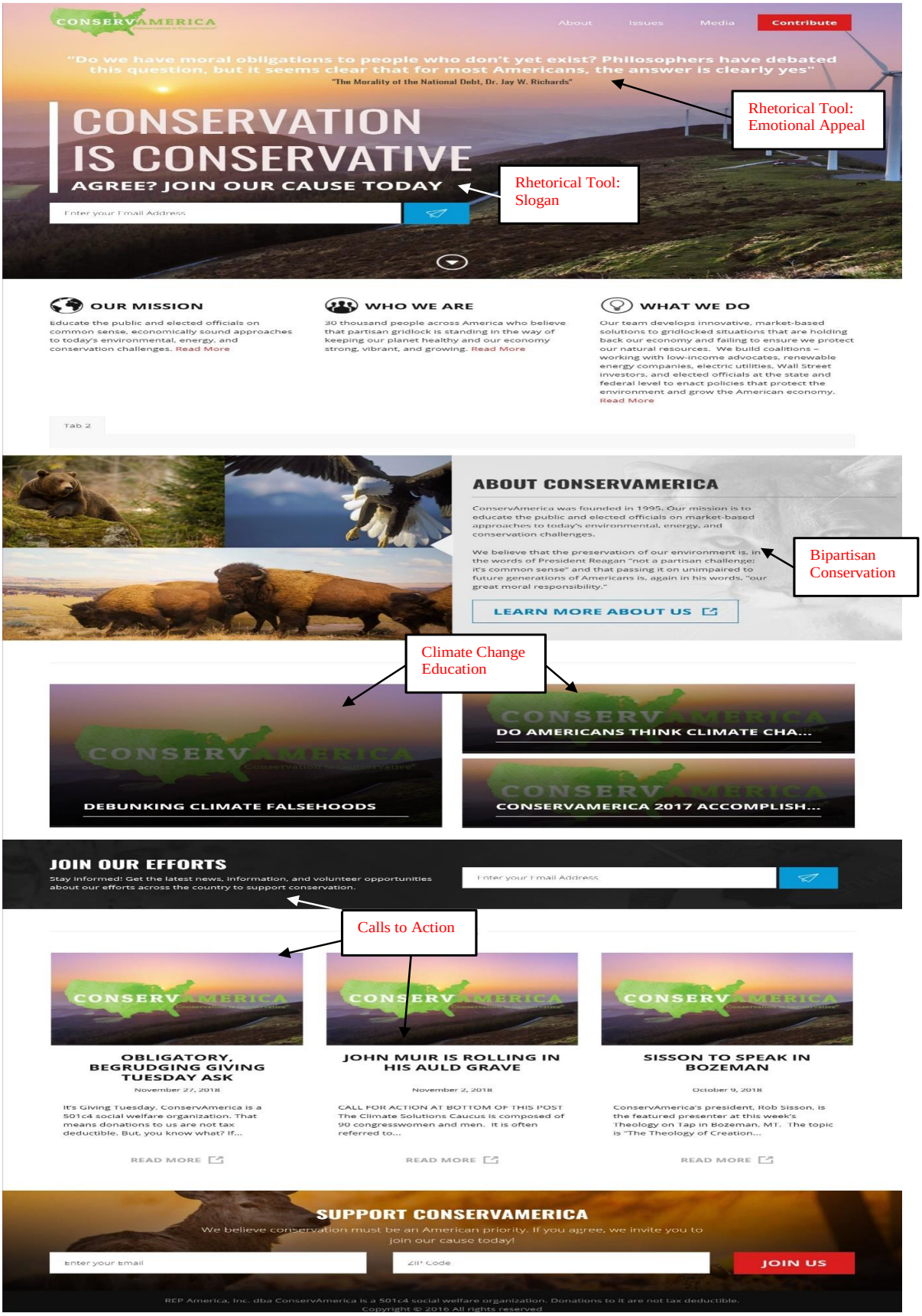
Figure 4.7 *Screenshot of ConservAmerica's Homepage*



Source. ConservAmerica Homepage. Retrieved from http://conservamerica.org/

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Just below the header and again near the middle of the homepage, ConsevAmerica clarifies that its mission statement is to 'educate the public and elected officials on common sense, economically sound approaches to today's environmental, energy, and conservation challenges' and to keep the environment bipartisan. Elsewhere on the website, ConservAmerica emphasised the growing needs of the US economy as a critical reason for the stressing of environmental limits. Specifically, it cited a growing reliance on natural gas, while 'natural gas-fired electricity is much cleaner than coal; it still emits about 850 pounds of pollution per megawatt-hour.' To protect the environment, it promoted conservation and education. One example was a reference to inform and educate all actors on better economic and conservation policies. Regarding energy conservation, it cooperated with local school authorities to launch *The Schools Energy Efficiency program*. The project educated on energy conservation through efficient lighting. In another educational effort, it published editorials to debunk *climate change falsehoods* such as one *Scientific American* article which claimed that high CO_2 levels were healthy for plants. Finally, ConservAmerica backed up its education efforts with activism and lobbied US government actors to adopt preferred bills such as the 'Waxman-Markey climate bill in 2010.'

4.5 Summary of Inductive Analysis

To summarise, the study found four dominant frames across the websites of consequential actors in the three nations. These frames reflected the dominant socio-political systems of each nation. In China, the public accountability and governance frame and the social progress frame corresponded to national state-driven legal compliance and modernisation policies. It seems that additional top-down solutions will receive broader acceptance. By comparison, in South Africa, the social progress frame was found to dominate, leading to the argument that consequential actors would likely to support additional solutions that encouraged the development of social resilience, for example,

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CDMs. Finally, the US appeared to be in a state of national conflict on climate change policies. Government archival data suggested that this was at least partially explainable by a partisan split and by eNGOs having their own approaches. This split makes shared solutions unlikely in the interim. Table 4.2 provides a summary of the research questions and findings.

