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Climate Change Politics in Taiwan: Understanding Taiwan's Voluntary Climate Action

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Abstract

Why Taiwan voluntarily adopts climate measures which align with international agreements when it is excluded from participating in the UN climate regime? On what basis does Taiwan succeed in passing the first climate legislation with legally binding targets in 2015? To establish plausible explanations, this dissertation answers these questions using a wide array of qualitative evidence, including in-depth interviews with government officials, policymakers, and climate experts who were directly involved in the policymaking process. This dissertation also examines government records concerning the legislative details of the GHG Reduction and Management Act from 2006 to 2020. This dissertation argues that Taiwan's voluntary compliance, defined as proactively adhering to the provisions of the UN climate agreements without legal responsibilities, is primarily a strategy to expand its international space and to protect its export-oriented economy. These two rationales are significant and effective in generating political approval during the policymaking process, whereas concerns for climate challenges are less evident.

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List of Abbreviations

ADB	Asian Development Bank
APCA	Air Pollution Control Act
APEC	Asia-Pacific Economic Cooperation
APP	Asia-Pacific Partnership
AQI	Air Quality Index
ARATS	China's Association for Relations Across the Taiwan Straits
BAU	Business as Usual
CABEI	Central American Bank for Economic Integration
CBDR&RC	Common but Differentiated Responsibility and Respective Capabilities
CCKPRG	Climate Change and the Kyoto Protocol Responding Group
CDM	Clean Development Mechanism
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CER	Certified Emissions Reduction
CFCs	Chlorofluorocarbons
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNACI	Chinese National Association of Commerce and Industry
CNFI	Chinese National Federation of Industries
COP	Conference of Parties
Covid-19	Coronavirus Disease 2019
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CSC	China Steel Cooperation
CSR	Corporate Social Responsibility
CSSTA	Cross-strait Service Trade Agreement
DDT	Dichlorodiphenyltrichloroethane
DPP	Democratic Progressive Party
EAA	Energy Administration Act
EC	European Commission
EPA	Environmental Protection Administration
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product

GED	Guidelines on Energy Development
GGRMA	GHG Reduction and Management Act
GHG	Greenhouse Gas
GRB	GHG Reduction Bill
GW(h)	Gigawatt (hours)
HCFCs	hydrochlorofluorocarbons
ICAO	International Civil Aviation Organization
ICCPR	International Covenant on Civil and Political Rights
ICDI	International Climate Development Institute
ICESCR	International Covenant on Economic, Social and Cultural Rights
IEA	International Energy Agency
IGBP	International Geosphere-Biosphere Program
IGO	International Governmental Organization
IHDP	International Human Dimensions Program on Global Environmental Change
INDCs	Intended Nationally Determined Contributions
ISO	International Organization for Standardization
IOC	International Olympic Committee
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
ITRI	Industrial Technology Research Center
IWP	Industrial White Paper
JI	Joint Implementation
KGGI	Korean Green Growth Initiative
KMT	Kuomintang
LDC	Least Developed Countries
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer
LNG	Liquefied Natural Gas
MEA	Multilateral Environmental Agreement
MOEA	Ministry of Economic Affairs
MOFA	Ministry of Foreign Affairs
MSF	Multiple Streams Framework
MW(h)	Megawatt (hours)
NAMAs	Nationally Appropriate Mitigation Actions
NCSD	National Council for Sustainable Development
NEC	National Energy Conference
NGO	Non-Governmental Organization

NIE	Newly Industrialized Economy
NPP	New Power Party
NSDC	National Sustainability Development Committee
NTD	New Taiwan Dollar
ODS	Ozone Depleting Substance
OECD	Organization for Economic Co-operation and Development
PECC	Pacific Economic Cooperation Council
PFP	People First Party
PGSE	Policy Guidelines on Sustainable Energy
PPP	Purchasing Power Parity
PRC	People's Republic of China
REDA	Renewable Energy Development Act
ROC	Republic of China
SARS	Severe Acute Respiratory Syndrome
SCIO	State Council Information Office of the People's Republic of China
SEF	Straits Exchange Foundation
SIDS	Small Island Developing States
SWEHC	Social Welfare and Environmental Hygiene Committee
TaiwanICDF	Taiwan International Cooperation and Development Fund
Taipower	Taiwan Power Company
TAOSC	Taiwan Affairs Office of the State Council
TEIA	Taiwan Environmental Information Association
TPP	Taiwan People's Party
TSMC	Taiwan Semiconductor Manufacturing Company
TSU	Taiwan Solidarity Union
UDN	United Daily News
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
USD	US Dollar
UV	Ultraviolet
WCRP	World Climate Research Program
WHA	World Health Assembly
WHO	World Health Organization
WTO	World Trade Organization

1 Introduction

This research is about understanding why Taiwan has voluntarily complied with international climate agreements and proactively taken actions in mitigating climate change. Though examining the climate policymaking process from 1990 to 2020, this research provides an in-depth understanding of political and economic rationales behinds the adoption of the first climate legislation, the GHG Reduction and Management Act. This research also illustrates Taiwan's climate politics concerning its precarious position in international politics and the China factor.

1.1 Voluntary Climate Actions and Taiwan

At the United Framework Convention on Climate Change (UNFCCC)'s 21st Conference of Parties (COP) in 2015, almost every single state actor in the world agreed to a new international agreement, the Paris Agreement. Instead of setting legally binding Greenhouse Gas (GHG) emissions targets and timetables, the Paris Agreement established pledge and review systems (Bodansky, 2016). That is, the systems allow member states to voluntarily propose their intended contributions based on their capacities to achieving the agreement's objectives. The domestically driven climate contributions, as Falkner argues, depend on "whether climate leaders are willing and able to push for more ambitious policies" (Falkner, 2016). Countries' determinations and willingness to comply and to contribute are thus essential to achieve the Paris Agreement's goals.

However, according to the United Nations (UN) Environmental Program's Emissions Gap Report (2019), the current Nationally Determined Contributions (NDCs) pledged by countries are far from achieving the Paris Agreement's 2 degrees Celsius goal. There were only 71 countries and 11 regions, accounting for about 15% of global GHG emissions in total, adopted net-zero emissions objectives. The rest of the countries, which represent 85% of global GHG emissions, still need

to strengthen their commitments drastically to stay on the Paris' climate trajectory (UNEP, 2019). While it is already challenging to fulfill the Paris' objectives, the United States (US) announced that it would withdraw from the Paris Agreement on 1 June 2017. As the world's second-largest GHG emitter, the US withdrawal is expected to hinder the global efforts in tackling climate challenges (Schreurs, 2017).

Therefore, how to increase domestic climate commitments and deter free-riding from non-member countries are becoming critical for achieving the Paris' climate objectives (Bang et al., 2016; Dimitrov et al., 2019). In this context, examples of state actors taking voluntary and ambitious climate actions can provide significant implications in identifying effective pathways for ratcheting up domestic climate actions.

1.1.1 Taiwan's Climate Commitments

Taiwan's unique political status, which is only recognized officially by a handful of countries in the world, has been one of the most significant challenges that complicate its ability to participate in international organizations (Glaser, 2013a). This situation also applies to the UNFCCC, where the most critical climate negotiations and decision-making take place.

Although Taiwan is not a signatory party to any UN climate agreements, it has voluntarily complied with their objectives for over a decade. Taiwanese political leaders consider that Taiwan must adopt measures that align with the UN climate negotiation process. For instance, the former president Chen Shui-Bian (陳水扁, 2000-2008) stated that "although Taiwan is not a party member of the Kyoto Protocol, the Executive Yuan has passed the budget for Greenhouse Gas Reduction Bill on 20 September. With concrete actions, we want to demonstrate Taiwan's determination to fulfill the climate responsibilities as a member of the international community" (S.-B. Chen, 2006). Chen's successor, the former president Ma Ying-Jeuo (馬英九, 2008-2016), also stated that "Taiwan is neither an Annex I nor Annex II party to the Kyoto Protocol…but we are willing to abide by the protocol" at an opening address in 2009 (Ma, 2009). The current president Tsai Ing-Wen (蔡英文, 2016-2024) announced in her inaugural speech that "we will

fulfill our duty as a citizen of the world and contribute towards global issues… We will also not be absent on the prevention of global warming and climate"(Tsai, 2016a).

Political leaders' promises of taking voluntary climate actions are not just empty words. The "responsibilities" and the "duty" that Taiwan has been fulfilling so far include active responses toward the international climate process and the implementation of its first climate legislation, the GHG Reduction and Management Act (GGRMA). The GGRMA, which was promulgated in 2015, establishes regulations for mitigating and adapting climate change and sets the first legally binding reduction targets. Besides the GGRMA, Taiwan also pledged its NDCs with detailed emissions reduction frameworks and trajectories in fulling the Paris Agreement's goals.

1.1.2 Why State Actors Voluntarily Comply with Climate Agreements?

Putting Taiwan into an international relations perspective, will state-actors voluntarily comply with climate agreements when it is not a party of the UN climate framework? This question can be addressed from two steps. "Tragedy of the commons," [1] coined by Garret Hardin (1968), describes how shared environmental resources are overused and depleted by actors who act independently according to their interests. Hardin's parable also holds true for state actors in an anarchical system. From a realist's perspective, international society is anarchical and dominated by individual nation-states (Keohane, 1986). Nation-state, as a rational and pivotal actor in the international system (Waltz, 1979), would seek to maximize their interests with little consideration for potential damages on the commons (Biermann & Dingwerth, 2004, p. 9). Climate change is often viewed as a classic example of the "tragedy of the commons." That is, the costs to purify and reduce the GHG emissions before releasing them into the atmosphere is often much higher than emitting them directly. If a state actor seeks to curb its carbon emissions to make the air cleaner, the benefits of such efforts

[1] The commons in this context refer to the natural resources that are available and accessible to all members of a society. The commons include clean air, water, food, and a habitable living environment. These resources are not owned by any individual but held in common.

are shared by all countries regardless of their contributions. Considering these natural resources are non-rival and non-excludable (Olson, 2009), there is perhaps limited incentive for a rational state actor to mitigate climate change voluntarily by itself.

Nevertheless, several studies have provided some useful insights into addressing the anarchical international system and the behaviors of state actors. Through establishing regimes, which consist of governing arrangements (Keohane & Nye, 1987), general imperative principles (Bull, 1995), and decision-making procedures (Krasner, 1982), state actors' behaviors may be shaped and altered to a desirable direction. For example, in regulating state actors' intentional oil pollution, Mitchell suggests that "nations can design regime rules to improve compliance"(Mitchell, 1994, p. 456). It has been shown that enhancing transparency and facilitating potent (but low cost) sanctions can better shape states' behavior in preventing pollution (Mitchell, 1994). Young also illustrates the essential role of regimes in regulating global carbon emissions (O. R. Young, 2002, 2011). In order to tackle human-induced global warming and climate change, states have established intergovernmental climate institutions through reducing contracting costs, enhancing information sharing, and providing best practices. With the empowerment from their members, these institutions can carry out legally binding regulations, monitoring mechanisms, and sanctioning deviant behaviors to achieve their climate objectives (Keohane, 1984; Keohane & Victor, 2011). Among all international climate institutions, the UNFCCC is by far the most visible and relevant institution that serves as a guiding agent in global climate governance. With near-universal memberships, the UNFCCC is comprised of climate objectives, regulatory frameworks (i.e., the Kyoto Protocol, the Copenhagen Accord, the Paris Agreement), decision-making procedures that are abided by most countries in the world.[2] Under the UNFCCC, there are mechanisms, such as the Clean Development Mechanism (CDM),[3] emissions trading, and

[2] The Convention was agreed upon and adopted during the Fifth session of the Intergovernmental Negotiating Committee in New York, 1992. The UNFCCC entered into force on 21st March 1994. The Convention has 197 parties and 165 signatories.

[3] The Clean Development Mechanism (CDM) was established under the Kyoto Protocol, Article 12. The purpose of the CDM is to allow countries with binding emissions targets (Annex I countries) under the Kyoto Protocol to implement emission-reduction projects in developing countries. Through these projects, Annex I countries can earn certified emission reduction (CER)

climate funds, assisting its members in fulfilling their climate objectives. Alongside with the UNFCCC, various clusters, including bilateral initiatives (e.g., the EU-China), clubs (e.g., G20), regional bodies (e.g., Association of Southeast Asian Nations (ASEAN)), are also working together as part of the global climate regime (Keohane & Victor, 2011).

Will a state actor voluntarily comply with international agreements to which it is not a member nor a signatory party? Based on the literature above, a state actor tends to pursue its interests with little consideration for climate change unless there are regimes or institutions that provide sufficient incentives and regulatory frameworks in lowering the costs of climate actions. Nevertheless, the Taiwanese case may suggest otherwise.

1.1.3 An Easy Task for Taiwan?

It is perhaps logical to assume that Taiwan's voluntary climate actions are the result of its low carbon emissions and renewable energy abundance. In fact, it is rather challenging for Taiwan to curb its GHG emissions and decarbonize its energy structure. Due to the lack of natural resources and geographical constraints as a small island nation,[4] Taiwan relies heavily on imported fossil fuel energy. According to the Ministry of Economic Affairs (MOEA)'s energy statistics (MOEA Bureau of Energy, 2018a), Taiwan's total imported energy includes 48.39% of crude oil and petroleum products, 30.17% of coal, and 14.98% of liquified natural gas (LNG). Although there have been increasing investments in offshore wind energy since 2018, renewable energy, including biomass and waste, solar photovoltaic, thermal, and wind, remains less than 2% in the total energy supply in 2020. Taiwan's overwhelming energy dependence on fossil fuels has incurred a significant amount of GHG emissions. Since 1990, Taiwan's carbon emissions had increased from 128.12 million metric tons CO_2 equivalent to 298.66 in 2017. According to the International Energy Agency (IEA) report (2019), Taiwan's total CO_2 emissions from fuel combustion were 268.9 million tons and accounted for

credits, which can be included in their Kyoto targets.

[4] Taiwan is an archipelago country with several islands. The main island, which is known as Taiwan or Formosa, measures around 36,000 square kilometers. Other small islands, which account for less than 1% of the ROC government's territory, scatter around the main island.

0.82% of the global CO_2 in 2017. Putting Taiwan on a global scale, Taiwan ranked 21st with its 11.48 metric tons of CO_2 emissions per capita in 2018. In terms of sectoral emissions on the island, as the data from Taiwan's Environmental Protection Administration (EPA) shows (2019), the industrial sector accounted for nearly 50% of the total carbon emissions in 2018, while the transportation sector accounted for only 13.61%, and the energy sector accounted for 14.16%.

Considering its energy and emissions status, it is expected the Taiwanese government would face significant challenges from the emission-intensive sectors and political opponents for its climate measures. Nevertheless, the GGRMA was widely supported across industrial sectors and policymakers. Moreover, the Kuomintang (KMT), which was known for its close alliance with the business and industrial sectors (S.-H. Lee et al., 1999), even played a critical role leading the GGRMA promulgation in July 2015.

1.2 Research Scope and Questions

Taiwan's voluntary climate actions raise serious questions regarding why a state actor actively adopts climate actions that corresponding to UN climate developments when it is not a party to the agreements. What are the rationales facilitating the adoption of climate measures?

The research explores three related aspects of Taiwan's climate actions. The first aspect concerns the relationship between Taiwan's precarious position in international politics and its climate mitigation measures. In other words, how does Taiwan's unique political status shape its climate responses toward the UN climate process? The second aspect concerns with potential factors that contribute to Taiwan's climate policymaking. Considering Taiwan's energy-intensive economic structures, what motivates the Taiwanese government to establish legally binding climate targets? What are the perceived consequences of not complying with international climate agreements? The third aspect explores the social landscape in the Taiwanese society concerning climate-related events and disasters. Lastly, this research seeks to provide both policy and theory implications in examining Taiwan's ability as a global player in other pressing

global challenges, such as public health and pandemic management, besides climate-related issues.

This research examines the four periods of climate policymaking in Taiwan, covering the emergence of climate discussion (1990-2000), the formation of climate bills (2000-2008), the policymaking process (2008-2016), and the implementation of the GGRMA (2016-2020). These periods were not only divided by the different phase of the policymaking process, but also by different administrations, which are the Chiang Ching-Kuo and Lee Teng-Hui's governments from 1990 to 2000, the Chen Shui-Bien administration from 2000 to 2008, the Ma Ying-Jeuo administration from 2008 to 2016, and the Tsai Ing-Wen administration from 2016 to 2020.[5]

Through investigating these four periods with in-depth interviews and qualitative document analysis, this research traces Taiwan's *perceptions*, *discussions*, and *responses* concerning the international climate process and its first climate legislation.

1.3 State of the Literature and Research Gaps

The unique nature of Taiwan's climate politics has not received much attention in the existing literature. The noteworthy exception is Lin Tze-Luen's work on exploring Taiwan's climate policymaking with a discourse approach (T.-L. Lin, 2008). Lin examines both the political and economic aspects of Taiwan's climate governance from 1992 to 2008. Albeit there is a growing body of literature focusing on the technical and public policy aspects of climate measures in Taiwan, there has not been comprehensive, in-depth research addressing the climate politics in Taiwan, in either English or Chinese languages.

Scholarly research on climate change only emerged in the late 1980s and started to increase in the 1990s in Taiwan. Most literature during this period focuses mainly on the relevance of international climate agreements and their

[5] Both Chen and Tsai are from the Democratic Progressive Party (DPP), while Chiang, Lee, and Ma are from the KMT. Each presidential term in Taiwan is four years. Chen and Ma were both elected for their second term. Tsai also won the presidential election again in January 2020 and began her second term in the presidential office in May 2020.

potential impacts on Taiwan (Chi, 1994; W.-C. Shih, 1996). As the Kyoto Protocol entered into force in 2005, there were more studies highlighting Taiwan's voluntary responses in climate change mitigation despite not being part of the Kyoto Protocol. Su William Yi-Yuan's work (2006) is one of the very first papers that analyzes the relationship between Taiwan and the international climate treaties. Shyu (2014) further examines Taiwan's policy responses toward the Kyoto Protocol and suggests that international climate developments play a vital role in the development of Taiwan's climate policy.