Table 4.2 *Summary of key research questions and findings*

Research Questions	Key Findings
RQ1: What are the reasoning devices and framing devices like in the consequential actors' framing of climate change?	Four dominant frames were found: 1) The public accountability and governance frame identified the problem of climate change as being due to corporate-produced GHG emissions, pollutants or carbon footprints that caused ecological or environmental damage. Organisations evaluate the need for better legal compliance and offered policy solutions including improved environmental management, renewable energy adoption, carbon management, waste reduction and stakeholder inclusion. Chinese actors tended to be more assertive, while US and South African cases hedged their statements. All actors tended to use data. 2) The economic development and competitiveness frame defined the problem as due to increasing costs from national legislation. They evaluated the need to remain profitable by increasing sustainability. Their solutions included cost-cutting, efficiency investments, and exploring new markets. US actors tended to hedge their statements and use hyperbole to emphasise the loss of control over certain costs. 3) The social progress frame defined the problem as negative social impacts and evaluated the need to build social resilience in harmony with nature. They proposed solutions, including social development ones such as education and job creation, and technological innovation. Success cases (South Africa and the US) and comparative arguments (China and the US) were used. 4) The environmental ethics and morality frame defined the problem as environmental damage and biodiversity losses from ignored limits, mining, fracking and industrial activities. Frame applicants evaluated the need for a more informed environmental ethic and proposed conservation, environmental protection, rehabilitation and education as solutions. Emotional appeals and case studies were often used.
RQ2. How does the framing of climate change by consequential actors reflect the socio-political context?	In general, the findings reflected the national socio-political contexts in which the frames were applied. 1) Chinese actors preferred an assertive application of public accountability and governance and social progress frames. This finding was reflected in the national legal and governance documents which called for social modernisation under the law. The social progress frame focused on technological innovation. 2) In South Africa, actors overwhelmingly preferred the social progress frame with an emphasis on building social resilience. This finding was reflected in the archival data from both the political and the civic sectors. 3) In the US, broader distribution of the frames reflected a national political split. Actors applying the public accountability and governance and the economic development and competitiveness frames tended to hedge their statements.

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5. The Deductive Analysis of Framing Climate Change

Research question 3 asked how consequential actors' framing of climate change are similar or different across countries (RQ3a) and within countries (RQ3b). Research question 3 was further elaborated to include three hypotheses that assessed the expected differences across nations. To answer research question 3, this chapter will focus on the deductive phase of framing climate change among the consequential actors of the three nations examined in the study. Frequency distributions and Chi-square analyses were employed, with archival data being supplemented whenever necessary.

5.1 Frame Differences Across Nations

As shown in Table 5.1, among the 555 consequential actors analysed, 40% of them were categorised as public accountability and governance frame, 15% as the economic development and competitiveness frame, 25% as the social progress frame and 19% as the environmental morality and ethics frame. Cases identified as having no frame, a fragmented frame or a mixed frame, 40-cases, were coded as missing and excluded from the analysis.[15] The remaining 555-cases were then subjected to a Chi-square analysis, which demonstrated a significant difference between nations [χ^2 (6, 555)= 115.996, p < .001].

Table 5.1 *Frame Differences Across Nations (%, N=555)*

Frame	China (n = 165)	South Africa (n = 83)	US (n = 307)	Total (N = 555)
Public Accountability and Governance	44.2	22.9[a]	42.0	40.0
Economic Development and Competitiveness	1.2[a]	12.0	24.1[a]	15.0
Social Progress	38.2[a]	54.2[a]	10.4[a]	25.0
Environmental morality and ethics	16.4	10.8 [a]	23.5[a]	19.0
Total	100.0	100.0	100.0	100.0

χ^2 (6, 555) = 115.996, p <.001.

Note. Superscript *a* denotes actors in the cell with the absolute value of adjusted residuals >1.96.

[15] The researcher took additional steps to confirm that actors with no obvious frames were consistent with the definition of a consequential actors (see Chapter 2.3.1, p. 44).

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The study proposed three hypotheses to evaluate the differences in frame distribution among the three nations. Hypothesis 1a posited that the Chinese consequential actors' websites would reflect the public accountability and governance frame more than those of the other two nations. This hypothesis was partially supported as South African consequential actors (see Table 5.1) applied this frame the least (22.9%). However, both China (44.2%) and the US (42%) had residuals of less than 1.96. Taken only on frequency values, China and the US had a similar application of the public accountability and governance frame, which suggested that they are not statistically different from each other.

Hypothesis 1b posited that the websites of South African consequential actors reflected the social progress frame more than those of the other two nations. This hypothesis was supported by South African actors contributing the most and all three nations having residuals of more significant than 1.96. The results from Table 5.1 (see p. 118) showed that 56.9% of consequential actors in South Africa applied the frame. This finding was about 18% higher than consequential actors in China (38.2%) and more than 5-times as much as consequential actors in the US (10.4%). Chinese consequential actors applied the frame about three and a half times more than their US counterparts.

Hypothesis 1c proposed that the websites of US consequential actors were more likely to be framed by the economic development and competitiveness frame than those of China and South Africa. This hypothesis was also supported with both the US and China having residuals bigger than 1.96. Table 5.1 (see p. 118) showed that US consequential actors made the most applications of the frame (24.1%), while China applied the frame the least (1.2%). Taking only the frequency differences, South African actors (12%) would find themselves in the middle. However, it had a residual score of lower than 1.96 which suggested that the finding was not significant.

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Finally, hypothesis 1d proposed that the websites of US consequential actors reflected the environmental morality and ethics frame more than those of the other two nations. The hypothesis was supported. Table 5.1 showed that US consequential actors made significantly more applications of the environmental morality and ethics frame (23.5%). This finding was about 2-times more than their South African counterparts (10.8%), which made the least number of applications. Taken only frequency of applications, China (16.4%) fits in between these two nations, but had an adjusted residual score of lower than 1.96, suggesting that the application of the frame was not significant.

5.2 Frame Differences Within Nations

Next, research question 3b asked about how consequential actors' framing of climate change was similar or different within countries. However, due to the sub-sample distribution leading to expected frequencies of $n < 5$ for several cells in Table 5.2, a Chi-square test could not be conducted. Thus, Table 5.2 shows only frames' frequency distribution by organisation type.