Since the former president Ma Ying-Jeuo took office in 2008 and sought to increase Taiwan's participation in the selected UN specialized agencies, including the International Civil Aviation Organization (ICAO) and UNFCCC. Scholars and officials, such as Yang and Chien (2010), started to address Taiwan's participation in the UNFCCC and other international climate-related meetings. Researchers also offer strategical models to expand Taiwan's outreach in multilevel climate-related settings, such as regional organizations, city networks, and civil society gatherings. For example, scholar Biedermann (2017) proposed a set of polycentric strategies to increase Taiwan's connectivity to the international climate regime. Grano (2019) emphasizes that Taiwan may attract international "benevolence" and support for its political objectives through actively reducing the domestic GHG emissions.

While the Taiwanese government's attention was primarily fixated on pushing for its meaningful participation in the UNFCCC, scholarly research started to focus on Taiwan's climate mitigation measures at the domestic level. Based on the measures adopted by the KMT government in 2008 and 2009, Hwang and Chang (2011) present a detailed overview of climate policy implementations and the expected outcome of GHG emissions reduction in Taiwan. Young and Huang (2012) address Taiwan's policy responses toward the Copenhagen Accord and present several crucial policy directions for Taiwan's climate governance.

At the same time, there is another growing body of literature that examines the industrial responses toward the governmental decarbonization process. This body of literature explores how energy-intensive industries should achieve Taiwan's climate goals (Chou & Liou, 2012) and adopt climate mitigation programs (L. T. Chen & Hu, 2012; W.-C. Hu et al., 2013, 2016; S. J. Lin et al., 2006). Besides the industrial sectors, the Taiwanese people's perception of climate change also

attracted scholars' attention. Chou (2013), for example, analyzes the risk perceptions of climate change in Taiwan and points out the structural problem that blocks public participation in the climate policymaking process. Studies concerning Taiwan's climate policy and politics have grown steadily in recent years. Nevertheless, the current literature has failed to provide sufficient explanations for Taiwan's voluntary climate actions.

1.4 Analytical Frameworks and Hypotheses

Taiwan's voluntary climate actions remained largely unexplored in the field of climate politics and Taiwanese studies. Against this background, this research treats Taiwan as an outlier case and seeks to provide sufficient explanations. Based on previous studies in climate politics, this research identifies possible analytical frameworks focusing on Taiwan's unique political status vis-à-vis the relationship with China, the economic considerations for non-compliance, and the public's demands for governmental climate actions (see chapter 2). Three guiding hypotheses serve as analytical frameworks in examining the empirical data presented in Chapters 5, 6, 7, and 8.

First, according to the literature on cross-strait and international relations, Taiwan has a track record of distinguishing itself from China since it lost the UN membership in 1971 (Copper, 1995). Taiwan has attempted to obtain international recognition through embracing principles, including democracy (Levitsky & Lucan A., 2010), trade liberation (Y.-S. Wu, 2007), and human rights values. As climate change has become one of the most pressing global challenges, it is expected that Taiwan would comply with global climate principles to portray itself as a qualified member of the international society (Dovgal, 2017).

Taiwan's efforts in linking its political status to the UN climate process may fall into the pattern of climate bandwagoning. As scholars define, climate bandwagoning refers to the phenomenon that "political actors strategically linking their issues to climate change politics" (Jinnah, 2011, p. 3). In other words, climate bandwagoning describes the behavior that actors' influence political outcomes by creating linkages to the UN climate process in pursuit of their political agendas

and interests (Cabré, 2011; Detraz, 2011; Jinnah & Lindsay, 2016; Miller & Dolšak, 2007). This research thus hypothesizes that, through voluntarily complying with the UN climate process, Taiwan seeks to establish *strategical linkages* between the UN climate regime and its international status in gaining international support and recognition (see the Bandwagoning Hypothesis in chapter 2).

Although Taiwan's quest to expand its international footprints may serve as the crucial step for Taiwan to comply with the UN climate process, the first climate legislation is likely to be driven by more potent economic considerations. The second hypothesis is based on Taiwan's export-oriented economy and its challenge to cope with the stricter climate standards deployed by its trading partners. Since foreign trade has been the backbone of Taiwan's economic growth for decades, Taiwan has a track record of turning MEA's objectives into its domestic regulations to avoid trade-related provisions. For instance, Taiwan proactively phased out the ozone depleting substances (ODS) following the Montreal Protocol in order to protect its export market. As studies already show, environmental policies and regulations could transmit across partners through trade relations (Frankel, 2008; Holzinger & Knill, 2004; Prakash & Potoski, 2017; Sabel & Victor, 2015; Urpelainen & Urpelainen, 2011; Vogel, 1997). Research from Prakash and Potoski (2017) shows that export countries would regulate their carbon emissions when their export destination imposed stricter environmental regulations on their domestic firms.

This trading-up effect may also rachet up Taiwan's GHG regulations. Researchers Chen and Hu (2012, p. 1075) suggest that Taiwan must comply with the relevant international conventions, including the UNFCCC and climate agreements, to avoid trade-related provisions. The Taiwanese industrial sectors were also concerned that "their buyers from industrialized countries would share the emission-reduction responsibilities through international purchasing or original equipment manufacturing" (Y. Su, 2011, p. 73). Therefore, this research hypothesizes that Taiwan's voluntary compliance with the UN climate agreements is a strategical adaptation to potential trade barriers and the environmental provisions imposed by their trading partners (see the Trading-up Hypothesis in chapter 2).

The third hypothesis centers around Taiwan's domestic demands for

governmental responses toward climate challenges. Taiwan is an island country that is strongly prone to climate-related disasters and extreme weather events (Dilley et al., 2005). The intensity and frequency of typhoons that hit Taiwan have increased drastically since 2000 (H.-H. (許晃雄) Hsu, 2017). For instance, the Typhoon Morakot, which made landfall in Taiwan in August 2009, brought the highest rainfall and was the deadliest typhoon ever recorded since 1958 (C. Wang et al., 2019). At the same time, most Taiwanese people were fully aware of climate challenges. In 2012, around 76.4% of the people considered climate change was the most severe problem in the world (Chou, 2013). Nearly 70% of people agreed that climate change measures are not only necessary but beneficial to Taiwan's economic development in 2015 (RSPRC, 2015). As scholars suggest, a country's vulnerability toward climate-related disasters (Dannevig et al., 2013; Kingdon, 2011) and people's climate awareness (Leiserowitz, 2007; Pralle, 2009; Stimson, 2012) are critical elements for policy change. Therefore, this research hypothesizes that Taiwan's voluntary climate compliance is the result of the growing public demands for climate change measures (see the Awareness Hypothesis in chapter 2).

Based on the existing literature, this research provides three hypotheses to craft sufficient explanations of Taiwan's voluntary climate actions and the political landscape of climate policymaking. Each hypothesis serves as a guiding framework for examining the climate process from 1990 to 2020. This research seeks to investigate how each explanation interacts with the other two and to identify which hypothesis holds more explanatory power in illustrating Taiwan's climate actions.

1.5 Research Design and Methods

The research design is developed with the aim of providing an in-depth and micro-level understanding of why Taiwan voluntarily complies with UN climate agreements. This research chooses the case study approach with four different periods of comparison. The aim is to identify the motives, rationales, and patterns of Taiwan's voluntary climate compliance.

Process tracing in this research serves as the primary methodology. The empirical data collected for this research include 32 interviews with policymakers, experts, interest groups representatives, and officials, and 61 full transcripts (nearly thousand pages) of each Legislative Yuan's Social Welfare and Environmental Hygiene Committee (SWEHC)[6] meeting, public hearings, and party caucuses involving climate discussions from 1990 to 2020. Other data were collected through three channels: 1) official documents and reports from the Taiwanese governmental agencies, 2) policy papers from the Taiwanese interest groups, 3) newspaper articles, and political magazines.

These 32 interviews were carried out with former governmental officials, policymakers, experts, researchers, and interest groups representatives. The agencies that the interviewee represented include the EPA (the former administrators), the Ministry of Foreign Affairs (MOFA), the Legislative Yuan, the Taiwanese delegations to COPs, the industrial organizations, including the Chinese National Federation of Industry (CNFI), the China Steel Corporation, and Taiwan Chinese Petroleum (CPC) Corporation Taiwan. Moreover, discussions with experts and scholars (from National Taiwan University, National Chengchi University, National Tsing Hua University, think tanks - Environmental Science Technology Consultants Corporation and YC Consultants) have contributed substantially to this research.

The official documents and reports examined in this research include the public statements from the Presidential Office, the foreign policy reports released by the MOFA, the documents published by the EPA. These documents provide a considerable amount of information regarding the Taiwanese government's positions and responses to the UN climate process. The policy papers from the interest groups, in particular the White Paper from the CNFI, provide relevant information regarding the industrial sectors' position on climate measures as well as their attitude toward the international climate agreements.

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[6] The Social Welfare and Environmental Hygiene Committee is the designated standing committee in charge of formulating and reviewing bills that concern with environment and climate-related topics. The other seven standing committee in the Legislative Yuan include Internal Administration Committee, Judiciary and Organic Laws and Statutes Committee, Transportation Committee, Education and Culture Committee, Finance Committee, Economics Committee, Foreign and National Defense Committee.

1.6 Findings and Chapters Overview

Through examining the process of Taiwan's climate policymaking, the findings show that Taiwan's quest to expand its international footprints serves as the crucial step for Taiwan to comply with the UN climate process. The strategical bandwagoning between the UN climate process and Taiwan's political status was first established under the Chen administration in 2007. The purpose of the climate bandwagoning was primarily designed to respond to China's increasing attempts to isolate Taiwan politically. The Ma administration (2008-2016) strengthened the climate bandwagon strategy and launched the first bid for meaningful participation in the UNFCCC. Ma believed that the softening cross-strait relations could open more doors for Taiwan to participate in international meetings and negotiations. Under Ma's leadership, Taiwan launched several international campaigns in promoting its voluntary climate compliance and promised to have the first climate legislation ready before 2016. With the strong mandate from the Executive Yuan, the Ma administration was able to pass the GGRMA five months before COP 21 in December 2015. The Tsai administration (2016-2020) continued in pursuing Taiwan's participation in the UN climate process and sought to contribute significantly to GHG emissions reduction and renewable energy development.

Nevertheless, the climate bandwagon hypothesis can only illustrate Taiwan's climate rhetoric and political considerations for its international space. The economic considerations for non-compliance with international climate agreements, on the other hand, played a critical role and established the important pattern of Taiwan's voluntary adoption of climate mitigation measures. Although the promulgation of the GGRMA in 2015, as the Taiwanese government claimed, was to portray Taiwan as a responsible stakeholder in the international society, a more important consideration was to avoid trade-related provisions for lacking GHG reduction standards and maintain Taiwan's competitiveness in the markets where stricter climate regulations were adopted. The Taiwanese government, including the MOFA and the MOEA, stated that Taiwan must adopt appropriate GHG emissions reduction regulatory frameworks to avoid green barriers imposed by Taiwan's major trading partners in Europe. The findings suggest that this trade

imperative was also the primary reason why the Taiwanese industrial sectors supported the government in establishing GHG emissions reduction mechanisms.

With regard to the question of how people's climate awareness contributed to the policymaking process, Taiwan's voluntary compliance had little to do with the public's demands for governmental climate actions. Although the government and the people recognized the fact that Taiwan is an island country and a high-risk area for extreme weather events, the island's climate vulnerability received limited attention in the policymaking process. The findings also suggest that climate change was a bipartisan topic and seldom emerged as the chief social cleavage in the contemporary political landscape in Taiwan.

To a significant extent, Taiwan's voluntary adoption of climate mitigation measures was a strategical adaptation to the international climate process, and its first climate legislation was primarily a gesture policy responding to the climate regulations adopted by its trading partners and competitors. There was limited bottom-up public participation in the climate policymaking process and little considerations for climate adaptation at the local levels. This phenomenon is the result of a complex combination of Taiwan's political status that Taiwan is not officially recognized by most countries and international organizations, as well as its export-oriented economy.

Based on the findings of this research, several implications appear relevant to understand Taiwan and its voluntary climate politics. Taiwan's unique political circumstance allows researchers to examine alternative mechanisms in ratcheting up a country's climate actions. The need for political survival and economic competitiveness were the potent drivers in facilitating the Taiwanese government to comply with international climate standards. Instead of a profound realization of the need for protecting the earth's climate, Taiwan's adoption of climate mitigation measures was a strategic adaptation based on careful political and economic calculations.

Through exploring how drivers shaped the climate discussions in Taiwan, the findings in this research provide a blueprint for identifying the opportunities associated with the successful climate policy change, as well as the challenges that must still be conquered for Taiwan to strengthen its pledged climate trajectory. The contributions of this research seek to advance both theoretical and empirical

understanding of Taiwan's climate politics vis-à-vis its political status.

1.6.1 Chapters Overview

Chapter 2 introduces the analytical frameworks and hypotheses employed for this research. This chapter illustrates the analytical frameworks covering Taiwan's political status, economic development, and the public's climate awareness based on the existing literature and theories. It is followed by Chapter 3, which presents the method adopted by this research. Chapter 4 presents a brief historical overview covering Taiwan's political and economic status. This chapter illustrates Taiwan's struggle in maintaining/obtaining a seat in the UN agencies and its diplomatic rivalry with China. This chapter also outlines Taiwan's diplomatic strategies in expanding its international footprints. The second part of this chapter discusses the economic development and structure since 1949 and shows why foreign trade became the backbone of Taiwan's economy today.

Chapters 5, 6, 7, and 8 discuss four consecutive periods of Taiwan's climate responses under different governments. These four periods cover the timeframe of 1990-2000 under the KMT's Lee administration, 2000-2008 under the DPP's Chen administration, 2008-2016 under the KMT's Ma administration, and 2016-2020 under the DPP's Tsai administration. Chapter 5 focuses on Taiwan's attempts to respond to MEAs in the 1990s. During this period, Taiwan experienced rapid economic development and expanding the foreign trade market. Meanwhile, to avoid trade sanctions, Taiwan made the first voluntary compliances with the MEAs, including the Montreal Protocol and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The trade provisions on non-party members under these two MEAs thus became an essential reference for Taiwan's voluntary commitments to the Kyoto Protocol in 1997. The first National Energy Conference also took place in the following year and marked the beginning of Taiwan's climate governance.

Chapter 6 examines how the Taiwanese legislature placed increasing attention on the UN climate process. As the Kyoto Protocol entered into force, Taiwan launched a series of policy and institutional reforms in complying with the climate agreement. The first climate bill, the GHG Reduction Bill, was proposed in

2006. At the same time, Chen Shui-Bien launched the first environmental diplomacy to counter China's political aggression. Concerns over non-compliance and trade sanctions were shared widely by most policymakers. As climate awareness continued to rise in Taiwan, Chapter 7 discusses Ma Ying-Jeuo's climate commitments and the policymaking process of the GGMRA. With Ma's effort to ease the tension with Beijing, Taiwan faced fewer constraints in expanding international footprints. Ma thus announced the foreign policy goal of seeking significant participation in the UNFCCC. Climate measures responding to the post-Kyoto negotiations were also formulated by the MOFA and the legislature.

Meanwhile, Taiwan's industrial association was concerned about potential measures in preventing carbon leakage imposed by trading partners (i.e., the European Union) and thus agreed to support the climate bill. Before COP 25 taking place in Paris, the Ma administration promulgated the Taiwan first climate legislation, the GGRMA, on 1 July and announced its NDCs[7] in September 2015. The GGRMA not only sets the first legally binding GHG reduction targets but also established the legal foundation of climate mitigation and adaptation in Taiwan.

Chapter 8 provides an overview of how the GGMRA was implemented under Tsai Ing-Wen's leadership. This chapter focuses on policy measures and plans in achieving the GGMRA objectives. Tsai announced several major reforms on Taiwan's energy structure, including phasing out nuclear power and increasing renewable energy share to 20% by 2025. The climate diplomacy strategy under the Tsai administration shifted from significant "participation" to significant "contribution" to global climate actions. Nevertheless, Tsai also encountered major setbacks from air pollution and the pro-nuclear movements in 2018.

Chapter 9, the final chapter, discusses the findings of this research. It argues that Taiwan's voluntary compliance is facilitated by strategical adaptation to the UN climate process in gaining international recognition. The tensions with Beijing would impact Taiwan's climate diplomacy approach but had no significant impact on the overall trajectory. The growing renewable capacity, on the other hand, can perhaps transform Taiwan from a "taker" to "giver" in global climate governance. The findings also show that Taiwan's initial voluntary compliance was facilitated

[7] The complete NDCs can be found in Appendix B.

by the concerns over trade provisions imposed by multilateral environmental agreements (MEAs). Taiwan's politicians and policymakers considered climate legislation was a necessary means to maintain competitive strength in the international market. This chapter further concludes that despite the increasing climate awareness in Taiwan, there was no identifiable evidence suggesting people's demand for governmental climate actions had contributed to the GGRMA. Climate change is and has been a bipartisan topic and seldom emerges as the chief social cleavage in Taiwan's political landscape.

2 Analytical Frameworks and Hypotheses

This research adopts an inductive approach in examining Taiwan's voluntary climate policy. The abductive approach implies that general assumptions based on the existing theories are developed first, and then these assumptions are adjusted and updated according to the empirical evidence (Dubois & Gadde, 2002; Lipscomb, 2012; Reichertz, 1995; Timmermans & Tavory, 2012). The abductive approach is chosen based on the following considerations. First, there is little literature examining Taiwan's voluntary climate commitments when it is barred from the UN climate framework. Second, there is no framework in explaining Taiwan's voluntary climate policy in both climate politics and Taiwan studies. Especially the lack of focus on bridging both Taiwan's domestic and international aspects in climate policymaking. Therefore, to understand and to provide the minimally sufficient explanation of Taiwan's voluntary climate commitments it requires the flexibility of the abductive approach in orchestrating the research.

2.1 A Rationalist's Approach

This research follows a rationalist approach that treats national governments as rational actors, who are strategically seeking to maximize their interests. That is, any policy change is based on careful calculation and their strategic preferences instead of internalized norms or beliefs that they are doing a good deed. The rationalist approach is grounded on the strong linkage between actors' strategic behavior and interests or sometimes refers to as "logic of consequence" (J. Checkel, 1997; Fearon & Wendt, 2012; Risse, 2007). Under this assumption, actors would seek to achieve a "value-maximizing choice within specific constraints" (Allison & Zelikow, 1999) and focus on strategic interactions in which actors participate based on their given identities and interests (Risse, 2000, p. 3).

Under this umbrella term of rationalism, there are various examples of how the rationalist approach has been applied in understanding actors' behavior

changes. For instance, in the realm of international relations, national actors, which are viewed as "self-interest." They are willing to cooperate through international institutions under the anarchic system only because they believe that these institutions would help them overcome collective issues through updated information, ensuring compliance, setting regulations, and increasing interaction between actors (Haas, 1980; Keohane & Victor, 2010; Joseph S Nye, 1987; Risse, 2000). In other words, actors would adjust their strategic preferences and behaviors over provided alternatives when there are perceived rewards. However, it does not imply that their core and fundamental perceptions would change as well. Based on the rationalist's approach, there are various pathways explaining state actors' behavioral changes have been proposed. In the context of international relations, regimes often play an essential role in promoting further learning among state actors. Because regimes "establish standard operating procedures, constrain certain ideologies and reward others, and provide opportunities for contacts and bargaining among leaders" (Joseph S Nye, 1987, p. 398). Leaders, on the other hand, "notice changes in the structure of the situation...and they adapt their behavior as a result of anticipation or experience" (Joseph S Nye, 1987, p. 398). In Johnston's work on China's arms control policy, he coined national leaders' adaption in light of changing the international regime as a "tactical adjustment to changing external conditions" (Johnston, 1996, p. 32). The policy change thus is more a re-evaluation of the costs and benefits of the previous tactic.

2.2 A Responsible Stakeholder and Climate Bandwagoning

Despite had no official relations with most international organizations and countries, Taiwan was highly responsive toward some most important international agreements for the past few decades. Through turning these international agreements into domestic laws, the Taiwanese government attempted to demonstrate its legitimacy as a sovereign country and the responsibility as a member of the global society. As climate change has become a pressing global challenge, it is reasonable to assume that Taiwan would react

voluntarily toward new climate agreements to increase its international footprints and living space.

2.2.1 Taiwan's Quest for International Recognition

Taiwan's voluntary responses toward the global orders were formed in the 50s. After the KMT re-settled on the island in 1949, the Chiang Kai-Shek regime managed to maintain most ties with the West. The unofficial relations - with the US in particular - were the most extensive since the breakout of the Cold War. Economic and military assistance, as well as travel, foreign trade, and media penetration, had saved Taiwan from isolationism and brought a significant influx of foreign influence (Levitsky & Lucan A., 2010, p. 310). This linkage to the West "heightened the KMT's sensitivity to changing international conditions" (Levitsky & Lucan A., 2010, p. 310) and paved the way for the island's democratization. Both the PRC and the KMT were challenged by the international society with demands for more open and democratic governance in the 1980s. Instead of ending the political protest with the Tiananmen Massacre in 1989, the KMT was able to sense the changes in the international environment - the collapse of the Iron Curtain and the third wave of democratization - and ended the Martial Law in 1987. The KMT seized the opportunity and presented itself as "good China (the ROC)" - in comparison to the "bad China (the PRC)" - by embracing the global wave of democratization with political reforms (Copper, 1995, p. 185).

What contributed to Taiwan's sensitivity to changing global orders was primarily its incapacity in obtaining official recognition from countries and prominent intergovernmental organizations. This incapacity to expand the international space was due to the "unique challenges it faces, namely, ambiguity surrounding its statehood and relations vis-à-vis Beijing" (Glaser, 2013b, p. 3). Therefore, such difficult circumstances had convinced Taiwan to adopt "a program of international strategic communications may persuade audiences around the world to pay more attention to Taiwan, sympathize with their predicament, and support their political agenda" (Rawnsley, 2014, p. 162). This kind of "program," echoing the concept of soft power that was coined by Nye (2008), was based on Taiwan's "ideational and cultural attractiveness...to achieve strategic imperatives"

(S.-W. Lee, 2011). In particular, on the ideational attractiveness, Taiwan had been strategically embracing western liberal values to showcase that it is a responsible stakeholder and will follow the global orders. As former president Ma Ying-Jeuo points out, “regardless of whether we are able to exercise our rights at the UN, we will still give our full support to the principles” (Ma, 2008).

To demonstrate that Taiwan had followed these principles, Taiwan turned several UN conventions into domestic laws, including the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), which were the two most prominent human rights conventions. Furthermore, Taiwan adopted the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), the Convention on the Rights of the Child (CRC), the Convention on the Rights of Persons with Disabilities (CRPD) as domestic regulations. Besides responding to UN conventions, Taiwan also attempted to embrace more advanced liberal values. For instance, Taiwan was not only the first Chinese democracy but also the first Asian country to legalize same-sex marriage in 2019. Therefore, to expand Taiwan’s international footprints, there was a clear pattern that Taiwan had been pro-actively internalizing relevant international agreements to show that Taiwan had the credentials to be a responsible member.

With the increasing climate challenges and the rising climate awareness around the global, political agendas in addressing climate change have become critical components of states’ foreign policymaking (Karakır, 2018). Countries pursue different political agendas based on their interests by adopting climate change as a strategic tool. For instance, China has committed to take more ambitious GHG reduction responsibility through joint agreements and the UN climate framework. The primary driving forces behind this climate action, as Wu suggests (2016, p. 206), were “China’s desire to maximize its benefit/wealth...[and] its desire to enhance its responsible great power status in the international system”. Another example is South Korea, which has been promoting green growth and climate initiatives - the Korean Green Growth Initiative (KGGI) and seeks to begin a green pioneer. The KGGI was not only considered as an essential step to boost the country’s economic growth but an opportunity for Korea to leverage its reputation for fast economic development and “gain international, especially

European, recognition as a leader in a new field." (Ha & Byrne, 2019, p. 6) With more and more countries weave climate agendas into their foreign policy in seeking either status or reputation in international society.

Considering Taiwan's unique political status and the constrained political actives leveled by China, Rockower (2011) suggests that finding a niche topic that can attract substantial international attention could help Taiwan to expand its international footprints. Among many niche topics, climate change, like Taiwan's neighboring countries, was chosen to be one of the primary foreign policy strategies since 2007 to increase Taiwan's international exposure. Dovgal (2017, p. 1) points out that Taiwan's efforts to embrace climate commitments would show that "Taiwan's climate action and its difficulties in diplomatic relations are fundamentally linked." During the Ma administration, Lindemann (2014) argues that Taiwan's efforts in advertising its climate commitments were primarily related to Ma's political agendas, significant participation of the UNFCCC. The Taiwanese government. As Su (2011) notes, the Taiwanese government "unilaterally believes that these voluntary and early mitigation efforts are necessary to receive recognition from the Parties of the UNFCCC." Taiwan's voluntary climate policy may a tactical response to increasing international concerns on carbon emissions reduction.

2.2.2 Climate Change Bandwagoning

This research thus follows the climate bandwagoning concept in explaining Taiwan's voluntary commitments. As climate change and its challenges are gradually impacting human activities at different levels, aspects, and dimensions, climate governance today is not limited to environment discussion but continues to expand in combination with various issue areas that requires responses to climate challenges. These conjunctions between various issues areas and climate change have significant effects on the formation and implementation of policies, as well as the outcomes across institutions. Hence, scholars working with these theoretical approaches have highlighted the function of issue linkage as potential causal mechanisms (Haas, 1980; Hovi & Skodvin, 2008; Sebenius, 1983; Selin & VanDeveer, 2003; Stokke, 2001; O. R. Young, 2002) in understanding how the

conjunctions shape the political landscape, and how climate policies are being shaped through strategic linkages beyond the climate change realm (Jinnah, 2011).

Based on the existing literature, climate bandwagoning refers to the strategic efforts of political actors in linking their agendas to climate change governance for a variety of reasons, very often is to take advantage of issues overlaps to advance or protect their interests (Davis, 2004; Detraz, 2011; Hovi & Skodvin, 2008; O'Neill, 2018). Linkages are typically made to prioritize certain issues or seeking to meet specific ends while emphasizing the climate benefits of doing so (Cabré, 2011; Detraz, 2011; Jinnah & Lindsay, 2016; Miller & Dolšak, 2007). That is, these linkages to climate change are reframed by political actors who deliberately take advantage of issues overlaps to pursue their agenda (Jinnah & Young, 2014), regardless of whether such linkages deviate from the climate benefits (Wapner, 2011). There are two types of climate bandwagoning behaviors based on O'Neill's (O'Neill, 2018, p. 3) suggestions; the direct and the discursive bandwagoning. The direct bandwagoning refers to actors build a direct linkage between the UN climate negotiations and their issues of concern, and the linking actors believe that this strategic linkage will further their agenda (Jinnah, 2011). For instance, under the first type of assumptions, the UN climate framework (including the international climate negotiations and agreements) becomes a target for governments to directly link its political agendas by highlighting its commitments and responsibility in reducing GHG emissions. The second type, the discursive climate bandwagoning, refers to where strategic linking typically occurs by discursively reframing issues in a way that foregrounds the climate benefits of the original/source issue (Jinnah, 2011, p. 3). That is, actors reframe the agenda they wish to promote in a way that is beneficial to the global climate governance. For instance, political parties adopt climate framing to promote their proposed agenda in setting air pollution control standards. Therefore, climate bandwagoning literature provides a concept for explaining countries' proactive adaption to the global climate agenda as well as their strategic efforts in advancing their national interests.

2.2.3 The Bandwagoning Hypothesis

As the literature above suggests, Taiwan has been actively embracing the latest essential international orders for decades. Initially, it was about distinguishing itself from PRC China by framing itself as the "good China" by carrying out the democratization on the island. Later the strategy transformed into demonstrating Taiwan as a responsible member in the international society by adopting liberal values, such as human rights and LGBTW rights. As climate change is becoming a salient international issue, Taiwan also follows many other countries in pledging its climate commitments. Therefore, it may be safe to assume that Taiwan's voluntary climate policy is mostly about extending Taiwan's International footprints rather than a deep commitment to climate mitigation. Based on this assumption, it is expected to see a substantial foreign policy agenda behind Taiwan's voluntary climate policy, with the purpose is to gain more international attention, support, and significant participation at the critical UN agencies. The first hypothesis in explaining Taiwan's voluntary climate commitments is hence formulated as follows:

The Bandwagoning Hypothesis
To increase its international space and recognition, Taiwan's voluntary actions are a strategical adaptation to the growing international attention on climate change. It is expected to see that Taiwan adopted and adjusted its climate strategies vis-à-vis the UN climate process.

2.3 Environmental Provisions and International Trade

The climate-foreign policy literature illustrates that the Taiwanese government strategically links the global climate discussion in seeking international recognition. However, from this perspective, it may only explain Taiwan's voluntary climate policy partially without answering other relevant questions. If Taiwan's climate policy is just an adaptation strategy, why the Taiwanese government takes a step further by turning the climate targets into legally binding

commitments? Therefore, to have a more comprehensive understanding of Taiwan's voluntary climate policy, this research seeks to examine from another angle, foreign trade and economic incentives.

According to the WTO database (2017), Taiwan's ranking in the world trade was relatively high. Taiwan ranked 18th in merchandise export in 2017. If excluding the intra-EU trade, then Taiwan was the 12th largest merchandise export in the world. Taiwan ranked 19th in merchandise imports in 2017. If excusing the intra-EU trade, then Taiwan was the 13th largest merchandise import (WTO, 2017). Moreover, Taiwan's foreign trade constitutes a significant economic backbone and contributes about 62.7% GDP between 2015 and 2017 (WTO, 2017). Therefore, based on these statistics, changing dynamics of international trade may very likely impact on Taiwan's economic development and national policymaking (T. Y. Chen, 2001).

2.3.1 Trade and Emissions Standards

In the context of climate politics, there is already well-established literature that recognizes that through trade linkage, environmental policies and regulations could transmit across trading partners (Frankel, 2008; Holzinger & Knill, 2004; Prakash & Potoski, 2017; Sabel & Victor, 2015; Urpelainen & Urpelainen, 2011; Vogel, 1997). That is, the environmental regulations of the critical importing destination are very likely to influence exporters' environmental standards. The concept was best coined by Vogel (1997) as California Effect, that trade can ratchet up environmental standards of exporters when the importing counties share higher environmental standards. Based on Vogel's California Effect, more recent research carried out by Prakash and Potoski (2017) suggests that the EU could exert its carbon emissions regulatory preference to its trading partners, especially the developing countries with its market leverage. If the exporters seek for long-term access to the EU market, they are very likely to act proactively and lower their products' carbon emissions (Prakash & Potoski, 2017). In addition, researchers (Morin et al., 2018) also point out that democratic countries that face export competition and care about the environment are much more likely to include environmental provisions in trade agreements when dealing with their partners.

Besides the trade agreements, international firms importing from abroad are already imposing environmental requirements on their supply chains (Potoski & Prakash, 2005; Prakash & Potoski, 2017; Saikawa, 2013). For instance, Prakash and Potoski (2006) suggest that if there are high levels of adoption of environmental standards - ISO 14001 - in importing countries, it will "encourage firms in the exporting countries to adopt this voluntary environmental program" (Prakash & Potoski, 2006, p. 350).

In the Taiwanese context, scholars have pointed out that the Taiwanese industrial sector adopted voluntary GHG reduction (L. T. Chen & Hu, 2012) even though Taiwan is not a signatory to any climate-related international conventions. Chen and Hu state that "Taiwan's economy is heavily dependent on exporting manufactured goods, [so] Taiwan must comply with the relevant international conventions to avoid sanctions" (L. T. Chen & Hu, 2012, p. 1075). Biedermann (2017) also points out that "Taipei has proposed several policies to mitigate GHG emissions, to prevent possible trade sanctions from its industrialized trading partners." (2017, p. 31) The concern over trade sanction is not just shared by the Taiwanese government, but also by the export-oriented industrial sectors. As the previous literature suggests, international firms that share emissions reduction agenda will require their suppliers to meet specific emissions standards. Hence, the Taiwanese companies, the private high tech manufacturing companies, in particular, may be concerned that "their buyers from industrialized countries would share the emission-reduction responsibilities through international purchasing or original equipment manufacturing." (Y. Su, 2011, p. 73) In practice, the six major traditional industries in Taiwan - including iron and steel, petrochemical, cement, paper, synthetic fiber, textile printing, and dyeing - were already voluntary reducing their emissions due to the same concern even before Taiwan passed the GGRMA in 2015 (L. T. Chen & Hu, 2012). Therefore, Taiwan may take voluntary compliance with environmental standards adopted by trading partners in order to protect its export market.

2.3.2 The Trading-up Hypothesis

The literature above illustrates that international trade can be a crucial

mechanism in environmental regulations and GHG emissions standards transmission. Especially in the scenario when the importing destination shares a higher environmental standard, exporting countries will tend to follow the higher standards, either to avoid potential trade sanctions or to maintain market competitiveness. In the case of Taiwan, the literature suggests that this mechanism may play a vital role in Taiwan's climate policymaking even though Taiwan is not a signatory to any climate-related international agreements. As of 2020, voluntary emissions reduction is already taking place both at the governmental and industrial levels. Therefore, it is expected to see that the concern for trade sanction as well as market competitiveness is a crucial factor in Taiwan's GGRMA discussion. The second hypothesis that is formulated to explain Taiwan's voluntary climate commitments is as follows:

The Trading-up Hypothesis
Taiwan's voluntary climate policy is a strategical adaptation to potential trade barriers that might hinder Taiwan's economic development. It is expected to see both export-oriented industrial sectors and the government advocated for adopting climate regulations to meet the environmental standards of Taiwan's trading partners.

2.4 An Island Country and the Climate Awareness

So far, this research addresses the two potent and possible pathways that contribute to the making of Taiwan's voluntary climate policy. Nevertheless, considering Taiwan is an island country and a high-risk area of multiple climate-related disasters, could the people's climate awareness and demands for climate actions be a better explanation for Taiwan's voluntary climate commitments? Looking back in Taiwanese history, the public demands for a better environment and living quality had once successfully pressured the government for changes. Under the KMT's single-party dominance for more than 50 years, Taiwan's environmental movements were merged with other political demands and played

a very critical role in democratic transition (M.-S. Ho, 2011, p. 284) and pressured the KMT to take upon more environmental standards. Hence, this research begs the question by asking whether the Taiwanese people's demands for climate stability contributed to the government's voluntary climate commitments.

2.4.1 National Mood and Focusing Events

Existing research on the linkage between the perception of climate challenges and policy changes drives from the agenda-setting literature that explains when and why policymakers pay serious attention to climate change (Pralle, 2009). Based on the agenda-setting assumption, governments often address climate change when there are critical indicators and focusing events pressuring the policymakers to respond (Dannevig et al., 2013; Kingdon, 2011). Indicators are about illustrating the scoop and severity of climate challenges through monitoring and observation (Pralle, 2009). For instance, the IPCC reports on global warming, and the potential challenges provide policymakers and the public the urgency to take climate actions. The Global Climate Risk Index published by Germanwatch e.V. also informs both policymakers and the public on the potential risks of climate change inaction. In addition to these scientific reports, other forms of indicators can also serve the same purpose. Perhaps the best-known example is Al Gore's documentary, an Inconvenient Truth, which was released in 2006. The documentary provides a clear picture of the seriousness of climate challenges around the world and thereby increases the issue salience not only to the public but also to many policymakers (Andrews & Caren, 2010; Brulle et al., 2012). Furthermore, extreme weather events, which happen rarely and cause striking or harmful impacts on the society, could serve as a potent driver for reactive climate policies (Birkland, 1998a, 2016; Birkmann et al., 2010; Dannevig et al., 2013). Sudden climate-related disasters, such as heatwaves, typhoons, or hurricanes, are increasingly being treated as evidence of global warming, which brings dramatic and apparent damages to the status quo.

Severe climate-related disasters, as Birkland (2016) suggests, could serve as focusing events and gain attention from both the public and the policymakers. Therefore, governments will often be pressured to prioritize climate agendas

among many others if their societies just recently suffered from these climate challenges. However, it is essential to note the public attention serves as a crucial intervening element in influencing whether governments and policymakers take action to address climate challenges and indicators. Policymakers usually do not take indicators and extreme weather events as their responsibility to act, but only when these indicators and weather events are wrapped with national mood (Kingdon, 2011; Pralle, 2009; Stimson, 2012). As Leiserowitz (2007) points out, when there are more people recognize the climate challenges, the more likely they will pressure their governments to reduce their GHG emissions and support governments to follow international climate agreements (Leiserowitz, 2007, p. 27). Therefore, the stronger the public attention toward existing or potential climate challenges is, the more likely governments will respond with climate actions.