Table 5.2 *Frequency Distribution of Frames Within Nations (%, N=555)*

Frames	China			South Africa			US		
Organisation Type	Corp (n = 136)	eNGO (n = 28)	Party (n= 1)	Corp (n = 60)	eNGO (n = 14)	Party (n = 9)	Corp (n = 228)	eNGO (n = 77)	Party (n = 2)
Public Accountability and Governance	52.2	3.6[a]	100.0	28.3	0.0	22.2	54.8	3.9	50.0
Economic Development and Competitiveness	1.5	0.0	0.0	16.7	0.0	0.0	30.3	5.2	50.0
Social Progress	45.6	3.6	0.0	55.0	35.7	77.8	11.4	7.8	0.0
Environmental morality and ethics	0.7	92.9	0.0	0.0	64.3	0.0	3.5	83.1	0.0

First, the frequency distribution amongst consequential actors in China suggested that most corporations, about 52.2%, applied the public accountability and governance frame. This frame was also found to be the dominant frame of the CPC. The remaining consequential corporate actors tended towards the social progress frame (45.6%), with a few exceptions. By comparison, eNGOs were found to show preference the environmental

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morality and ethics frame (92.9%) with only 3.6% tending to prefer the social progress frame. In general, the findings reflected the official national policy. Corporations, alike to the national policy, was found to be split between a policy-driven approach and a social development approach to climate change framing. Similarly, eNGOs were nearly all confined to the environmental frame, a reflection of national legislation that limits eNGOs to the environmental policy domain.

Second, South African consequential actors were also found to reflect the national position. Overall, 55% of corporations, 35.7% of eNGOs and 77.8% of political parties preferred the social progress frame. The remaining corporations were found to be split between the public accountability and governance frame (28.3%) and the economic development and competitiveness (16.7%) frames, while 22.2% of political parties supported the public accountability and governance frame. Furthermore, the majority of eNGOs (64.3%) were found to prefer the environmental morality and ethics frame. This finding reflected the expectation generated by the literature and archival data that South Africa was mostly focused on social development concerns, even in the context of climate change.

Lastly, US consequential actors had a broader national frame distribution. Nevertheless, for consequential corporations, the public accountability and governance frame is the dominant choice. Around 54.8% of consequential corporations, 3.9% of eNGOs and one political party were found to prefer this frame. The second most dominant frame was ground to be the economic development and competitiveness frame. The study found that around 30.3% of corporations, 5.2% of eNGOs and the Republican Party tended to apply the frame. Furthermore, the social progress frame received the least applications, with only 11.4% of corporations and 7.8% of eNGOs found to apply it. Finally, as was also the case with the other two nations, most eNGOs were found to show a preference for the environmental morality and ethics frame (83.1%). Unlike in the other three nations, the US

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also had the highest proportion of corporations (3.5%) applying the environmental morality and ethics frame. The dominance of the first two frames amongst organisational actors reflected the bipartisan split in the literature regarding the US socio-political setting.

5.3 Summary of Deductive Analysis

To summarise (also see Table 5.2), the chapter first looked at differences across nations using Chi-Square analysis, before taking a closer look within nations using frequency analysis. Partial support for the first hypothesis showed that South African actors made the least applications of the public accountability and governance frame leading to the inference that both the US and China applied the frame more often. The within national comparison further showed that more than half of all corporate actors in China and the US, as well as the CPC and the Democratic Party, tended to apply the public accountability and governance frame. This finding corresponds with findings in Chapter 4 that suggested both China and the US would have a strong legal and policy foundation for addressing climate change. Second, the study found that South African consequential actors applied the social progress frame about 18% more than Chinese actors and about 5-times more than US actors. The within nation comparison further showed that 55% of all corporate actors, 35.7% of all eNGOs and 77% of political parties preferred the social progress frame. This finding reflected that of Chapter 4, which suggested South Africa would be a nation focused on social development even in the context of climate change. Third, the study found that the US made the most applications of the economic development and competitiveness frame, with mostly corporate actors (24.1%) and the Republican party applying the frame. Finally, the study found that the US made the most use of the environmental morality and ethics frame. The within-nation comparison further suggested that this frame was mostly adopted by eNGOs, although 3.5% of US corporations also applied it. The last two findings, taken in combination with the first

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finding, suggests that the US reflects a national split across partisan political lines, but with its eNGOs acting independently towards a pro-environmental ideal.

Table 5.1 *Summary of key research questions and findings*

Research Questions	Key Findings
RQ3a: How are consequential actors' framing of climate change similar or different across countries?	Between countries, the differences could be explained with reference to four hypotheses: H1a: Partially Supported. South African consequential actors were found to apply the frame the least (22.9%). While not statistically significant, there appears to be a similar application of the frame between China (44.2%) and the US (42%). H1b: Supported. South African actors (56.9%) contributed the most to the social progress frame. This was about 18% higher than China (38.2%) and 5-times higher than the US (10.4%). H1c: Supported. US consequential actors were found to make the most applications (24.1%) and China the least (1.2%). South African actors (12%) did not significantly apply the frame. The finding suggested that market economies would be more likely to apply the economic development and competitiveness frame. H1d: Supported. US consequential actors (23.5%) made the most applications, about 2-times that of South Africa (10.8%). China (16.4%) did not significantly apply the frame. This finding fits the narrative that the US eNGOs are freer to act.
RQ3b: How are consequential actors' framing of climate change similar or different within countries?	The within nation frame adoption tended to reflect the findings in research question 2 and 3a. 1) In China, most corporations (51.8%) and the CPC were found to prefer the public accountability and governance frame. The remaining corporations (45.3%) tended to apply the social progress frame. 2) In South Africa, about 55% of all corporate actors, 35.7% of all eNGOs and 77% of political parties preferred the social progress frame. The remaining corporation mostly preferred the public accountability and governance frame (28.3) and the economic development and competitiveness frame (16.7%). 3) In the US, around 54.8% of consequential corporations, 3.9% of eNGOs and the Democratic party were found to prefer the public accountability and governance frame. Around 30.3% of corporations, 5.2% of eNGOs and the Republican Party tended to apply the economic development and competitiveness frame. Only 11.4% of corporations and 7.8% of eNGOs were found to apply the social progress frame. 4) In all cases, eNGOs preferred the environmental ethics and morality frame, including China (92.9%), South Africa eNGOs (64.3%) and the US (83.1%). South African eNGOs were most likely to apply the social progress frame (35.7%).