Taiwan was equipped with the two substantial conditions mentioned above for the climate policy change. Comparing to most countries in the world, Taiwan is extremely vulnerable in the face of climate challenges. Geographically, Taiwan suffers from the steep slope, frequent earthquake, weak geological formation, and intensive rainfall during the summer season. These geographical features of Taiwan, plus the high intensity of urbanization, intensify the already destructive typhoons and tropical cyclones, which often brought torrential rainfall to the island (J.-C. Chang, 1996). In the World Bank report - the Natural Disaster Hotspots (Dilley et al., 2005) - it suggests that Taiwan was the area exposed the most (73.1 %) to three or more hazards compared to other countries. Moreover, Taiwan has the highest percentage of high-risk areas (97.0 %), the highest rate of the population (95.1%), and the highest percentage of GDP (96.5 %) in the area at risk in the world (Dilley et al., 2005). That is, there was a clear indicator that Taiwan was one of the most vulnerable areas to multiple climate-related disasters, which are very likely to be further intensified by climate change.

As these climate risk index predicted, several severe natural hazards have damaged the island severely in the past decades. The intensity and frequency of typhoons that hit Taiwan have increased drastically since 2000 (H.-H. (許晃雄) Hsu, 2017). For instance, the Typhoon Morakot, which made landfall in Taiwan in August 2009, brought the highest rainfall and was the deadliest typhoon ever recorded since 1958 (C. Wang et al., 2019). Typhoon Morakot, which landed in

Taiwan at midnight on 7 August 2009, brought more than 2,500 mm rainfall in Giayi County, Pingtung County, and Kaohsiung County as well as more than 1,000 mm rainfall in other ten counties. It also led to a large number of landslides, especially in southern Taiwan. Since the typhoon warning system was established in Taiwan in 1992, typhoon Morakot was the most devastating climate-related disaster ever recorded (S.-C. Chen et al., 2013) and the worst flooding in the history of Taiwan (H.-C. Li et al., 2019). According to the governmental statistic, there were 619 casualties, 76 missing people, and had evacuated 24,950 people by 8th September 2009 (Y.-L. Chen, 2009). The cost of damage reached nearly 16 billion NT dollars (about 51 million USD) during this event and ranked the second highest next to the typhoon Herbert in 1996. The disasters that the typhoon Morakot brought triggered the national-wide discussion on Taiwan's vulnerability to climate change.

Taiwan's national mood also reflected on the fact that Taiwan is a high-risk country to climate change. In the survey on the Taiwanese Public's Attitude towards the Severity of Climate Change carried out by Chou (2013) in 2012, it suggests that 76.4% of the respondents considered climate change was the most severe problem in the world. While the world financial crisis was the second most severe problem (51%) and poverty, food, and water shortage are the third (46.6%). Another survey also reflects a similar result. In Shih and Yang (2012)'s work on Climate Change, Public Awareness and Pro-environmental Behaviors, they point out that the 32.2% of the Taiwanese people viewed the climate challenges, in particular the global warming, as extremely dangerous to their living environment, and 47.3% viewed as very dangerous. Shih and Yang (2012) suggest that nearly 80% of the Taiwanese people recognized the risk of climate change and Taiwan's vulnerability in light of climate challenges.

According to another survey published by the Risk Society and Policy Research Center, 63.4% of the Taiwanese people considered climate change challenges can be mitigated and 74.3% agreed that the existing research on climate change challenges reflected the truth and was not exaggerated in 2015 (RSPRC, 2015). In addition, nearly 70% of people agreed that climate change measures, including GHG emissions reduction, can facilitate economic growth in Taiwan (RSPRC, 2015). However, there was only 39.1% of people considered the

government had proposed concrete climate change guidelines (RSPRC, 2015). In another survey carried out by Taiwan Institute for Sustainable Energy (TAISE) (2016), it suggests that 31.7% of the respondents considered Taiwan as a high-risk country to climate challenges, while 46.4% considered as a medium risk country and only 1.8% considered as a low-risk country to climate change. That is, all the three surveys above suggest that the Taiwanese people had a relatively high climate awareness and considered the government should adopt more stringent measures in mitigating climate change challenges.

2.4.2 The Awareness Hypothesis

Following the climate agenda-setting assumption, that policymakers tend to address issues that attract increasing public attention. In the case of Taiwan, besides the fact that the island is particularly vulnerable to climate-related disasters that are likely to be intensified by climate change, most Taiwanese public on the island also recognize this circumstance and recognize that climate change as the most salient global risk. Hence, it is reasonable to assume that the vulnerability and public awareness toward climate change play a key role in Taiwan's voluntary climate policymaking. Each of the literature above provides a robust explanation of Taiwan's voluntary climate policy. Hence, drawing upon these three assumptions, this research proposes the following hypotheses:

The Awareness Hypothesis
Considering it is a high-risk country toward climate-related disasters, Taiwan's climate actions were responses to the growing public demands for climate measures. It is expected to see the policymakers addressed the climate issue when there was increasing pressure from the public and extreme climate-related disasters.

3 Research Methods

The research was carried out between 2016 and 2020 and involved three significant steps: developing preliminary theoretical frameworks, collecting empirical data in the field, and adjusting the theories and arguments based on the empirical data which was collected. These steps involved a back and forth between theory, empirics, and analysis. Before going into the field, a literature review and research gaps were identified. At the same time, conversations with experts in Taiwan's climate policy were carried out to have a better sense of the direction the research should take.

3.1 Case Study Method

This research adopts the case study method to investigate and to understand Taiwan's voluntary adoption of climate policy and commitments. The purpose is to identify the most likely explanation for the promulgation of the GGRMA in 2015. The case study approach, as defined by George and Bennett (2004), is "the detailed examination of an aspect of a historical episode to develop or test historical explanations that may be generalizable to other events" (George & Bennett, 2004, p. 5). The case study method was chosen as the primary methodology because it can be used to identify new or omitted variables and hypotheses and develop explanations of particular cases (Bennett, 2004, p. 19). It will also allow this research to examine intensively when the research resources are relatively limited (Lijphart, 1971, p. 691).

Considering that the existing research cannot fully explain Taiwan's voluntary climate commitments and policymaking, this research attempts to craft a sufficient understanding of the Taiwanese case. Taiwan's voluntary climate policy is treated as a "deviant" or "outlier" case. A deviant or outlier case, as Bennett (2004, p. 22) suggests, often produces outcomes that were not predicted or explained well enough by the existing research. The deviant case approach is

particularly helpful for exploring undiscovered or left-out variables that have not been fully discussed (Bennett, 2004, p. 22). As George and Bennett (2004, p. 20) note, through the course of fieldwork, including interviews with relevant stakeholders and experts, a deviant case study has "powerful advantages in the heuristic identification of new variables and hypothesis." Moreover, the deviant case analysis can help refine and sharpen existing theories and research (Lijphart, 1971, p. 692). Given that Taiwan can be viewed as a deviant case that the existing literature cannot provide sufficient explanation for Taiwan's voluntary climate compliance. The deviant case analysis enables the inductive identification of variables that have not been covered by the current Taiwanese and climate politics literature.

Of course, a single case study is limited by the number of observations it can provide. To obtain multiple observations from a single case, or as King et al. (1994, p. 221) suggest, to "solve the small-*n* problem by increasing the *n*," this research examines Taiwan's voluntary climate commitments and policy over four different timeframes: climate agenda formation (prior to 2000), climate policy contemplation (2000- 2008), climate policy promulgation (2008 -2016), and implementation (2016-2020). During these four periods, climate change discussions took place under different administrations.

3.1.1 Process Tracing

This research adopts the process tracing approach in examining the policymaking process. As George et al. (2004, p. 215) suggest, process tracing is "particularly useful for obtaining an explanation" for a deviant case. It thus allows me to craft a "minimally sufficient explanation of a puzzling outcome in a specific historical case (Beach & Pedersen, 2013, p. 3)." This research hence seeks to provide empirical evidence that can contribute to the differentiation and enrichment of climate politics and policy literature in Taiwan.

Process tracing is a means to trace causal mechanisms (Beach & Pedersen, 2013; Bennett & Checkel, 2014; J. T. Checkel, 2015; Keohane et al., 1994; Van Evera, 1997) and to examine various conditions that are translated into outcomes (George & McKeown, 1985). It enables this research to identify the causal chain

and causal mechanism between independent and dependent variables (Bennett, 2004). Process tracing thus helps this research establish reliable inferences about the causal process whereby outcomes are produced and to increase the degree of confidence with the validity of a theorized causal mechanism (Beach & Pedersen, 2013, p. 2). Instead of tracing theoretical causal mechanisms that link X and Y, the process-tracing method investigates the mechanisms that contribute to an outcome (Beach & Pedersen, 2013, p. 5) and establishes possible explanations from observed effect (Bennett, 2004, p. 22).

The hypotheses developed for this research were drawn on three theories. The first posits that Taiwan's voluntary climate compliance is the result of the climate bandwagon, which strategically links the political agendas to the international climate process. The second asserts that Taiwan's voluntary adoption of climate legislation is the careful calculation regarding potential trade barriers on GHG emissions standards. The third hypothesizes people's demands for governmental climate actions led to voluntary climate compliance. In order to operationalize these hypotheses, the research thus adopts process tracing to explore the relations and patterns and craft sufficient explanations.

3.2 Data Collection and Treatment

This research relies substantially on qualitative interviews, official documents, and legislative records. In order to get at aspects of historical developments not well covered in the literature, such as the power relations among actors, the key individuals pushing particular climate agenda, the negotiations between political parties, interviews were conducted with policymakers reviewing the GGRMA, the former EPA administrator facilitated the policymaking process, and the industry representatives, as well as experts and scholars in climate politics. The original data collected from the interviews served as an essential step to identify possible causal processes. Interviewees were mainly chosen based on the potential insights they could provide regarding the possible causal mechanisms (Mosley, 2013, p. 10) of Taiwan's climate politics.

3.2.1 Data Collection

In addition to the literature on Taiwan's climate politics and policymaking in both English and Chinese, primary data was collected through four channels: 1) official documents and reports from Taiwanese governmental agencies, 2) records and gazettes of policymaking processes from the Legislative Yuan, 3) policy papers from Taiwanese interest groups, and, 4) newspaper articles and political magazines (see table 3.1). The official documents and reports that were used in this research included public statements from the Presidential Office, foreign policy reports released by the MOFA, documents published by the EPA, and reports from the MOEA and the Executive Yuan. The documents from Legislative Yuan (from 1994 to 2020) were critical transcripts of general congressional meetings, SWEHC meetings, public hearings, and parties' caucuses concerning climate discussions and legislation. These transcripts contained detailed discussions among policymakers from different parties, governmental officials representing different ministries, and relevant stakeholders, including NGOs, experts, industry representatives. These discussions thus allowed this research to construct the climate narratives shared by different actors as well as identifying key actors in the policymaking process as well as their interests and concerns. In addition, international documents from the UN agencies (including the UN General Assembly, the UNFCCC) and international agreements (the Montevideo Convention, the Montreal Protocol, the CITES, the Kyoto Protocol, and the Paris Agreement) were important for mapping out Taiwan's legal responsibility and position under the UN framework. Official government documents produced by the EU, the US, and China were used in order to understand how these major actors perceived Taiwan's political status and cross-Strait relations.

This research also addressed relevant stakeholders' perspectives and engagements in Taiwan's climate policymaking. Policy papers from interest groups, the White Paper (in Chinese) produced by the Chinese National Federation of Industry (CNFI), provided relevant information regarding industries' positions on Taiwan's climate policies as well as its attitude towards the international climate agreements. Reports and analysis from research institutes, including Chung-Hua Institute for Economic Research (CIER), Academia Sinica, Taiwan

Research Institute (TRI), were also used in this research. Nongovernmental organization's reports and policy papers evaluating and critiquing the governmental climate measures and responses toward the UN climate process. These reports and policy papers (in Chinese) were collected from the following platforms: Coolloud, Taiwan Environmental Information Association (TEIA), Taiwan Institute for Sustainable Energy (TAISE), Citizen of the Earth, Taiwan, Greenpeace Taiwan, and Green Citizens' Action Alliance. Newspaper articles on climate-related issues, including Taiwan's climate policies and measures, local authorities' climate measures, industries' climate initiatives, extreme weather events in Taiwan and the world, were collected from the *Liberty Times*, *China Times*, *United Daily News*, *Taiwan Focus, Central News Agency*) and political magazines (*the Diplomat, Commonwealth*, *Global Views Monthly,*). Both English and Chinese language sources were used.

Table 3.1 Official Documents Used for this Research

Types of Documents	**Institutions**	**Timeframe**
Full Transcripts of Presidential Speeches	Office of the President	2005 – 2020
Full Transcripts of the SWEH Committee Meetings	Legislative Yuan	1994 – 2020
Full Transcripts of General Meetings	Legislative Yuan	1994 – 2020
Full Transcripts of Public Hearings on the GGRMA	Legislative Yuan	2014 – 2020
GHG Reduction Bills/Proposed Bills	Legislative Yuan	2006 – 2020
Foreign Policy Reports	MOFA	2006 – 2020
Policy Papers on the GGRMA	MOEA	2006 - 2015
Policy Papers on Climate Change	EPA	2003 - 2015
CNFI White Paper	CNFI	2009 - 2015

Various limitations to the data collected exist. Due to the sensitivity of Taiwan's international participation in the UNFCCC, many closed-door meetings with officials from the EU and other countries were not documented or recorded in publicly available forms. Interviewees only briefly mentioned details of these meetings, and they could not provide records of what happened. Some interviewees only agreed to provide information on the condition of anonymity.

3.2.2 Interviews and Snowball Sampling

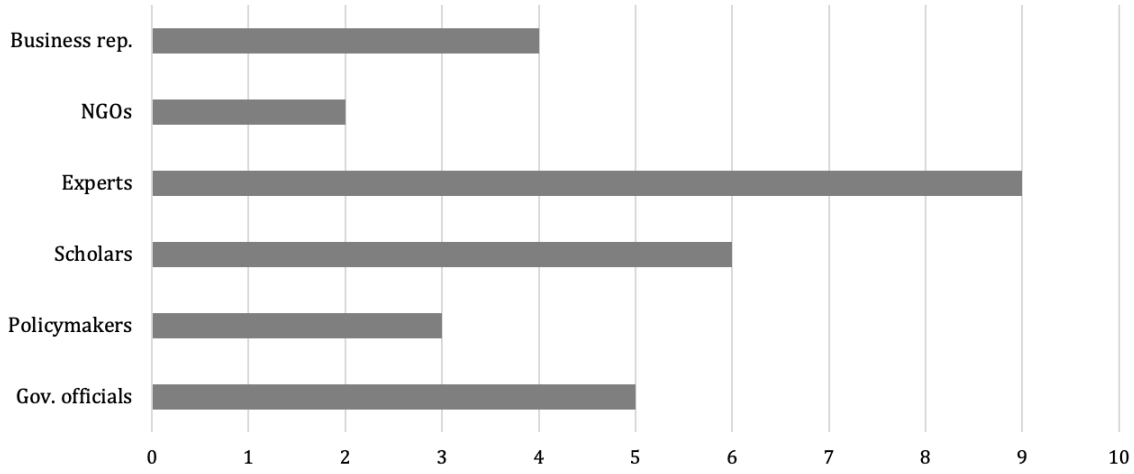
The snowball sampling method was adopted. The first interviewees were asked to provide at least one more potential interviewee (Atkinson & Flint, 2001; Kirchherr & Charles, 2018) that may have substantial insights on Taiwan's climate policymaking. For the first round of interviews, researchers and experts working on Taiwan's climate policy based at National Taiwan University, National Chengchi University, and National Tsing Hua University were targeted. Some of these interviewees served dual roles as members of the EPA's advisory boards or were Taiwanese delegates to the annual COPs and expert meetings of the UNFCCC. Their names and contacts were acquired through their publications in climate change studies. These experts provided first-hand insights into Taiwan's climate policymaking and helped identify other relevant interviewees. The snowball sampling method served a very critical role in collecting data and providing links to pertinent stakeholders in the field of Taiwan's climate policymaking. The snowball sampling was particularly helpful for identifying and contacting interviewees when their contact information was not publicly available. For instance, this research was able to contact experts who assisted the EPA and the MOEA in drafting different versions of the GHG reduction bills from 2006 to 2015 because of the recommendations provided by other interviewees. The snowball technique made it possible to interview a large number of the main actors in the climate policy field who were active between 2006 and 2015.

Interviews with those involved directly in GHG emissions discussion in the Legislative Yuan were critical. Information regarding who was directly involved in the policymaking process can be found on the Legislative Yuan's online open database and Gazettes (in Chinese). Meeting and discussion records, including the public hearings and parties' negotiations, regarding the GGRMA and related bills, are available on the Legislative Yuan website (https://www.ly.gov.tw/). The names of legislators, terms of service, and committees are publicly accessible on the website. Information on current and former officials is also publicly available on the respective governmental agency's website. For example, the EPA's website (https://www.epa.gov.tw/) provides not only a list of current and past administrators but also the tasks they were in charge of and their achievements

during their terms. They were contacted by email or phone call for interviews. This research interviewed the policymakers who were orchestrating the GGRMA discussions in 2015, the former EPA administrator who was in office from 2014 to 2016, and the representatives of Taiwan's industrial association. After the first 25 interviews or so, similar responses towards the interview questions started to appear, and the observations began to correspond with those from previous interviews. After similar answers from different interviewees appeared several times, this research assumed that this research had obtained sufficient coverage of the topic.

In total, 32 interviews were carried out from 2016 to 2018, with 29 interviewees (three individuals were interviewed twice) (see figure 3.1). Interviewees included former governmental officials, policymakers, experts, researchers, and interest group representatives. The agencies that the interviewees represented include the EPA (the former administrator), the MOFA (the Department of Policy Planning and Department of Treaty and Legal Affairs), the Legislative Yuan (the Social Welfare and Environmental Hygiene Committee), the Taiwanese delegates to the UNFCCC meetings, industrial representatives (the CNFI, China Steel Corporation, and CPC Corporation), and environmental NGOs. Discussions were also held with experts and scholars at National Taiwan University, National Chengchi University, and National Tsing Hua University as well as think tanks - Environmental Science Technology Consultants Corporation and YC Consultants. These think tanks assisted the EPA in climate policy design and contributed substantially to this research.