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6. Discussion and Conclusion

To recap, the study examined and uncovered four prevalent frames on the websites of consequential organisational actors in China, South Africa and the United States. In the following discussion, the study considered the implications of the key findings. First, the study took a closer look at the theoretical findings, especially the applicability of van Gorp's (2010) method to framing analysis on organisational websites, as well as how the frame differed from their appearance in the literature. Second, the discussion turned to how organisational website frames reflected the national socio-political characteristics, what this means at the national level, and whether there were any shared approaches to reflect on further. Third, the discussion turned to the macro-level and considered the possible implications of the national-level findings to the international climate change dialogue.

6.1 Theoretical Implications

Pan and his colleagues (2019) noted that scholars using the deductive approach to framing analysis must often adapt the frames to the context. This adaptation comes about as the frame is rarely a perfect fit for any given study. The inductive approach helped to mitigate this concern by ensuring that the frame is reconstructed to suit the context in which it is applied before implementing the deductive analysis. This statement supports prior arguments that frames are changeable, and they often do so to match their respective socio-political and cultural contexts (Anderson, 2009; Goffman, 1974; van Gorp, 2007, 2010). The study found that while van Gorp's (2010) cultural approach to framing was well-suited to the analysis of the websites of organisational actors, the frame differed substantially from their applications elsewhere in the literature. The more notable differences were discussed below using Nisbet's (2009) summary of the key definitions as a point of comparison.

First, the public accountability and governance frame deviated from Nisbet's (2009) definition. Nisbet defined this frame as '[r]esearch or policy either in the public interest or

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serving special interests, emphasizing issues of control, transparency, participation, responsiveness, or ownership; or debate over proper use of science and expertise in decision making ("politicization")' (p. 18). The frame, in support of Nisbet's definition, indicated the presence of policy serving the interests of climate action and laws emphasising acts of control. Furthermore, most of the actors applying this frame made statements which led to the conclusion that did participate and was responsive to climate change. However, the emphasis was firmly on legal compliance and policies to ensure legal compliance. Furthermore, actors rarely referred to scientific discussion except for referencing scientific measurement tools, which were not universally applied. Thus, the findings suggested that to analyse organisational websites, the second part of Nisbet's definition may be removed. The counter-frame, scientific and technical uncertainty, did not occur in this study.

Second, the economic development and competitiveness frame was also implemented with differences. Nisbet (2009, p. 18) defined this frame as '[a]n economic investment; market benefit or risk; or a point of local, national, or global competitiveness.' Many actors saw climate change as either a risk or benefit, sometimes both, and treated solutions as economic investments. However, there was limited evidence to suggest that *global competitiveness* was a consideration. Instead, the study found the competitiveness aspect to only be present indirectly through the emphasised desire of improving or at least maintaining financial *sustainability*. This sustainability reference, more specifically, appeared as the moral evaluation in the findings, and it served as the foundation for solutions. The researcher, therefore, proposed that, at least in the context of organisational websites, the frame might be better labelled as the *economic development and sustainability* frame and defined as an economic investment, market benefit or risk, or a point of maintaining or improving economic sustainability.

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Third, the findings suggested that the social progress frame might be better split into two separate frames. Specifically, in line with Nisbet's (2009) definition of the social progress frame as '[a] means of improving quality of life or solving problems; alternative interpretation as a way to be in harmony with nature instead of mastering it.' The literature (see Chapter 2.2.2, p. 36; Chapter 2.4.1, p. 47) discussed the history of the frame as the use of technology to improve human lives. The study found support for this, especially regarding the 'improving the quality of life or solving problems' and to live 'in harmony with nature instead of mastering it' (Nisbet, 2009, p.18). However, the findings showed a rift between Chinese actors, most of whom focused specifically on technological development or modernisation, and South African actors, which emphasised the building of social resilience even in the absence of technology. The US was found to apply both. Thus, the researcher proposes that the frame be split. On the one side, the *social technological progress* frame could be formed and defined as a means of improving the quality of life and developing in harmony with nature. On the other side, the *social resilience* frame could be defined as a means of solving social problems and improving social resilience in harmony with nature. This split would enable future studies to clarify and emphasise these differences.

Finally, there was no need to amend the morality and ethics frame. Nisbet (2009, p. 18) defined this frame as '[a] matter of right or wrong; or of respect or disrespect for limits, thresholds, or boundaries.' These elements were found present amongst the consequential actors who applied the environmental morality and ethics frame. Only the label needed to be adapted to read *environmental morality and ethics* frame and to insert the term *environment* into the definition. The study did, however, find that the frame was mostly limited to eNGOs. In most cases where corporations were found to implement the environmental morality and ethics frame, it was in a secondary and fragmented capacity to emphasise an environmental policy. Thus, this frame may not be needed in a study that excludes eNGOs.

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6.2 National Characteristics of Framing Differences

Van Gorp's (2010) inductive frame reconstruction enabled the study to draw an association between organisational frames and the national socio-political culture. Specifically, it led to the finding that China's more assertive, top-down approach to national policy was reflected in how Chinese corporations tended to apply the public accountability and governance frame. The frame was found to be comparatively more assertive that the hedged arguments forwarded by South African and US actors. Likewise, it demonstrated the association between the dominance of the social progress frame in South Africa and the national preoccupation with development issues. In the US, the findings reflected a nation in conflict over climate change. These findings have implications for the adoption of climate change solutions.

6.2.1 Legal and policy solutions. First, the website frames of Chinese and US organisational actors were found not to be significantly different from each other. However, South African organisational actors had a comparatively weaker tendency for the public accountability and governance frame than did Chinese and US actors. The study concluded that this offered partial support for hypothesis 1a. This finding could be explained by the national socio-political environment of both China and the US, where more strict environmental legislation has received political and civic attention. In this regard, China's recent policy actions resembled that of the historical US case but differed in its more authoritarian political system. Thus, China's application of the public accountability and governance frame is characterised by a top-down implementation, whereas the US is more conflicted. This finding has implications for the adoption of more legal and policy solutions.

China's robust implementation of the public accountability and governance frame could be ascribed to the pro-environmental policies that have characterised its political leadership since at least the presidency of Hu Jintao. As discussed in more detail in Chapter

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1.1 (see p. 2), China's rapid industrialisation led to severe environmental damage and air pollution (Heberlein, 2012; Leonard, 2012; T. Yang & Zhang, 2011). Between 1996 and 2012, limited available data suggested that China faced approximately 180,000 mass actions per year, with at least about 980 of these directly attributable to environmental concerns (Leonard, 2012; T. Yang & Zhang, 2011). Environmental issues included water and air pollution, deteriorating quality of life, health crises, loss of land to erosion, and a loss of livelihoods (Chafe, 2005; Chun-Xi, Head, & Sheng-Rong, 1994; Coonan, 2006; Dongli, 2007; Finamore, 2018; Larson, 2007; Liu, 2010). In response, the Chinese government applied stricter laws, built dedicated environmental courts and more severe punishments and permitting eNGOs to sue polluting actors (Leonard, 2012; Mi, 2016; The Supreme People's Court of the PRC, 2015; World Bank, 2019a; Zinda et al., 2017).

Nationally, there appeared to be a top-down equilibrium promoting the resonance of legal and policy solutions. Specifically, the study found that the ideology of Xi-thought, China's 13th Five Year plan, speeches by Xi Jinping and archival data on State organs (Koleski, 2017; Ministry of Ecology and the Environment, 2017; Xi, 2014) all pointed to the likelihood of a future expansion of top-down policies. Solutions expected to receive future emphasis are CDMs, such as carbon extraction technology, nationally-guided carbon trading schemes, further legislated GHG reductions, laws governing greener supply chains and policies encouraging the further adoption of domestically generated greener energies (Finamore, 2018; Koleski, 2017; Zhang et al., 2017; Zhao et al., 2019). The US historical case, however, suggests that resistance could eventually ensue as financial and legal pressures cross paths. More research is needed to shed light on the level to which Chinese corporate actors willingly adopt new laws, to what degree these laws are adopted, and whether there are any counter framing efforts from these actors. Future research should look beyond organisational websites for data.

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To a degree, the current case of China mirrored the US historical case. Rapid industrialisation in the aftermath of WWII led to unsustainable economic growth in the US, worsening environmental conditions, and eventually rising environmentalism (Heberlein, 2012; Van de Veer & Pierce, 1993). In 1969, the Cuyahoga River caught fire from the pollution of 12 industrial plants upriver (Stradling & Stradling, 2008). This event resulted in public outcry and civic action that gave US president Richard Nixon the impetus to enact the Clean Air Act of 1970 and led to the establishment of the EPA ("Clean Air Act," 1970). Later amendments to the Clean Air Act further enabled emission controls over the automotive industry (Gerard & Lave, 2005) and more recently there was Obama's call on the EPA to further cut emissions (Murray, Pizer, & Ross, 2015; White House, 2014).

However, the political agreement appeared to end here. Obama's latest amendment to the Clean Air Act was repealed by the Trump administration and was one of several indications of national political disunity on the climate change debate ("Approval and promulgation of air quality...", 2018; Trump, 2019; White House, 2018). It has been the Republican argument that energy reserves must be exploited, and laws relaxed to allow for it so as not to constrain US economic growth. A further divergence was found in the civic sector. Laws passed in the 1970s enabled eNGOs and other private parties to pursue litigation on federal environmental legislation (Heberlein, 2012; Naysnerski & Tietenberg, 1992; Van de Veer & Pierce, 1993). Recently, a group of young children sought the Supreme Court's permission to sue corporations for climate change (Blumm & Wood, 2017). This national divergence is indicative of what the theory of fields refers to as a conflict. From a national political perspective, the implications are that additional federal legislation, such as carbon taxes, shifting public subsidies to greener alternatives and further carbon emission caps are unlikely to gain traction. Instead, it is likely to see such efforts form part of the bipartisan political split on climate action.

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6.2.2 Development characteristics. The study found the presence of the social progress frame on the websites of consequential organisational actors in all three nations. The frame was especially dominant on the websites of Chinese and South African consequential actors; a finding related likely to both nations being registered as developing nations (World Bank, 2019a, 2019b). The framing mechanisms, however, were found to be indicative of significantly different applications across different socio-political settings. In China, the frame emphasised technological development as observed from the archival data and resonated with top-down national legislation. Through both the framing analysis of the websites and the relevant archival examination, South African actors were found to emphasise social resilience, even when discussing technological modernisation. By comparison, the US was found to apply the frame in both senses. The findings have implications for the broader adoption of solutions.

Specifically, China was found to emphasise social modernisation even as it placed a higher national emphasis on the rule by law. Notably, the World Bank (2019a) explained that although China has made significant strides in economic development, it retains a development status due to high inequality and low GDP per capita which has continued to leave an estimated 373.1 million people below the poverty line of $5.50 a day. Recognising the crisis that could result, China's response has been hailed as strong by the World Bank. It called for the development of a 'moderately prosperous society' and social modernisation in harmony with nature ("Full text of resolution on CPC Central Committee report," 2017; Koleski, 2017; Ministry of Ecology and the Environment, 2017). In this regard, China has increasingly reduced its emphasis on its GDP growth rate and shifted more attention to making it sustainable. Finamore (2018) found that China had, in some cases, dropped financial growth as a means to measure the success of local political leaders. In this regard,

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China saw the need to develop an industry that is cleaner and more sustainable to drive the economy while it continues to work on social equality and development.