Figure 3.1 Interviewees by Sectors/Professions



source: compiled by the author

These interviews were carried out using semi-structured interview techniques. The semi-structured interviews were necessary not only because of a lack of existing studies, to assemble different viewpoints, to collect information that was not available in government documents, and to explore details related to the policymaking process. Questions were adapted and tailored to each interviewee based on their backgrounds and roles in the climate policymaking process. According to their initial responses to the questions, follow-up questions were asked for clarification and elaboration on their answers. The interviewees were presented with guiding questions (see Figure 3.2). These questions were drawn up with consideration to the hypotheses and the existing literature in Taiwan's politics and climate change studies. The interviews usually lasted for 60 to 90 minutes and were conducted in Chinese and Taiwanese. All 32 of the interviews took place in different cities in Taiwan, including Taipei, Taichung, Tainan, and Kaohsiung. They were carried out in person. The content of the interview was noted down immediately by hand. Due to some interviewees' concerns, no interviews were recorded.

Figure 3.2 Overview of Questions Addressed in the Interviews

1. What do you think are the most important factors that the Taiwanese government reacts to climate change?
2. What kind of impact does international trade have on Taiwan's climate policymaking?
3. Do you consider climate policy as Taiwan's foreign policy strategy? Why and why not?
4. Does China have impact on Taiwan's climate agenda-setting? If yes, how?
5. Do you think the international climate regime has impact on Taiwan's climate policy making (i.e., the GHGs Emissions Reduction and Management Act)?
   a) If yes, how the international climate regime impacts Taiwan's climate policymaking?
   b) How important are the bilateral agreements with other member parties on renewable energy or climate change to Taiwan? (i.e., Germany-Taiwan renewable energy cooperation)
   c) Do you think the Taiwanese government faces pressure from international society on climate mitigation?
6. Could you identify the international and domestic actors that push the government on the climate agenda-setting?
7. Do you consider climate change a threat or an opportunity for Taiwan? In which aspects?
4. How is Taiwan confronting climate change? How is it prepared?
5. The GHGs Emissions Reduction and Management Act was already drafted and sent in for review in 2006 and was passed in the Legislative Yuan in 2015. Why did it take almost nine years for the Act to come into effect?
   a) Could you identify political parties' position on climate change and the climate agenda-setting?
   b) Could you determine which are the most active actors (or sectors) in pushing the climate agenda are? And who are the opposing actors (or sectors) in climate agenda-setting?
   c) Could you identify which actors (sectors) got the most attention during the agenda-setting and policymaking?
   d) Have you observed any changes among these coalitions of advocates?

The questions were adapted for each interviewee based on their backgrounds and roles involved in the climate policymaking process.

3.2.3 Process of the Fieldworks

The first trip to the field was carried out between May and June 2016 in Taipei. The reason to choose Taipei was that the city hosted many government officials, policymakers, and researchers who were relevant to this research. The first seven interviewees were experts from the Taiwanese UNFCCC delegation, and scholars specialized in Taiwan's climate policy, former officials from the MOFA, and representatives from a climate-focused environmental NGO, International Climate Development Institute (ICDI).

A second field trip was carried out from November to December 2017 in Taipei, Kaohsiung, and Taichung. The purpose of going to Kaohsiung and Taichung was to meet interviewees from the China Steel Cooperation and two climate think tanks located in these cities. Based on the information provided from the first round of interviewees, the primary attention of the second field research was on policymakers, governmental officials, and private sectors. This round of

interviews was particularly important because the interviewees included the actors that facilitated the GGRMA discussions in 2015. Information on why the industrial sectors were willing to support the GGRMA and the urgency behind the GGRMA was obtained during this field trip.

Another set of interviews was carried out in the last round of field research in Taipei and Kaohsiung in September 2018. This third set of interviewees include the researchers and policy experts from the first field trip. The purpose was to collect further information, to update the data, and to have a plausibility check on the dissertation's preliminary findings with both the former interviewees as well as several other new interviewees. The plausibility check was designed to refine the arguments and update the findings with information that was not included before.

4 Contextualizing the Background of Climate Actions

This chapter provides critical information explaining the historical background of Taiwan's ambiguous international status and relations with Beijing and Taiwan's quest for greater participation in the international community. In the second half of this chapter it illustrates the detailed timeline of Taiwan's voluntary climate policies corresponding to the UN climate process, as well as the economic and environmental events that are relevant to the formation of Taiwan's climate agendas.

4.1 Taiwan's Political Status and Constraints

Despite its relatively small population,[8] Taiwan, officially the Republic of China (ROC), has been an economic powerhouse for decades. It was the 16th largest exporter and 18th largest importer of merchandise in 2017 (WTO, 2017). Taiwan ranked 17th for its (US $55,290) Gross Domestic Product (GDP) per capita based on Purchasing Power Parity (PPP)(IMF, 2018). Regardless of Taiwan's performance in trade and economy, Taiwan is in a unique diplomatic situation because of its ambiguous international status. It is excluded by most national governments and intergovernmental organizations from formal diplomatic settings but is nevertheless a vital trade partner and ally of many countries. The ambiguity of Taiwan's political status derived largely from its debatable sovereignty and statehood. Taiwan's statehood is clarified in the Montevideo Convention on the Rights and Duties of States of 1933. Article 1 of the Montevideo Convention sets out four requirements for statehood; they are (1) a permanent population, (2) a defined territory, (3) government, and (4) the capacity to enter into relations with other states (*Montevideo Convention on the Rights and Duties of*

[8] Its total population in March 2020 was around 23.596 million (Statistical Bureau, 2020), with a population density of 652 people per square kilometer, which makes it the 17th most densely populated country in the world.

States, 1933). The Convention views states as *sui generis* legal entities, and "the political existence of the state is independent of recognition by the other states." Taiwan fulfills the first three requirements for constituting statehood with its permanent population (23.2 million), a defined territory (36,188 square kilometers, including the island groups of Taiwan, Penghu, Kinmen, Matsu, and some small islands), and a democratic-elected government (the ROC/Taiwan). Nevertheless, Taiwan is officially recognized only by a handful of countries. With most countries, Taiwan has been forced into keeping contact through non-state channels. For Taiwan, this means an ambiguous international status that complicates its ability to engage with international organizations and important actors.

There are still 15 countries - many of them small and developing countries in Central America and the Pacific - that maintain formal diplomatic relationships with Taiwan. These are, however, countries with little international political and economic weight. According to MOFA statistics, Taiwan has full membership in 37 international governmental organizations (IGOs) and has observer status and other forms of memberships in 21 IGOs. Two particularly essential IGOs where Taiwan enjoys full membership are the World Trade Organization (WTO) and Asia-Pacific Economic Cooperation (APEC). Other important IGOs, like the World Bank and International Monetary Fund, have rejected Taiwan's statehood and hence membership.

Clearly, Taiwan is not completely barred from engaging with other countries. Taiwan has quasi-official consulates and offices and maintains unofficial ties with most countries in the world. MOFA statistics (2018) show that Taiwan has 111 offices/consulates/embassies around the world and has 72 foreign countries' official offices/consulates/embassies stationed on the island. Taiwan also has membership in 3,134 international nongovernmental organizations, which often do not require statehood to participate.

However, without official access to major intergovernmental organizations, especially the UN negotiations and meetings, Taiwan is at a distinct disadvantage (Glaser, 2013a) when it comes to global emergencies and crises. For instance, Taiwan was rejected to participate in the World Health Assembly (WHA) during the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 and the

Coronavirus disease (Covid-19) pandemic in 2020[9].

4.1.1 International Participation and the China Factor

Taiwan's ability to expand its *international space*[10] and engage with other countries is substantially limited by its historically challenged relationship with mainland China. After the end of the Chinese civil war in 1949, both the mainland and the Taiwan governments, respectively in Beijing and Taipei, claimed to be the only legitimate representative of the Chinese nation. The Chinese Communist Party, under Mao Zedong, defeated the Kuomintang (KMT) government and began ruling in mainland China. The KMT government fled to Taiwan (the island, also known as Formosa) and continued the ROC governance on Taiwan and its surrounding islands. Upon the founding of the People's Republic of China (PRC) in 1949, the PRC claimed to be the only legitimate representative of China and insisted that all countries that wish to conduct relations with the PRC government must abolish all official ties with Taiwan. A similar claim was forwarded by the Chiang Kai-Shek regime (1947-1975) in Taiwan. The two governments entered into a phase of military tensions and competitions of international allies for nearly three decades.

The turning point of this cross-Strait competition ended when the United Nations General Assembly announced resolution 2758, "Restoration of the lawful rights of the People's Republic of China in the United Nations the General Assembly,"[11] in 1971, officially recognizing the PRC as the only lawful

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[9] Taiwan was barred from participating in the WHA even though it was the first country that signaled the World Health Organization (WHO) about the potential human-to-human transmission of Covid-19 in 31 December 2019. Taiwan's efforts were ignored by the WHO officials who insisted that there was no clear evidence of such transmission (Y.-J. Chen & Cohen, 2020; Watt, 2020).

[10] The term "international space" is often used to describe Taiwan's maneuverability, participation, and recognition in the international community in Taiwan studies literature. For example, see *Taiwan's Expansion of International Space: Opportunities and Challenges* by T. Y. WANG et al. (2011). Some scholars use the term "international footprints" to describe Taiwan's participation in the intergovernmental organizations. See *Taiwan's Quest for Greater Participation in the International Community* by Glaser (2013a).

[11] See the full text of the Resolution 2758 (XXVI).
"Restoration of the lawful rights of the People's Republic of China in the United Nations The General Assembly, Recalling the principles of the Charter of the United Nations, Considering the restoration of the lawful rights of the People's Republic of China is essential both for the protection of the Charter of the United Nations and for the cause that the United Nations must

representative of China to the United Nations. The UN also decided at this time to expel "the representatives of Chiang Kai-shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it" (General Assembly Resolution 2758, 1971). In 1972, the former US President Richard Nixon made an unprecedented visit to Beijing. This trip sent the signal to the world that both countries planned to normalize relations and put the Taiwan question aside. The US saw both geopolitical and economic opportunities from moving closer to the PRC, including containing the expansion of the Soviet Union. Formal relations between the US and the ROC were suspended in December 1978 (Winkler, 2012).

Despite the Chiang regime was barred from the UN, Chiang still claimed to be the only legitimate representative of all of China, including mainland China, Hong Kong, Macau, and Taiwan, and rejected any suggestions of dual representation of the two Chinas. Since most countries and international organizations saw a much more significant economic and political benefits in engaging with the PRC, this mutually exclusive claim effectively turned the ROC into something of an international outsider. Yet, this was also not a full exclusion as countries were eager to simultaneously maintain strong ties to Taiwan, an economic powerhouse despite its small size.

The ROC's rejection of the dual-representation of the Chinas was abandoned after Chiang Ching-Kuo (Chiang Kai-Shek's oldest son) passed away in January 1988. Chiang's successor, Lee Teng-Hui (1988-2000), who was then the vice president, implemented a policy of "elastic (or pragmatic) diplomacy." The purpose of this elastic diplomacy was to reverse the principle that the ROC would immediately break relations with any countries that recognized the PRC as well as withdraw membership from IGOs that admitted the PRC (Dreyer, 1990). To carry out the new diplomatic approach, Lee sought to strengthen relations with

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serve under the Charter, Recognizing that the representatives of the Government of the People's Republic of China are the only lawful representatives of China to the United Nations and that the People's Republic of China is one of the five permanent members of the Security Council, Decides to restore all its rights to the People's Republic of China and to recognize the representatives of its Government as the only legitimate representatives of China to the United Nations, and to expel forthwith the representatives of Chiang Kai-shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it." (General Assembly Resolution 2758, 1971)

countries that did not have official diplomatic ties with Taiwan.

Lee became the first directly elected president in Taiwan in 1991 and lifted the "Period of Mobilization for the Suppression of the Communist Rebellion" in the same year. Under Lee's leadership, Taiwan's international engagements gradually expanded. Taiwan joined the Asia-Pacific Economic Cooperation (APEC) under the name of Chinese Taipei in 1991.

In response to Taiwan's increasing international participation, the PRC issued a white paper entitled "the Taiwan Question and Reunification of China," which emphasized Taiwan as an inalienable part of China in 1993. The purpose of this white paper, as the PRC claimed, was to communicate with the international community and reaffirm the PRC's One China principle. This position on Taiwan was later strengthened by China's former President Jiang Zemin (1993-2003). In 1995, Jiang stated his position on the cross-Strait relations in the Eight-point proposal (江八點). Under the One China principle, Jiang suggested the PRC would not challenge the development of nongovernmental economic and cultural interchange between Taiwan and other countries. Nevertheless, Jiang stressed that China opposed any of Taiwan's activities in expanding its "living space internationally" that aimed at creating two Chinas or seeking Taiwan's independence (Embassy of PRC in the US, 2003). The PRC released the second white paper after Lee Teng-Hui made a private visit to his alma mater, Cornell University, in 1995. The second white paper accused Lee, who "progressively betrayed the One China principle, striving to promote a separatist policy with two Chinas at the core." The PRC demanded the US refrained from having any official engagement with Taiwan and respected the One China principle (TAOSC, 2000).

The PRC was very cautious about Taiwan's growing international engagement and feared the Taiwanese government might use its international presence to push for de jure independence (Glaser, 2013b). In the latest white paper, "China's National Defense in the New Era" issued in 2019, the PRC states that it would not renounce the use of force in the instance of Taiwan proclaiming its independence. It also argued that it would never allow Taiwan to use its international space as a means to push for *de jure* independence (SCIO, 2019). The PRC thus launched several actions to block Taiwan's attempts to expand its international space. The PRC had pressured international companies and organizations to avoid using the

term “Taiwan” or “the Republic of China,” which may suggest Taiwan’s statehood and sovereignty. The PRC also clearly stated that any emblems of the ROC or national presentation would not be allowed in events hosted by international organizations where China was a member (G. Chan, 1985; Sehnálková & Kučera, 2012). On the other hand, the use of “Taiwan, China” or “Taiwan, Province of China” when referring to Taiwan was accepted. The PRC’s One China principle thus became a very crucial guiding principle for foreign actors, including countries, IGOs, and multinational corporations, when engaging with China.

Taiwan’s Official and Unofficial International Engagements

Despite these growing restrictions, Taiwan continued to expand its international space and pursued flexible diplomacy – in both official and non-official ways – as a means to maintain or relaunch relations with foreign countries and IGOs. One crucial model that Taiwan developed has come to be known as the International Olympic Committee (IOC) Formula. The ROC and the PRC were members of the IOC for a period of time. The ROC joined the IOC in 1924 as the “Chinese Olympic Committee,” and the PRC joined in 1954 as the “Olympic Committee of the People’s Democratic Republic of China.” Both committees had equal rights and membership in the IOC until the PRC filed a protest and demanded the IOC expel the ROC in 1956. The PRC later withdrew from the IOC in 1958 after the IOC denied its request.

Following the PRC’s success in replacing the ROC in the United Nations in 1971, the PRC made another attempt to replace Taiwan’s membership at the IOC and demanded the expulsion of Taiwan. China insisted that the IOC must accept the One China principle, and the ROC was only allowed to participate in the IOC as long as it used no national symbols (G. Chan, 1985). After several rounds of negotiations, the IOC, the PRC, and the ROC finally agreed that Taiwan could continue participating in the games with the “Chinese Taipei Olympic Committee.” Taiwan was hence allowed to compete with the PRC's “Chinese Olympics Committee” in 1981(C. P. Li, 2006). Based on the IOC formula, Taiwan used the name “Chinese Taipei” when participating and sending its athletes to the Olympic Games. Albeit the IOC formula was not perfect, it allowed Taiwan to participate in

international organizations and events as well as maintain its *de facto* sovereignty.

The IOC model of using the name "Chinese Taipei" was replicated in other critical intergovernmental organizations, including the Asian Development Bank (ADB), the APEC since 1991, the WTO since 2002 (as the "Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu"), in the WHA from 2009 to 2016, and in the ICAO in 2013. Although the IOC model could potentially open many doors to Taiwan, the decision of whether Taiwan could obtain an invitation letter from IGOs often depend on the PRC. During the rule of the Democratic Progressive Party (DPP) government (2000-2008), which had a pro-independence viewpoint regarding Taiwan's statehood, Taiwan not only lost several diplomatic allies to China but was also barred from attending critical intergovernmental negotiations, including the WHA during the SARS outbreak in 2003. During the KMT-led administration from 2008-2016, the government avoided addressing Taiwan's statehood when engaging with the Chinese government. With China's support, Taiwan was allowed to participate in the WHA and the International Civil Aviation Organization (ICAO) as an observer under the name "Chinese Taipei."

Although Taiwan has been barred from entering most IGOs that rely on statehood as the primary condition for membership, Taiwan still enjoys a robust unofficial relationship with most of the countries in the world. One of the primary reasons is due to Taiwan's strong economic performance since the 1960s. Due to its rapid industrialization and exceptionally high growth rates, Taiwan, together with Hong Kong, Singapore, and South Korea, were referred to as the Four Asian Tigers (also known as Four Asian Dragons in Chinese) in the 1960s. Taiwan's economic performance has remained relatively steady, with the annual GDP growth in 12.8% in 1987, 6.1% in 1997, and 6.9 in 2007. In 2018, Taiwan was the world's 18th largest exporter and 17th largest importer of merchandise.

At the country level, Taiwan was the 11th largest goods trading partner of the US, with 76 billion US dollars in trade (Office of the US Trade Representative, 2020) and the 15th largest trading partner of the EU in 2018. Trade with the EU has increased more than eightfold over the past two decades (European Commission, 2020). As for political relations, both the US and the EU have been engaged with Taiwan under the One China policy, which is different from the PRC's One China principle. The US recognizes the PRC as the sole legal government of China, having

acknowledged China's claim over Taiwan in the Joint Communiqué (also known as Shanghai Communiqué) in 1972 but still maintains strong bilateral engagements with Taiwan (F. Y. Chang, 2004). The US passed the Taiwan Relation Act in 1979 to provide a legal basis for the unofficial relationship between the US and Taiwan, as well as to assist Taiwan in maintaining an independent defensive capability. The EU Commission took a similar position and stated that "following the One China policy, the EU does not have diplomatic or formal political relations with Taiwan. However, the EU supports Taiwan's meaningful participation in multilateral fora" (European Commission, 2020).

4.1.2 Participation in International Climate Organizations

The China factor has played an essential role in Taiwan's international engagement for decades, and there is no exception in the field of climate governance. As of 2020, the International Renewable Energy Agency (IRENA) is the only IGO that Taiwan officially takes part in. According to the MOFA and IRENA's records, Taiwan has an NGO observer status to the IRENA annual assembly under the name of "Bureau of Energy, Chinese Taipei" between 2011-2012 and "Industrial Technology Research Center (ITRI), Chinese Taipei" between 2018-2019.[12] Nevertheless, Taiwan has not been successful in participating in the UN climate legal regime since 1995.