However, like the historical US case, these efforts in China were primarily focused on technological modernisation. For instance, 1970 amendments to the US Clean Act focused its attention on improving technological efficiency in the control of vehicular and power plant emissions (Gerard & Lave, 2005; Murray et al., 2015). Also, unlike in the US case, China's approach is top-down and subject to national legislation. This approach had implications for China's pursuance of these technological solutions. For instance, General Secretary Xi-Jinping and former US president Obama had previously signed agreements on cutting GHGs and cooperating on especially CDMs (clean development mechanisms) such as carbon extraction technologies (Giddens, 2011; Jasparro & Taylor, 2008). China has since pursued this technology with the assistance of corporations and the Ministry of Ecology and the Environment (2017). Technologies have included modernised renewable energy and smart grid technology. This top-down approach to modernisation leads to the conclusion that the social progress frame in China is often secondary in support of the national policy. Since it is legislated and part of the core governance strategy, it could be expected that more technological solutions would receive broader adoption.

On the other hand, the South African approach favoured social resilience. This approach was found to be the focus even when renewable technologies and its advancement was discussed (see Chapter 4.3, p. 101). Just as with China, the World Bank (2019b) defined South Africa as a developing nation. However, the socio-political inequality was comparatively more severe, with 18.8% of the population living below the poverty line, 27% facing unemployment, and a Gini coefficient of .63. It was not unexpected, therefore, to find that both government and civic actors discussed the linkage between climate change and social development issues. This emphasis on social development leads to a different

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conclusion than that of China and the US. Only solutions concerning social resilience are likely to receive wider adoption.

In this regard, it could be expected that IPCC solutions dealing with adaptation would be more favourably received in South Africa. Particularly, funding and technology transfer of renewable energy is likely to receive further acceptance. These solutions could include infrastructure that better protect communities from climate change, education facilities that advance adaptation knowledge and which facilitates economic opportunity, and sustainable jobs and job skills that encourage independence from social aid. South African negotiators have for some time pursued this agenda at international negotiations where they have called on CDM mechanisms as well as other funding and technology transfer efforts to be stepped up to aid developing nations (Mkhize, 2018; Radebe, 2018; Ramaphosa, 2019). The case of EDF Renewables (see Chapter 4.3.2 p. 103) is an example of a case that benefits from technology transfers. Since the South African finance industry has begun to refuse to fund non-renewable energies in the future, it seems plausible that the reliance on renewable technology in South Africa will grow.

6.2.3 US conflicted national nature. According to the sociological theory of fields, the US could be defined as a nation in conflict on climate change. Organisational website frames, while not entirely opposed to each other, suggested that a broader national split was in place. This fit into the archival narrative of bipartisan US politics. In this regard, the US case differed from the other two nations in two critical respects. First, the websites of US consequential organisational actors gave significant regard to the economic development and competitiveness frame, particularly amongst corporate actors and the Republican party. Second, the websites of eNGOs were found to prefer the environmental morality and ethics frame. These differences can be explained with reference to the US free trade environment and a freer legal system in which non-governmental organisations may act (see Chapter 4.2,

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p. 95; Chapter 4.4, p. 109). Despite the differences, however, the framing mechanisms suggested that organisational actors were generally in favour of climate action which holds the opportunity for compromise solutions.

Findings on the websites of US organisational actors were not just in favour of cutting cost but also for exploring new economic opportunities. From a corporate governance perspective, the study found evidence for the voluntary adoption of policies. These included cleaner supply chains, renewable energy adoption, and efficiency policies. One solution, waste reduction, appeared across frames, although it differed significantly in the motivation for its application. The US energy corporation, Antero Resources, implemented an extensive waste reduction policy that focused on cutting transportation-based emissions. This policy was in part to become legally compliant. By comparison, Actuant Corporation launched an extensive economic efficiency programme that included a relocation strategy of its business locations to reduce transportation costs, characteristic of the economic development and competitiveness frame. In practice, both approaches would lead to emission reductions with climate change benefits despite their different motivations. This line of reasoning suggests that such a solution would receive a broader national adoption if framed correctly to an appropriate audience.

Furthermore, the study found that websites of most eNGOs did not only focus on conservation, but also on building environmental ethics through education. Those that emphasised education, specifically in the US, often cited cases of cooperation with government or corporate actors in pushing for environmental compliance. This finding raises the prospect of broader cooperation between eNGOs and corporations. More specifically, corporations seeking legal compliance could draw on the relevant expertise of eNGOs to achieve cleaner supply chains and advice on restructuring for improved efficiency. These eNGO knowledge systems could support corporate actors who listed cleaner supply chains

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(public accountability and governance frame) and cost-cutting (economic development and competitiveness frame) as solutions. However, more research is needed to understand how eNGOs frame education solutions and how this compares to corporate goals.

It is not possible, however, to conclude one nation is more likely to succeed in climate change action than another. China, for instance, has a robust top-down legal implementation. Thus, it is conceivable that the government could continue to direct climate actions. However, the historical US case has shown that eventually profitability catches up to politics. The US-China trade war is likely to place further financial pressure on China's climate efforts. Second, the South African system offers only benefits to other developing nations with an energy shortage. Specifically, South Africa adopted renewable energy through international technology transfer mechanisms which benefited social development. The success and sustainability of these projects remain, however, unproven and needs further research. Finally, the US case, like China's, holds promise but with caution. The US has best demonstrated that international climate agreements do not translate into national agreement. In fact, the US has developed a bipartisan political split which is likely to upset international climate change efforts. However, greater national market freedom has enabled corporations to take independent actions. For example, the cases of Antero Resources and Actuant corporation in the study offers an example of how two corporations applying different frames may achieve the same effect. Overall this may result in a system of national peer-pressure where corporate actors take pro-climate actions despite the political position.

6.3 Macro-level Implications

A final concept in field theory is the reaching of a settlement to the contention. With climate change policy as the contention, one solution could include an international, legally binding and enforceable agreement. The Paris Accord delivered on this solution but fell short

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on legally binding and enforcement mechanisms. The sociological theory of fields makes it possible to consider possible macro-level implications implied by the findings of the study.