When the UNFCCC was established in 1994, China, who joined in the same year, specifically noted that UNFCCC membership and the climate responsibilities only applied to mainland China, the Hong Kong Special Administrative Region, and the Macao Special Administrative Region (UN, 1994, 1997, 2015). This particular note also applied to the Kyoto Protocol in 1997 and the Paris Agreement in 2015. Taiwan thus operates in a kind of no man's land under the UN legal framework. Although Taiwan has been continuously barred from entering its official meetings either as an observer or a member (Biedermann, 2017; C.-J. Yang & Chien, 2008), it has been participating in the climate negotiations under the name of the ITRI. The ITRI is a nongovernmental actor and research agency affiliated with the MOEA. The EPA has been the leading authority in organizing Taiwan's participation in the

[12] *Chinese Taipei* was listed as *Others* in the List of observers for IRENA's annual assembly.

UN climate negotiations.

The ITRI model indeed opens more flexible and non-state channels for Taiwan, but it also brings certain constraints. For instance, many high-level negotiations at the COPs are open exclusively to country delegates and official observers; NGOs and other types of observers are not allowed to participate. In addition, another constraint that the Taiwanese delegation faces is in relation to the question of eligibility to host side events at COPs. According to the UNFCCC secretariat, observer organizations (NGOs, research institutes, business, etc.) admitted by COPs, members states, and UN agencies are eligible to register for side events at COPs. After the registration, the secretariat will then review and select suitable applications for hosting side events. Although often partnering with other countries' NGOs, Taiwan's application for side events is not always successful. The first time that Taiwanese NGOs (including ITRI and other organizations) were allowed to host side events at COPs was in 2009, which was the first year of the KMT government (2008-2016). It is reported that China, which favored the KMT over the DPP, played an essential role in the selection process (Shou, 2017, p. 58). In the following years, Taiwan, under the auspices of ITRI, had hosted several side events together with its diplomatic allies, including the small island states such as Marshal Islands, Solomon Islands, and Tuvalu. During COP 21 in 2015, Taiwan hosted seven side events during the Conference. The former EPA Administrator Wei Kuo-Yen (魏國彥, 2014-2016) was invited as a speaker at one of the side events, entitled Scaling-up Small Island Developing States (SIDS)/ Least developed countries (LDCs) Financial Capacity and Sustainability, hosted by the ITRI, Palau, Tuvalu, Nauru, and Solomon Islands (MOFA, 2016b). Three Taiwanese legislators, Chiau Wen-Yen (邱文彥), Tien Chiu-Chin (田秋堇), and Lai Cheng-Chang (賴振昌), were also invited to speak at a side event (Executive Yuan Press Office, 2015, p. 104). This marked a significant improvement in light of Taiwan's limited ability to participate in previous COPs in any visible capacity.

After the DPP government came to power, Taiwan's participation at COP 22, which was held in Morocco from 7-18 November 2016, was again very limited. There were seven Taiwanese side events selected for COP 21 in 2015, but there was only one Taiwanese side event selected for COP 22 in 2016. The ITRI, which had been hosting side events at every COP since 2009, was also rejected by the

UNFCCC secretariat in 2016. It was later reported that the secretariat would deny an application when an applicant's email address contained ".tw" or application documents contained the word "Taiwan" (Shi, 2016). The situation did not get better for Taiwan's delegation at COP23 in Bonn (November 6-17). During this COP, the EPA former Administrator Lee Ying-Yuan (李應元, 2016-2018) was barred from entering COP 23's venue; he was sent away at the gate. It is reported that the UNFCCC secretariat made the decision under pressure from the Chinese delegates. Nevertheless, Taiwan was able to host three side events together with its diplomatic allies.

The number of Taiwanese side events has been steadily increased. More and more Taiwanese NGOs are partnering with foreign NGOs and hosting events and talks at COPs. During COP 25 in Madrid (December 2-15, 2019), Taiwan partnered with diplomatic allies and foreign NGOs and hosted six side events. Taiwanese delegates also carried out private closed-door bilateral meetings with foreign representatives, including Taiwan's diplomatic allies and nondiplomatic friendly nations (including the EU, the US, Germany, and Japan), since 1995. The purpose of these bilateral meetings is often to strengthen the bilateral climate and energy partnerships [13] as well as to enhance international support for Taiwan's participation in the UNFCCC.

The China factor cannot be ignored when examining Taiwan's international engagement. Taiwan's international footprints are indeed limited to a large extent by the One China principle and policy. In the context of international climate governance, Taiwan is not able to join the UNFCCC and to participate in COPs as an official observer. Nevertheless, Taiwan manages to maintain unofficial engagements and cooperation with its diplomatic allies and nondiplomatic nations in climate governance. It is hence crucial to explore how these constraints and opportunities shape Taiwan's climate politics.

[13] For instance, Taiwan and Germany signed the Joint Declaration on Energy Transition Cooperation in 2016. The Declaration was meant to enhance industrial cooperation on renewable energy development.

4.2 Taiwan's Climate Policies and Commitments

The Taiwanese government has a track record of voluntarily complying with UNFCCC objectives and announced climate commitments that are in line with the UN climate negotiation process. Table 4.1 shows a series of governmental climate responses, including setting special working groups, hosting energy conferences, and announcing climate measures from 1992 to 2017 (see table 4.1).

Table 4.1 Taiwan's Response to the UN Climate Process

Year	Climate Process	Taiwan's Responses
1992	UNFCCC established	Working Group for Global Environmental Change
1994	UNFCCC went into effect	Committee on Global Environmental Change Policy
1997	Kyoto Protocol adopted	National Council for Sustainable Development
1998		The First National Energy Conference
2005	Kyoto Protocol went into effect	The Second National Energy Conference
2008		Policy Guidelines for Sustainable Energy Action Plan for Energy Conservation and Carbon Reduction
2009	Copenhagen Accord	
2010		National Master Action Plan on Energy Saving and Carbon Reduction
2012	Doha Climate Gateway	National Climate Change Adaptation Policy Framework
2015	Paris Agreement	GHG Reduction and Management Act & NDCs
2017		National Climate Change Action Guidelines GHG Reduction Action Plan in Taiwan

source: Compiled by the author

After the UNFCCC was adopted in 1992, the Executive Yuan formed the Working Group for Global Environmental Change with the mandate to address global environmental change. The working group was expanded into a Working Committee for Global Environmental Change when the UNFCCC came into effect in 1994. When the Kyoto Protocol was adopted in 1997, the committee was upgraded to a formal institution named the National Council for Sustainable Development Network. The network consisted of eight working groups, including Atmosphere Protection and Energy which addressed climate change directly. In 1988, the Executive Yuan held the first National Energy Conference. Despite the opposition from the economic and industrial sectors, the conference decided to

follow the Kyoto Protocol emissions reduction model and set a target to reduce CO_2 emissions to the 2000 levels by 2020 (T.-L. Lin, 2008). After the Kyoto Protocol came into effect in 2005, the second National Energy Conference established a more concrete climate plan to reduce CO_2 emissions by 30% from the business as usual (BAU) level by 2025-2030. The government also held the National Sustainable Development Conference and Taiwan Economic Sustainable Development Conference in 2006. The purpose of these two conferences was to establish consensuses and frameworks which would allow the government to address climate change issues from energy, environmental, and economic perspectives. In 2008, the Taiwanese government approved the Policy Guidelines for Sustainable Energy and the Action Plan for Energy Conservation and Carbon Reduction. A formal target was thus established to reduce CO_2 emissions to the 2008 level between 2016 and 2020, and the 2000 level by 2025.

Although no legally binding agreement was reached at COP15 in 2009, a non-legally binding Copenhagen Accord was adopted. The accord encouraged developed countries to pledge rigorous and robust CO_2 reduction plans and invited developing countries to submit Nationally Appropriate Mitigation Actions (NAMAs)[14] based on national governments' climate initiatives. In response to the Copenhagen Accord and to reaffirm its share of responsibility, in 2010, the Taiwanese government announced the National Master Action Plan on Energy Saving and Carbon Reduction as its NAMAs and pledged to cut GHG emissions by at least 30% below the BAU level by 2020 (Shen, 2010).

In 2012, the Executive Yuan approved Taiwan's first National Climate Change Adaptation Policy Framework, which covers eight significant domains, including disasters, infrastructure, water resources, land use, coastal zones, energy supply, agricultural production and biodiversity, and health. The objective of the adaptation policy is to increase Taiwan's adaptive capacity towards climate change, as well as to reduce Taiwan's vulnerability to extreme weather events (Council for Economic Planning and Development, 2012). The framework later served as the

[14] The NAMAs are a set of policies, projects and programs that parties to the UNFCCC undertake in developing countries as part of their commitment to GHG emissions reduction. They may include policies or actions addressing climate change across sectors with means such as technology, financing, and capacity-building.

primary reference for each governmental department in climate adaptation. At the same time, the framework also facilitated activities, such as research, education, and public participation, to coordinate and integrate each sector's adaptation strategies (Council for Economic Planning and Development, 2012, p. 64).

4.2.1 Taiwan's First Climate Legislation: the GGRMA

Among Taiwan's climate commitments that were made corresponding to the UNFCCC climate process, the most substantial and the only one with legally binding power is the GGRMA, which was passed ahead of COP21 in 2015. As the Kyoto Protocol expires in 2020, the post-Kyoto negotiations for a new climate regime were already initiated in COP 13 in Bali, Indonesia, in 2007. After a contentious and challenging negotiation process, parties managed to move from the Copenhagen Accord, which was primarily based on "political commitments" to the Paris Agreement that was shared between states and governed by international laws (Bodansky, 2016, p. 145). The UNFCCC and its parties announced the Paris Agreement as the successor in December 2015. With 195 signatories, for the first time in history, the Paris Agreement brings almost all countries in the world into a common cause to undertake ambitious efforts to mitigate and adapt to climate change effects. The central aim of the agreement is to strengthen the global response to climate challenges by keeping the increase in average global temperatures to below 2 degrees Celsius above pre-industrial levels - and ideally below 1.5 degrees Celsius (The Paris Agreement, 2015). At the same time, parties are required to submit their NDCs that lay out what post-2020 climate actions that they intended to take under the agreement. To reach these goals and to support countries - especially the developing and most vulnerable ones - in achieving their national objectives, the Paris Agreement provides financial flows and knowledge transfers, as well as sets up technology and capacity building frameworks (The Paris Agreement, 2015).

To demonstrate Taiwan's commitment to tackling climate challenges, the Legislative Yuan of Taiwan passed the GGRMA in providing a legal basis for an array of mitigation measures in June 2015. Prior to the GGRMA, the government had been addressing climate change mitigation and adaptation through a

combination of policy tools that were not necessarily well equipped with adequate legislative authorization (W.-C. Shih, 2016, p. 110). The GGRMA sets up a long-term national goal that Taiwan shall reduce GHG emissions to no more than 50% of 2005 GHG emissions by 2050, as well as calls for periodic five-year reduction targets and offered economic incentives to gradually establish an emissions trading scheme.

The legislative process behind the GGRMA took nine years to complete. The GHG Reduction Bill (GRB)[15] was first drafted by the EPA under the Chen Shui-Bien administration and approved by the Executive Yuan in 2006. The first reading of the act by the Legislative Yuan took place in October 2006. When the KMT's Ma Ying-Jeuo came into power in 2008, the Executive Yuan and the Legislative Yuan continued the GRB discussions. Different versions of GHG reduction bills were proposed by both the KMT and DPP legislators. No consensus on the GRB could be reached between the political parties and industrial sectors until April 2015. After the last round of political party caucus negotiations took place on June 10-12, 2015, agreements on the GGRMA, was finally reached by policymakers and interest groups. The GGRMA was passed with the inclusion of six chapters and thirty-four provisions on 15 June.

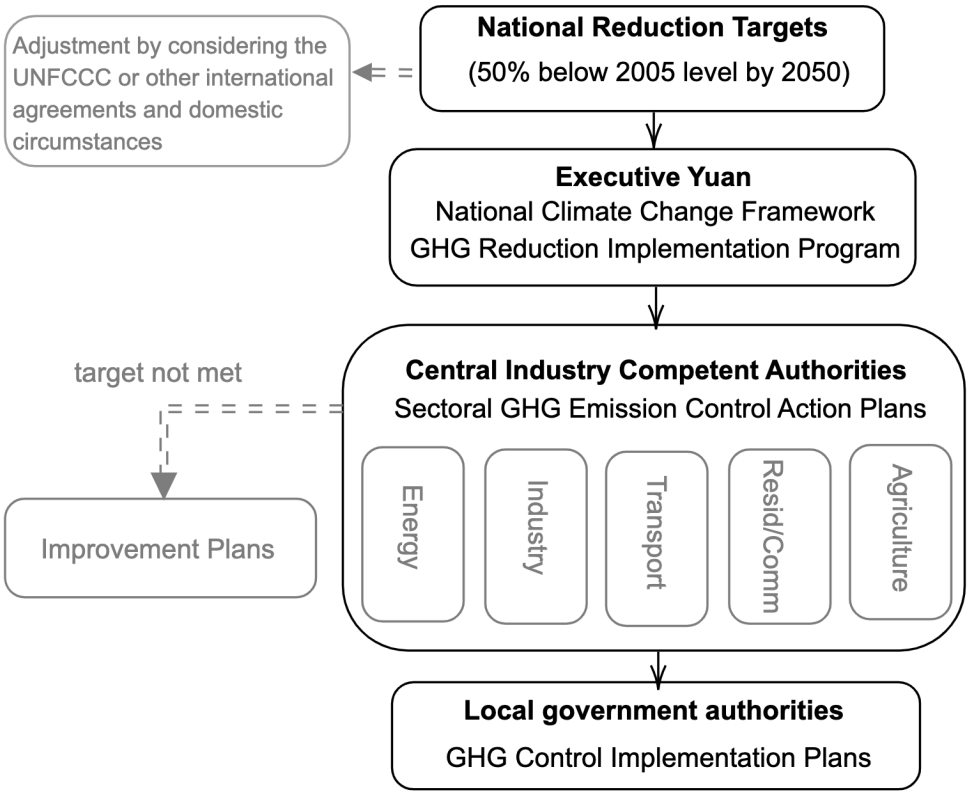
The GGRMA addresses three significant areas: climate mitigation, adaptation, and green growth. The mitigation section - GHG Reduction Implementation Program - requires designated emissions sources to report their emissions data and comply with the standards. It also sets up offset projects and emission trading schemes. The GHG emissions control action plan (with emissions targets and timelines) applies to five primary sectors: energy, industry, transportation, residential, and agriculture. The adaptation section enables the EPA to set up a National Climate Change Framework and requires central government agencies to implement adaptation actions. Figure 4.2 shows the distribution of responsibilities under the GGRMA.

As noted previously, the GGRMA lays down a specific target and timetable for Taiwan's GHG emissions reductions. The GGRMA specifies that "long-term national

[15] The "GHG Reduction Bill" is the name first proposed by the EPA in 2006 under the DPP government. The name was changed to the "GHG Reduction and Management Bill" by the KMT government in 2015.

GHG emission reduction goal shall be to reduce GHG emissions to no more than 50% of 2005 level by 2050" (*Greenhouse Gas Reduction and Management Act*, 2015). Based on the GGRMA, the targets shall be timely adjusted by the EPA based on the decision of the UNFCCC and its agreements as well as related international conventions. In addition, to respond to the Paris Summit's call for NDCs, Taiwan announced its NDCs and announced that it would implement an economy-wide target to reduce GHG emissions by 50% from the BAU level by 2030.

Figure 4.1 GHG Reduction Targets and Authorities' Responsibilities



source: adapted from the EPA. Compiled by the author

After the GGRMA entered into force, the next elected president Tsai Ing-Wen, continued the emissions reductions and energy transition trajectory. The Tsai administration announced that the government was committed to a targeted fuel mix of 20% renewables, 50% natural gas, and 30% coal by 2025. To reduce GHG emissions and increase the percentage of renewables, the Tsai government launched an integrated wind farm zone, *Formosa 1*, with offshore wind power

generators near Miaoli County (苗栗) starting in 2016. Furthermore, to carry out the GGRMA, the EPA formulated the National Climate Change Action Guidelines and the Greenhouse Gas Reduction Action Plan as the general guidance for GHG emissions reductions. In addition, as of February 2020, the EPA also announced another 12 regulations and six executive orders to support the GGRMA and to reach the emissions targets. These regulations and orders cover topics, including emissions reporting and verification mechanisms, performance rewards, and the carbon trading framework. The GGRMA remains the cornerstone of Taiwan's attempts to respond to the international climate process and is the main legal infrastructure underpinning Taiwan's climate change actions.

4.2.2 Economic Development and Energy Status

Considering Taiwan's energy and emissions portfolio, the reduction targets proposed by the Taiwanese government are very ambitious. Taiwan was a capitalist development state for several decades (Y.-S. Wu, 2007, p. 977). Since Chiang Kai-Shek, who was in power from 1949 to 1975 in Taiwan, fled to the island in 1949, the primary goal of the Chiang regime (1949-1987) was economic growth and infrastructure development (Grano, 2015, p. 40). Taiwan transformed from depending on the US foreign aid, which helped Taiwan to stabilize its post-war economy, to an export-oriented economy consist of small and medium-sized industries in the 1960s (Grano, 2015, p. 40). During this period, manufacturing slowly took over the steadily growing agricultural industry (Williams & Chang, 2012). As the economic situation in Taiwan started to prosper, the industrial base expanded along with coal production (Price & Probert, 1995, p. 44) under the state-directed economic system (Chi, 1994, p. 25). Taiwan encountered many environmental issues on the path toward industrial-based economy. The authoritarian government's attention was fixated mainly on economic success; the environmental degradation that came with it was largely ignored (Chi, 1994, p. 25). Environmental pollution in the 1960s came from industries producing plastics, petrochemical, pesticide, and other high polluting products (Edmonds, 1996, p. 1224). These heavy industries, which still constitute a substantial share of Taiwan's economy today, were rooted in Taiwan due to the lack of the

government's political will in regulating pollution. Heavy industries were attracted to Taiwan partly because of its lower environmental standards compared to its major partners, the US and Japan (Edmonds, 1996, p. 1224). Starting from the 1970s, the KMT government lifted many trade restrictions and lowered tariffs to promote foreign trade. To modernize the island and to lay the foundations for basic infrastructure, massive construction plans such as the Ten Major Construction Projects (十大建設) and the Twelve Major Construction Projects (十二大建設),[16] were launched between the 1970s and 1980s. In the 1980s, the KMT government established Taiwan's first Silicon Valley in Hsinchu in pursuit of industrial upgrading and expansion of the electronic industry. By 1990, electronic products, including semiconductors and communications products, were targeted as the next significant development (L. F. Yang, 2008).