First, with reference to the sociological theory of fields, China could be labelled as a challenger. Finamore (2018) suggested that China is using climate change to challenge US international diplomatic dominance. With its authoritarian top-down governance system, China has taken an avid interest in climate change policy since at least 2012. A speech by Xi Jinping to the World Climate Change Conference in 2015 (COP21) called for an 'equitable and balanced governance mechanism on Climate Change' that features technological modernisation (Xi, 2015). In doing so, Xi-Jinping made clear that China's contribution to the international debate on climate change would reflect its national policy of a governance-based approach that promotes technological modernisation. This emphasis on modernised renewable technologies has also been visible in China's efforts for trade dominance. For instance, China's ambitious *one belt one road* initiative with Europe, Asia, Africa and South America was found to promote renewable energy exports (see for example the SGCC in Chapter 4.1.1, p. 84). Finamore (2018), however, also pointed out that China's broader acceptance as a leader in the climate change debate hinges on its future ability to eliminate its coal reliance and reduce its emissions.

By comparison, the US could be identified as an incumbent. The sociological theory of fields defined the incumbent as an actor who has long held a domineering position in the field of strategic action (Fligstein & McAdam, 2011, 2012; Kluttz & Fligstein, 2016). The US has long been the dominant international military, diplomatic and economic power and under Obama was key to the ratification of the Paris Accord. Under the Republican government, however, US actions have been consistent with an incumbent fending off perceived threats to its economy. One example of this could be seen when President Trump called climate change a Chinese hoax that targets the US economic competitiveness (Shankleman, 2016). Although

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not directly related to the climate change debate, the US-China trade war is another example. Researchers have suggested that this action could negatively impact the Green Climate Fund and may have other adverse consequences on the successful implementation of the Paris Accord (Darby, 2018; Li et al., 2018; Liu, 2018; Pei, 2018). The sociological theory of fields also argued that the international institutions would tend to favour incumbent unless defections occur (Kluttz, 2016). There is some evidence that such defections are occurring. France, specifically, has threatened to boycott US imports should the GHG intensity of its products increase ("France opposes EU trade deals with non-signatories of Paris accord: Loiseau," 2019). If France follows through on this threat, others in the European Union could follow.

Finally, South Africa is best labelled as an auxiliary challenger or an advocate. In comparison to China, South Africa's role has been one of support for developing nations. Specifically, it has participated in climate change negotiations alongside other developing nations in Southern African Development Community (SADC) and BRICS, a trade bloc that includes Brazil, Russia, India, China and South Africa (Chikabwi, Chidoko, & Mudzingiri, 2017). By placing their support with other developing nations, South Africa has pushed for the transfer of technology, more funding and not being legally compelled to take climate action (African National Congress, 2011; Aylett, 2010; Death, 2014; Rong, 2010). It is unlikely that the rivalry between China and the US would affect South Africa's existing position, which is mostly preoccupied with forwarding its own national development agenda. Thus, it could be expected to continue teaming up with other developing nations and push for funding and technology transfers (Giglmayr et al., 2015; Walwyn & Brent, 2015).

6.4 Significance of the Study

Du Plooy (2009) listed five areas where research could contribute to the existing body of knowledge. These include the enrichment of current information, new policy guidelines,

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practical relevance to communication practitioners, development of research methods, and providing research that can solve real-world problems. The study contributed to the existing body of literature in three ways.

First, the study contributed to van Gorp's (2007) call for the return of culture to framing studies. In a 2005 study of framing in Belgian newspapers, van Gorp (2005) had pointedly asked, '[w]here is the frame?' In his study, he argued that the frame, even in the original undertaking of framing theory, was in a broader cultural context (Entman, 1993; Goffman, 1981). Four frames were confirmed, identified in the literature (see Chapter 2.2, p. 32; and Chapter 2.4.1, p. 47), on the websites of consequential organisational actors and found them to reflect the national socio-political settings. This finding showed that frames do form part of and come from the culture in which it occurs, and that van Gorp's method could be used to evaluate this. This finding suggests that future framing studies could benefit from van Gorp's (2010) cultural approach to framing analysis.

Second, the study contributed to the cultural approach of framing analysis on websites. Earlier studies applying framing theory mostly analysed individual speeches, news articles or press releases. The present study is one of a few that departed from these efforts and attempted to apply the frame to organisational websites. The method contributes to the literature a successful example of such an analysis that reveals useful results in the form of an organisation's overall position to the issue of climate change.

A third contribution was more practical. By contrasting the socio-political settings of the three nations, it was possible to elicit prominent differences in how organisational actors positioned themselves in relation to their respective socio-political settings. To policymakers, the findings may be useful for knowing which climate solutions are more likely to achieve a national frame resonance. In the US, for example, policymakers may have better success with a national policy targeting corporate efficiency, that with one pushing for GHG cuts. Finally,

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communication practitioners might find it useful to note how their organisations are compared to the broader national setting. They could use the information to adjust their existing corporate governance strategies to better align with the mainstream message on how to understand and approach climate change.

6.5 Limitations of the Study

The study has some limitations that may inspire future research. First, due to the proportional random sampling method, eNGOs in Chinese and South African tended to make up a small proportion of the overall sample of eNGOs. Furthermore, some of this sample from China and South Africa had no frame. As a result, eNGOs from these two nations tended to be comparatively underrepresented, which may have affected the results. Future studies could explore alternative sampling methods or perform a framing analysis of eNGOs independently.

Second, the sociological theory of fields allows for the treatment of governance actors, both state and non-state, as consequential actors. However, only limited archival data was used on these governance actors. Future studies could include these actors into the content analysis as their inclusion may yield a wealth of information on the preferred national frames as well as their framing and reasoning devices. Third, at the national level, the study limited itself to between organisation comparisons. According to the sociological theory of fields, such sectors may form part of professional bodies that function as semi-independent fields. Thus, it is possible that further classifying organisations into distinct types may yield additional data. For example, such findings may show a frame resonance in specific corporate sectors in the US. Future studies seeking this approach may wish to specifically focus on corporate actors and use a stratified sampling method to ensure representation of these elements. Another limitation results from the researcher continuing as the primary coder. As with any content analysis study, there is often the risk of researcher bias. To overcome such

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bias, the research implemented two tools. First, an intercoder reliability test was conducted to ensure the validity of content categories. Second, the researcher regularly went back and forth between previous and new codes to compare and see whether coding was done consistently. Nevertheless, future researchers could further mitigate the concern through additional coders. Finally, the data source of the study, webpages, reflects ideal situations. Specifically, it forms part of an actor's public image and communication strategy. Thus, it may not reflect reality. Future studies may wish to collect comparable data, such as case studies, to shed light on how organisations' website frames compare to actual cases.