Environmental Movements and Democratization in the 1980s

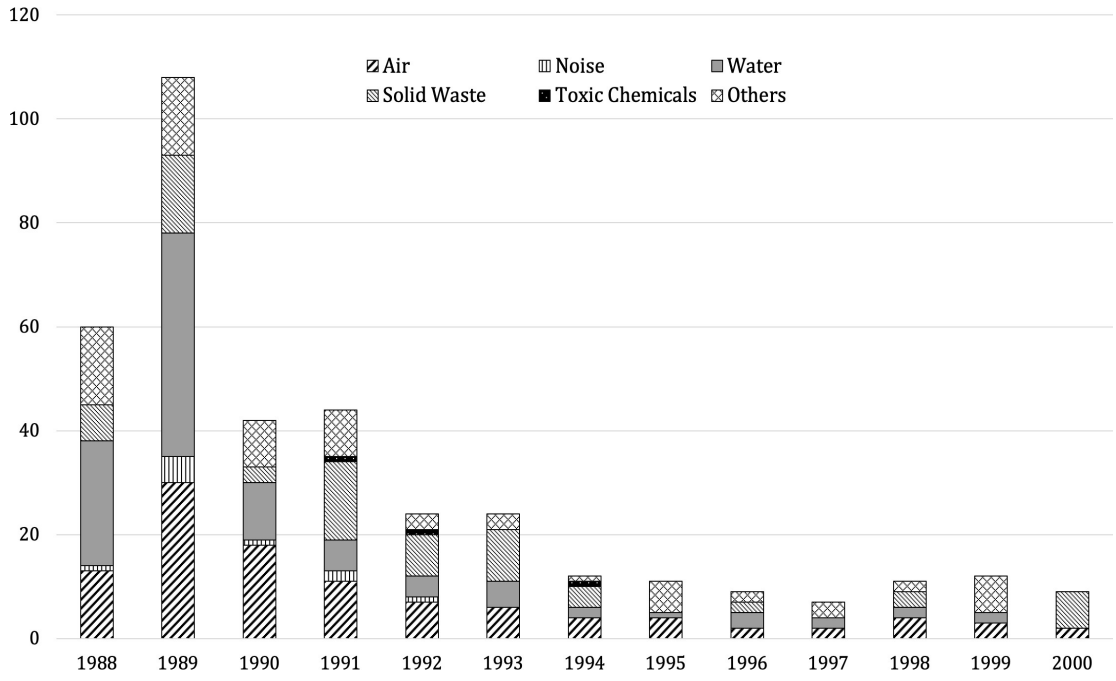
Environmental deterioration was especially severe under the KMT government in the 1980s when Taiwan was being crowned as an Asian Tiger for its unrestrained economic development and industrialization. While the KMT was enjoying this economic prosperity, environmental movements started to emerge at the local level and challenge the KMT's authoritarian rule. As Hsiao (1990, p. 228) argues, environmental issues became a severe social problem between 1983 and 1986, and people lost confidence that the KMT government was going to respond adequately or effectively. The most notable environmental movement was the anti-DuPont movement in Lukang, Changhua county, in 1986. Local residents protested against the US company in constructing titanium dioxide plants that may pollute the nearby seawater and hinder the local fishing and farming activities (M.-S. Ho, 2013). Peoples' strong environmental dissatisfaction was later intertwined with democratization movements (Hsiao, 1999) and the founding of the first opposition party, the DPP, in 1986.

Concerning the increasing domestic and international pressures for democratization, the KMT government terminated the Martial Law in 1987. Bans

[16] These projects included nuclear power plants, steel industries, petrochemical plants, international airport, and highways.

on public assembly, expression, and publication were also lifted. In responding to the increasing number of environmental protests, the KMT government established the first EPA in 1987, hoping to reinforce the environmental regulations and containing people's dissatisfaction (M.-S. Ho, 2016, p. 548). Figure 4.3 shows the number of environmental protests during this period.

Figure 4.2 Number of Environmental Protests (1988-2000)



Source: adapted from the EPA's Yearbook of Environmental Protection Statistics, 2002 and 2009. Compiled by the author

Numerous pollution control measures, including the Pollution Dispute Resolution Law and the Environmental Impact Assessment Law, were thus amended or enacted by the government between the late 1980s and early 1990s (Terao, 2007, p. 230).

The DPP increasingly gained more political influence with this wave of environmental movements and managed to obtain several seats in the first open election for Legislative Yuan in 1992 (M.-S. Ho, 2011, p. 287). As the DPP earned more political power, it gradually shifted away from confrontational environmental movements to appeal to median voters (Grano, 2014, p. 135; M.-S.

Ho, 2010, p. 11). Although the KMT's political control weakened as a result of the challenges from the DPP and was forced to hand over power in the 2000 presidential election, the underlying growth-oriented policy remained as the top governmental priority for the DPP (Chi, 1994, p. 42). Even though the DPP is still more amenable to environmental issues and environmental NGOs comparing to the KMT, both parties are often criticized for prioritizing economic growth over environmental protection (Grano & Ping-Lan, 2019, p. 122),

This long-standing economic-oriented policy not only made Taiwan become the 19th highest GDP per capita based on purchasing power parity (PPP) in 2018 (Everington, 2018) but also contributed to its increasingly growing high-tech and manufacturing industries. As of 2019, Taiwan's industry (with 31.44 % from the manufacturing industry) accounted for 35.81 % of the total GDP. Among the manufacturing industries, the semiconductor industry contributed the most (around 33 %) to Taiwan's foreign export, and its semiconductor equipment market was ranked as the biggest in the world in 2019 (MOEA Department of Statistics, 2020). Nevertheless, with the rapid growth of industrialization, carbon emissions and fossil fuel consumption also drastically increased.

Taiwan's Energy and Emissions Status

Considering its economic structure and geographical conditions, Taiwan encountered several inherent challenges to reduce its GHG emissions. Taiwan had a nearly 90% dependence on imported fossil fuel, and nearly 50% of its CO_2 emissions come from industrial sectors. Due to its lack of natural resources and geographical constraints, Taiwan relies heavily on imported energy - mostly coal,[17] natural gas, and oil - which accounted for 97.98 % of its total energy supply in 2017, while indigenous energy only accounts for 2.02% (MOEA Bureau of Energy, 2018b). According to energy statistics, Taiwan's imported energy includes crude oil and petroleum products (48.39 %), coal (30.17 %), liquified natural gas (LNG) (14.98 %), and nuclear (4.43 %). Indigenous energy includes biomass and waste

[17] Taiwan once had its coal production from 1960s to early 1990s. But the mining activity ended in late 1990s due to the more competitive price of imported coal. After 2000, Taiwan relies only on imported coal.

(1.15 %), hydro (0.36 %), solar photovoltaic and wind (0.22 %), natural gas (0.16%), solar thermal (0.08 %) and crude oil (0.16%) (MOEA Bureau of Energy, 2018b).

Taiwan's electricity is primarily generated from fossil fuel sources. From 1997 to 2017, Taiwan's total electricity generation increased rapidly from 150,486 GWh to 270,279 GWh with an average 2.97% annual growth rate over these 20 years (MOEA Bureau of Energy, 2018b). According to the Bureau of Energy statistics, a large share of electricity generation in Taiwan is based on coal and LNG. Renewable energy accounted for only 4.59% of total electricity generation and 1.03% of total energy consumption in 2017 (MOEA Bureau of Energy, 2018b). Consequently, it was no surprise that Taiwan has relatively high CO_2 emissions due to its economic and energy structures. In particular, its overwhelming energy dependence on fossil fuels has incurred significant CO_2 emissions. According to the Bureau of Energy, the total CO_2 emissions from fuel combustion in 1990 were 109.46 million $MtCO_2$-eq, which continued to increase to 209.21 million $MtCO_2$-eq in 2000 and 269.45 million $MtCO_2$-eq in 2017 (see table 4.2). They then decreased slightly to 268.68 million metric tons in 2018 (MOEA Bureau of Energy, 2019, p. 9). Taiwan's CO_2 emissions per capita rose steadily from 1990 to a peak in 2017. They started relatively low at 5.41 metric tons in 1990 but then rose to 10.81 metric tons in 2010, 11.02 metric tons in 2015, and 11.44 metric tons in 2017 before falling slightly to 11.32 metric tons in 2018. The carbon intensity of production was 0.02284 in 1990 had been declining and fell to 0.01587 in 2018. Figure 4.3 shows the yearly changes in CO_2 emissions and CO_2 emissions per capita from 1990 to 2018.

Table 4.2 CO_2 Emissions in Taiwan (1990-2018)

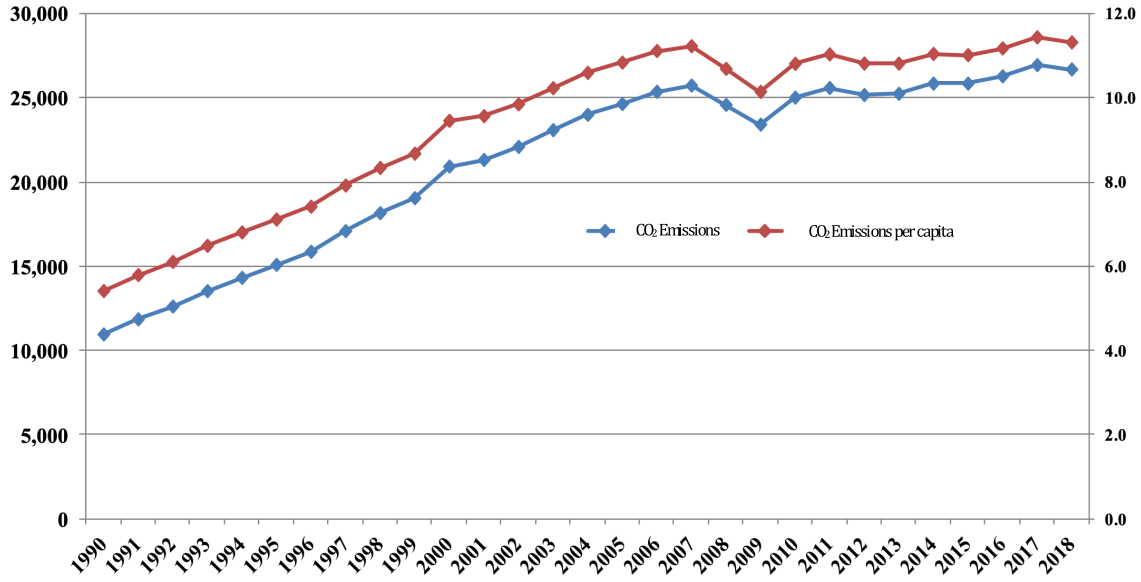
Year	**CO2 emissions***	**CO2 emissions per capita****	**Carbon Intensity*****
1990	10,946	5.41	0.02284
1995	15,080	7.11	0.02193
2000	20,921	9.46	0.02281
2005	24,636	10.84	0.02205
2010	25,015	10.81	0.01814
2015	25,847	11.02	0.01651

2017	26,945	11.44	0.01645
2018	26,688	11.32	0.01587

* ten thousand metric tons of carbon dioxide equivalent (MTCO2 Eq.) ** metric tons per capita ***Kg of CO_2 per US$ PPP

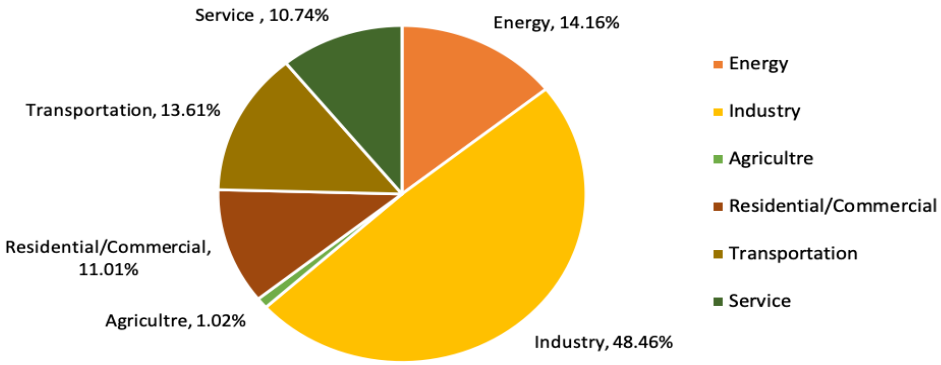
source: Adapted from Bureau of Energy (2019, p.10)

Figure 4.3 CO_2 Emissions and CO_2 Emissions per Capita (1990-2018)



source: Adapted from Bureau of Energy (2019, p.10)

Figure 4.4 CO_2 Emissions by Sector (2018)



source: adapted from the EPA, GHG Emissions Statistics (溫室氣體排放統計), https://www.epa.gov.tw/Page/81825C40725F211C/6a1ad12a-4903-4b78-b246-8709e7f00c2b%E3%80%80

In terms of sectoral contributions (including sectoral electricity consumption) to CO_2 emissions in Taiwan, figure 4.4 shows that the industrial

sector accounted for 49.78 % of total CO_2 emissions, the transport sector 13.61%, and the energy sector 14.16% (EPA, 2019). This means that the industrial sector was and still is the largest CO_2 emitter in Taiwan and the target sector for GHG emissions reduction. According to the EPA, the service sector had the highest annual growth rate of CO_2 emissions between 1990 to 2018, followed by the residential/commercial sector, industrial sector, energy sector, and transportation sector (EPA, 2019).

In comparison to other countries, Taiwan's total CO_2 emissions were relatively high, considering its population (23 million) and area. According to the 2019 analysis from the EPA, Taiwan's total CO_2 emissions from fuel combustion in 2017 were 268.9 million $MtCO_2$-eq, which accounted for 0.82% of global emissions, meaning Taiwan ranked 21st in the world. Taiwan's CO_2 emissions per capita were 11,38 metric tons putting it 19th in the world (EPA, 2019).

5 The Emergence of Climate Actions (1990-2000)

The formation of Taiwan's climate agendas cannot be understood without reference to the broader economic and geopolitical frameworks. Through examining how Taiwan's responded to multilateral environmental agreements (MEAs), including the Montreal Protocol and the Convention on International Trade in Endangered Species in the 1990s, this chapter identified the unique pattern of how Taiwan responded to international environmental developments. This chapter then examines how this pattern shaped the climate discussion and facilitated the first National Energy Conference in 1998, which was the first official attempt to voluntarily complying with the UN climate process.

5.1 Economic Development and Foreign Trade

Under Chiang Kai-Shek (1949-1975) and his successor, Chiang Ching-Kuo (1978-1988)'s, leaderships, Taiwan had experienced one of the fasted economic growth rates in the world for nearly four decades. Starting from the 1960s, the Chiang government deployed numerous labor-intensive and export-oriented industries focusing on producing consumer goods (such as umbrellas, toys, and shoes). In the 1970s, the government launched a series of heavy industries development projects which focused primarily on petrochemicals and steel (M. C. Y. Lin & Wong, 2016). At the same time, science and technology industries were gradually expanding their scales with the establishment of the government-funded ITRI in 1973. In the 1980s, the government built the Silicon-Valley style Hsinchu Science Park to nurture more high-tech industries development and to support scientific research. Giant high-tech firms, including today's leading semiconductor company in the world – Taiwan Semiconductor Manufacturing Company (TSMC), were established during this period in the Hsinchu Science Park. To boost its export market and to better integrate into the world economy (M. C. Y. Lin & Wong, 2016), the government initiated a set of institutional reforms and trade liberalization (H.-

I. Wu & Wu, 1987, p. 81). These liberation measures, including reducing the nominal tariff, decreasing the non-tariff barriers, lifting trade restrictions with socialist countries, and relaxing the investment controls, were closely associated with Taiwan's strong developmental state context and made Taiwan the thirteenth-largest trading economy in the world in the 1990s (Dent, 2003, p. 461).

5.1.1 Taiwan's Bid for the GATT/WTO Membership

To be further integrated into the global market and to increase the international footprints, Taiwan joined the Pacific Basin Economic Council (PBEC) in 1984 and the Pacific Economic Cooperation Council (PECC) in 1986. Lee Teng-Hui (1988-2000), the successor of Chiang Ching-Kuo, continued with this quest for greater economic integration and submitted the formal application[18] to join the most important international trade regulatory regime at the time, the General Agreement on Tariffs and Trade (GATT) (S. Chan, 1994).

By the time of apply for the GATT membership, Taiwan had the total volume of trade (US$121.9 billion), which was larger than the PRC (US$ 115.4 billion). The former US President George Bush, the then European Community, and other GATT members had expressed their support for Taiwan's bid (Qin, 1992) despite the strong opposition from the PRC. After two years of negotiations, the GATT accepted Taiwan's application and set up a working party on Taiwan's bid in 1992. Nevertheless, due to Beijing's protests, Taiwan only became an official member of the WTO, the successor of the GATT, on 1 January 2002 (Charnovitz, 2006).

5.1.2 MEAs and Trade Provisions for Non-parties

How did Taiwan's odyssey to join the GATT/WTO pave the way for Taiwan's voluntary response toward multilateral environmental/climate agreements? During the 1960s, the adverse environmental impacts, which were caused primarily by agricultural and industrial actives, alerted the people across the world. Many marked Rachel Carson's Silent Spring, published in 1962, as the

[18] The name that Taiwan applied with was "Customs Territory of Taiwan, Penghu, Kinmen and Matsu," which represented the four large islands under the ROC's governance.

beginning of the modern environmental movement. Silent Spring raised significant concerns on the use of pesticide, Dichlorodiphenyltrichloroethane (commonly known as DDT), and the impacts of unregulated industrial activities among the American society. Numerous environmental movements emerged in western societies and protested against environmental pollution and degradation. As transboundary environmental issues became increasingly challenging, multilateral environmental agreements (MEAs) were gradually adopted by countries. Following the UN Conference on the Human Environment (also known as the Stockholm Conference), which was held in Stockholm in 1972, a significant number of MEAs addressing different aspects of environmental problems had been implemented. For instance, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (also known as the Basel Convention) was adopted in 1989 and designed to tackle the transboundary hazardous waste. The Vienna Convention for the Protection of the Ozone Layer was signed in 1985 to reduce the production of chlorofluorocarbons that led to the destruction of the ozone layer.