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Appendix A

Frame Analysis Codebook

Section	*Variable Name*	*Description and Coder Instructions*
Part 1: Coding of Descriptive Variables. The following descriptive items provide the basic identifying details on the prospective frame sponsors. These items have been pre-coded during data collection.	Organisation ID	This item is used to identify the organisation. It consists of a numerical code that was preassigned during the population and sampling phase. No further coder action is needed for this item.
	Organisation name	This variable identifies the organisation by name. This item was pre-coded during the sampling phase. Please double-check and ensure that the name corresponds to where the website address links.
	Organisation website	This variable identifies the website address (URL) of the organisation. This item has been pre-coded during the data collection phase. Please double-check and ensure that the website correctly links to the sampled organisation and that it is still active at the time of coding. If the link is incorrect or inactive at the time of coding, please make a note for the researcher.
	Organisation country	This variable identifies the country of the organisation's origin. The item was pre-coded during the population and sampling phase. Please ensure that the item is correctly coded. If an error is found, recode it correctly and make a note for the researcher. (1=China; 2=South Africa; 3=US; 999=Other)
	Organisation type (filter question).	This variable identifies the organisation type. It was pre-coded during the sampling phase. Please ensure that all organisations correctly reflect its type. (1=corporate actor; 2=eNGO; 3=political party; 999=Other)
Part 2: Frame. For each organisation, please the first three frames and identify the dominant frame. [A frame is dominant if it appears more often in the same text as another, appears first, or if the other frame is discussed in a secondary manner.] If all frames are present, please code as a mixed frame.	Public accountability and governance frame	Please consider the following questions. If you can answer yes to most of the questions, then please code this frame as 1=present. If not, then code it as 2=absent. If coded as 3=other, please explain why. Does the material suggest that the websites of organisational actors: - define the problem due to corporate-produced GHG emissions, pollutants or carbon footprints? - see the consequences as ecological or environmental damage or impacts, biodiversity disturbance and landscape changes result from corporate produced GHGs? - focus on legal compliance with national restrictions and environmental legislation? - propose (scientific) management policies to reduce (carbon) emissions? - propose environmental stewardship policies to reduce (carbon) emissions? - propose renewable energy adoption policies to reduce (carbon) emissions? - propose carbon management plans to reduce (carbon) emissions? - propose waste reduction and recycling plans to reduce (carbon) emissions? - propose stakeholder-inclusion policies to reduce (carbon) emissions? Were any of the above statements supported by: - hedging devices that try to reduce the seriousness of the organisation's GHGs? - metaphors, similes or alliteration that accompany policy solutions? - scientific facts, scientifically sourced arguments or factual arguments to support action? - in-text quantifications, tables, figures, imagery or infographics of GHG emissions data or actions?

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	Economic development and competitiveness frame	Please consider the following questions. If you can answer yes to most of the questions, then please code this frame as 1=present. If not, then code it as 2=absent. If coded as 3=other, please explain why. Does the material suggest that the websites of organisational actors: - define the problem of climate change mostly as a problem due to increasing (opportunity) costs or financial implications? - suggest that causes and consequences are from future financial losses, risks, liabilities, restoration costs that result from increased legislation or legal action? - suggest that the consequences include new business opportunities? - suggest that it is necessary to balance increasing economic growth through improved sustainability practices? - propose cost-cutting as a solution to mitigate the problem? - propose investment in climate change and efficiency solutions to mitigate the problem? - propose or pursue new market opportunities to mitigate the problem? Does the websites of organisational actors' support any of the above statements with: - hedging devices that downplay the seriousness of financial losses? - metaphors, similes or alliteration that emphasise a lack of control over financial losses? - lexical terms such as liabilities, costs, risk(s) and green/clean economy? - Images that overtly display investment or economic development themes?
	Social progress frame	Please consider the following questions. If you can answer yes to most of the questions, then please code this frame as 1=present. If not, then code it as 2=absent. If coded as 3=other, please explain why. Does the material suggest that the websites of organisational actors: - define the problem of climate change mostly as a problem due to negative social impacts? - suggest that causes and consequences are from negative social/community impacts and failed (development) projects that result from either stressed development funds or from climate impacts such as severe weather events? - suggest that actors should focus more on developing technology and community resilience in harmony with nature? - offer solutions focused on building community resilience? - offer solutions focused on innovating technological efficiency and durability? - offer solutions focused on developing carbon capture technology and/or green(er) products? Do the websites of organisational actors' support statements with: - appeals to authority, such as citing political actors on the need for more development? - with metaphors, similes or alliteration that emphasise the need for development? - reports and cases that demonstrate existing or ongoing efforts to build communities? - comparative arguments that suggest a newer technology is an improvement over another? - Images that overtly display community or technological development focuses?
	Environmental morality and ethics frame	Please consider the following questions. If you can answer yes to most of the questions, then please code this frame as 1=present. If not, then code it as 2=absent. If coded as 3=other, please explain why. Does the material suggest that the websites of organisational actors: - define the problem of climate change mostly as being due to ecological/environmental problems or ignored limits? - propose that the causes and consequences are due to increased (air, water and soil) pollution, toxic spills and run-offs that resulted from stressed or ignored environmental limits, fracking and industrial pollutants? - propose that the focus should be on building an informed environmental behaviour or a sound environmental ethic? (This may include an appeal to religious values) - offer solutions that focus on more conservation?

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		- offer solutions that focus on better environmental protection? - offer solutions that focus on more or improved environmental rehabilitation? - offer solutions that focus on raising environmental awareness (this may include education, public awareness campaigns)? Do the websites of organisational actors' support any of the above statements with: - themes specific to the environmental context? - metaphors, similes or alliteration specific to the environmental context? - case studies (of disasters) or quotes from experts that emphasise environmental events? - emotional appeals specific to the environmental context? - Images that overtly focus on environmental themes?
	Mixed frame	If all four frames are present and if there is no clearly dominant frame, please code the item as having a *mixed frame*.

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