Most MEAs include a wide range of approaches to achieve their environmental objectives. As the interaction between economic activities and the natural environment became inevitable while addressing environmental issues. Some MEAs incorporate instruments that contain some degree of trade regulation, such as trade bans, export/import licenses, notification requirements, and packaging, labeling requirements (WTO, 2004b). These trade-related provisions are especially significant in supporting the phase-out of certain environmental harmful substances and assisting the compliance and enforcement of their member parties (UNEP, 2007, p. 10). There are about 20 MEAs that incorporate trade-related measures, the most notable ones, for example, include:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Montreal Protocol on Substances that Deplete the Ozone Layer (the Montreal Protocol);
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention);
- Cartagena Protocol on Biosafety;

• Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (the Rotterdam Convention); and
• Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention).

Besides applying the trade-related provisions on their signatory parties, some MEAs also include provisions that apply to non-parties who share trade relations with party members. Often these trade provisions were designed to eliminate incentives that encourage non-parties to "take environmental and economic advantage of other nations that are parties to the agreement" (Caldwell, 1994, p. 18). The non-party nation provision was a unique way to deal with countries which were not yet a party to MEAs, or to deal with a country like Taiwan who could not become a party due to political reasons (Barrett, 2010, p. 6).

While MEAs' trade provisions could be effective in achieving their environmental goals, there is a possible source of conflicts between the trade provisions and the GATT/WTO's non-discrimination principle, also known as "most favored nation treatment" (Caldwell, 1994; Wold, 1996; WTO, 2004b). Such conflicts, according to the WTO, could take place "when an MEA authorizes trade between its parties in a specific product, but bans trade in that very same product with non-parties" (WTO, 2004b, p. 36). To address the disputes, since 1994, the GATT/WTO has established special agencies and mechanisms, such as the Committee of Trade and Environment, providing multilateral approaches for its members. As an official member of the GATT/WTO, its rights and obligations would be protected under dispute mechanisms, and the effect of MEAs' trade provision would be reduced to a minimum (Caldwell, 1994; W.-C. Shih, 1996).

What does it mean for Taiwan in the 1990s? As a non-party member to most MEAs and the GATT/WTO, Taiwan could not participate nor defend its interests at any MEA's negotiations if specific trade provisions were applied to Taiwan under the non-party clause (W.-C. Shih, 1996, p. 110). Therefore, while Taiwan began to integrate into the global market, the Taiwanese government started to pay more attention to international environment discussions that might impact its economic growth and foreign trade. Scholars and the EPA also recommended the government to adopt or to incorporate crucial MEAs' environmental objectives

unilaterally to avoid being subjected to MEAs' trade provisions (EPA, 2001; Ni, 2002).

Among many MEAs, the Montreal Protocol was the first international climate/environment agreements that raised Taiwan's attention on global environmental/climate change governance (T.-L. Lin, 2008). It was primarily due to the trade provisions to non-parties members implemented under the Montreal Protocol (Niu, 1999). Both the Ministry of Economic Affairs (MOEA) and the Environmental Protection Agency (EPA) established regulations following the Montreal Protocol in phasing out CFCs. The second MEA that made Taiwan revised its environmental regulations was the CITES, under which Taiwan was sanctioned for violating the CITES objectives.

5.2 Taiwan and the Montreal Protocol

Taiwan's voluntary adoption of climate-related measures that align with the international agreements could date back to the Montreal Protocol on Substances that Deplete the Ozone Layer (hereafter Montreal Protocol), which entered into force in 1989. Taiwan has implemented regulations following the Montreal Protocol and imposed strict customs control on the designated substance since 1989.

The Montreal Protocol was one of the very first international environmental agreements with ratifications from all 197 UN parties. The international community raised concern over the increasing ozone-depleting substances (ODS) that would harm the ozone layer during the 1980s. The parties of the Vienna Convention for the Protection of the Ozone Layer formulated international guidelines and cooperation, which later resulted in the Montreal Protocol in 1985. The protocol aims to eliminate the ODS that leads to the increase of ultraviolet (UV) radiation reaching the earth. The protocol includes different timetables and responsibilities for both developed and developing countries in phasing down the ODS (Article 5). Under the protocol, all parties have legally binding targets to achieve within designated timeframes (*Montreal Protocol On Substances That Deplete the Ozone Layer*, 1987).

To have more extensive compliance on phasing down the ODS across countries, trade provisions, the Control of trade with non-Parties (article 4), are established under the protocol. These provisions are designed to stimulate wide participation and compliance in the protocol by removing any competitive advantage that a non-party member might take advantage of (Werksman, 1992, p. 69). According to the second amendment made in London 1990, article 4 specifies the bans on import and export of controlled ODS from any state that is no party to the protocol (*Amendment to the Montreal Protocol on Substances That Deplete the Ozone Layer*, 1990).[19] Based on article 4, parties to the protocol can determine the feasibility of prohibiting or restricting products produced with or contain controlled ODS.

5.2.1 Perceived Trade Measures against Taiwan

Newly industrializing Asian economies, such as South Korea, Taiwan, Hong Kong, Singapore, Malaysia, and Thailand, were expected to be heavily impacted by the protocol's import (Goldberg et al., 1997, p. 21). These economies were heavily dependent on export, with a significant share of electronic products that contain ODS, to parties (largely developed countries) to the protocol. To avoid trade provisions under article 4 and to protect their electronic industries, these countries, except Taiwan, had ratified the Montreal Protocol.

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[19] Article 4 Control of Trade with non-Parties:

- As of 1 January 1990, each Party shall ban the import of the controlled substances in Annex A from any State no party to this Protocol.
- As of 1 January 1993, each Party shall ban the export of any controlled substances in Annex A to any State no Party to this Protocol.
- By 1 January 1992, the Parties shall, following the procedures in Article 10 of the Convention, elaborate in an annex a list of products containing controlled substances. Parties that have not objected to the annex in accordance with those procedures shall ban, within one year of the annex having become effective, the import of those products from any State not party to this Protocol.
- By 1 January 1994, the Parties shall determine the feasibility of banning or restricting, from States not party to this Protocol, the import of products produced with, but not containing, controlled substances. If determined feasible, the Parties shall, following the procedures in Article 10 of the Convention, elaborate in an annex a list of such products. Parties that have not objected to it in accordance with those procedures shall ban or restrict, within one year of the annex having become effective, the import of those products from any State not party to this Protocol.
- Each Party undertakes to the fullest practicable extent to discourage the export to any State not party to this Protocol of technology for producing and for utilizing controlled substances

Considering its trade-oriented economy and fast-growing electrical industry, Taiwan could hardly afford not complying the Montreal Protocol's objectives (D. O'Connor, 1991). Taiwan's trade with the US, Japan, and the UK, who were parties to the Montreal Protocol, accounted for an overwhelming share of total export and import in the 1980s. According to Taiwan's Bureau of International Trade's statistics, Taiwan's export to the US accounted for 48.8% of the total export in 1984 (36.2% in 1989), which was the highest of all time. Japan was the second most crucial export country and accounted for 13.6%. Hong Kong (under the United Kingdom's governance) was the third and accounted for 10.62 % (Bureau of International Trade). On the other hand, Taiwan's major export products during the 1980s and 1990s were primarily machinery parts (28.7%), electrical equipment and parts (27.9%), and plastics and articles thereof (25.5%) (Bureau of International Trade). Many products mentioned above contain or use during the production process many controlled substances (see table 5.1) under the Montreal Protocol.

Table 5.1 Comparison of CFCs Consumption in Selected Asia Countries

	Korea, Rep.	**Taiwan**	**Hong Kong**	**Singapore**	**Malaysia**
Total CFC/Halon Consumption (1986)	11,632	10,337	2,300	4,832	2,597
Change in CFC Consumption, 1986-1990(%)	143	-34	4	-14	68
Value of Electronics Exports, 1989(US$m)	13,500	12,500	11,200	15,300	6,000
Intensity of Use [a]	0.33[b]	0.16	0.15	0.18	0.22

[a]Intensity of Use: metric tons of CFC-113 consumed per million US dollars of electronic exports.

Source: adapted from *Policy and Entrepreneurial Response to the Montreal Protocol: Some Evidence from the Dynamic Asian Economics* (O'Connor 1991, p.14)

Scholars Shutter and Johnson (2019) have suggested that if Taiwan's major partners carried out article 4 and ban the import that contained the ODS, Taiwan

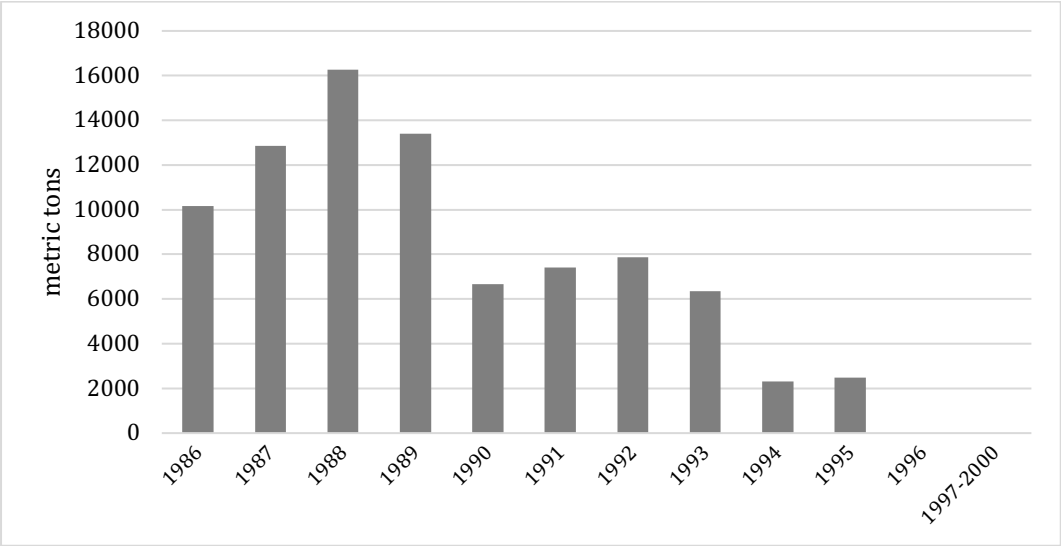
could lose as much as 8 billion US dollars at the beginning of 1996. The former EPA administrator Eugene Chien (簡又新) also suggested in 1990 that Taiwan must comply voluntarily with the Montreal Protocol, so its international trade was not endangered (Goldberg et al., 1997, p. 22). Against this backdrop, the Taiwanese government complied with the Montreal Protocol measures and adopted corresponding regulations to phase down the ODS between 1989 to 1995.

5.2.2 Regulations on the ODS Phase-down

Although Taiwan was not able to ratify the protocol, the government had actively participated in the negotiations under the name of ITRI since 1991. The team often consists of the EPA deputy administrators and the officials from the MOFA's Department of Treaty and Legal Affairs. After the Montreal Protocol entered into force in 1989, the MOEA set up the Montreal Protocol Special Task Unit (蒙特婁議定書專案小組) in the same year. The Guideline for Montreal Protocol Regulated Substance (管制蒙特婁議定書列管化學品作業要點) and other regulations were also launched to comply with the Montreal Protocol fully.

The government first banned the import of halons in 1994 and the production of CFCs and other ODS in 1996. Measures concerning the use of CFCs in the air conditioner system and the consumption of HCFCs were also carried out at the same time. Figure 5.1 shows that the total consumption of CFCs in Taiwan had decreased since 1989 and reached zero consumption between 1996 and 2000 under the government's regulations.

Figure 5.1 Total Consumption of CFCs (1986-2000)



Source: "Ozone Layer Protection: What Taiwan is Doing," EPA (2004a)

Besides the control measures, the government developed and promoted the use of ODS alternatives for air conditioners' refrigerant and electronic productions in phasing-out the ODS. Strict restrictions were also deployed to counter illegal trading of the ODS from neighboring countries following the Montreal Protocol's objectives (EPA, 2004a). Currently, there is no production of the ODS in Taiwan. The CFCs' consumption has been reduced to zero, and the only existing ODS in Taiwan is HCFCs. The remaining 10% of HCFCs' consumption has been steadily reduced through domestic control measures and is expected to reach 0.5% in 2020 and 0% in 2030.

The Evolving Task Unit in Ozon Layer Protection

The Montreal Protocol Special Task Unit was the first special task unit established corresponding to the international environmental developments. When the Earth Summit was held in Rio in 1992, the government merged the Montreal Protocol Special Task Unit and other task units to establish the Working Group for Global Environmental Change (全球環境變遷工作小組) under the Executive Yuan. The Working Group promoted the ozone layer and climate protection actions, as well as formulating strategies for participating in international environmental agreements. The Working Group was later expanded to Committee on Global

Environmental Change Policy (全球環境變遷政策指導小組) in 1994. The committee was designed to promote environmental and ecosystem protection, transnational pollution reduction, and international environmental participation. When the Kyoto Protocol was adopted in 1997, the committee was transformed into National Council for Sustainable Development (國家永續發展委員會), which was set up by Executive Yuan in addressing climate change mitigation and the ozone layer protection with specialized units.

5.3 Taiwan and the CITES

Another notable example illustrating Taiwan's voluntary adoption of MEAs' environmental objectives was the case of the Convention on International Trade in Endangered Species (CITES) in 1994.

Considering the exploitation of animals and plants was getting severe, the Convention on International Trade in Endangered Species of Wilde Fauna and Flora (the CITES), also known as the Washington Convention, was adopted by more than 80 countries in Washington, DC on 3 March 1973. The CITES was designed to regulate wildlife trade for conservation purposes. The CITES entered into force in 1975 and became an international agreement that has legally binding power on its parties. By ratifying the CITES, the parties agreed to regulate international trade in species listed in the three appendices, which include the species threaten to extinction, and species may become extinct if their trade is not regulated. To ensure the parties to the CITES taking specific enforcement measures, article 8 requires the parties to penalize trade with a nation that fails to comply with the provision for exporting an endangered species.[20]

[20] The CITES, Article 8 (1):
The Parties shall take appropriate measures to enforce the provisions of the present Convention and to prohibit trade in specimens in violation thereof. These shall include measures:
(a) to penalize trade-in, or possession of, such specimens, or both; and
(b) to provide for the confiscation or return to the State of export of such specimens.

5.3.1 Taiwan and the Illegal Trading

Taiwan's application for the CITES' membership, like other MEAs, has been rejected under the One China principle that adhered to most international organizations. Even though Taiwan failed to ratify the CITES, the illegal trading of endangered species on the island still caught the attention of concerned NGOs and parties. Taiwan, at the time, did not have major hunting activities on the endangered species. However, it was one of the most critical actors supporting the entire illegal trading system in Asia. Many endangered animals and their derivatives, including tigers, bears, rhinos, orangutans, leopards, and other species, were traded in Taiwan after collected from south East Asian countries. There had been several instances of endangered species shipped to Taiwan from Thailand and Vietnam in the 1990s (Highley, 1993). Most animals and their bones were sold for pharmaceutical reasons and other purposes.

An NGO that was observing the illegal trading launched a campaign in the United Kingdom to boycott any product imported from Taiwan (Mcbeath & Leng, 2006, p. 79; W.-C. Shih, 1996, p. 121) in November 1992. The NGO suggested that Taiwan was breaching the CITES for the alleged use of rhinoceros horn. Although Taiwan already had a biodiversity regulatory regime in place since the 1990s,[21] the penalties under the regime were considered as not effective (Mcbeath & Leng, 2006, p. 79). Rare and endangered species, such as rhinoceros horn and tiger bones, were still being traded as traditional Chinese medicines in Taiwan. Following the campaign concerning the illegal trading in Taiwan, more NGOs joined the petition demanding the CITES imposing trade sanctions against the Taiwanese authority (W.-C. Shih, 1996, p. 121).

A year later, a recommendation was made at the 29th Standing Committee of the CITES to ban trading rhinoceros horns in China, South Korea, Yemen, and Taiwan and to destroy the stock of horns owned by these governments (W.-C. Shih, 1996, p. 121). At the 30th Standing Committee, a decision was made that:

> Reports concern that the measures are taken by...the competent

[21] The regulatory regime on biodiversity conservation includes the Forest Law of 1932, the National Park Law of 1972, the Cultural Heritage Preservation Law of 1981, and the Wildlife Conservation Act of 1989.

> authorities in Taipei are not adequate to sufficiently control illegal trade in rhinoceroses' horn and tigers' parts, including failure to comply with measure outlined in Resolution Conf.6.10. Parties should consider implementing stricter domestic measures up to and including the prohibition of trade in wildlife species now. (para. 6, Decisions of the Standing Committee on Trade in Rhinoceros Horn and Tiger Specimens, 1993)

The Taiwanese government was asked to by the 31st Sanding Committee to improve the work of wildlife conservation within an eight-month timeframe. However, the Taiwanese government did not take any immediate remedy. According to the law scholar Shih (1996, p. 122), the Taiwanese authority rejected this opportunity because Taiwan was referred to as the "province of China," which strongly contradicts to Taiwan's sovereignty and national interests.

5.3.2 The Pelly Amendment and Trade Sanctions in 1994

By the time when the CITES decision was made in 1993, there was no major legislation change concerning this decision by the Taiwanese government (Mcbeath & Leng, 2006, p. 79). In light of the CITES recommendation and the evidence suggesting Taiwan's involvement in rhinoceros horn trade, on 11 April 1994, the US former President Clinton decided to carry out trade sanctions against Taiwan under the Pelly Amendment (Crawford, 1995, p. 565).[22] Considering Taiwan had not consolidated its stockpiles of rhino, and no more vigorous law enforcement was carried out (Crawford, 1995, p. 565), Clinton announced to ban all imports of wildlife products from Taiwan on 2 August 1994.

Unlike many countries, Taiwan could not bring this unilateral sanction to the GATT dispute settlement because its accession to the organization was still not accepted. In response to perceived foreign trade loss, the government adopted and amended regulations that were aligned with the CITES objectives. In 1994, the Legislative Yuan proposed a total number of seven amendments to revise the Wildlife Conservation Act. During the parliamentary meeting, the DPP legislator Loo Siu-It (盧修一) and other legislators stated that:

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[22] The Pelly Amendment was an amendment to Fishermen's Protective Act of 1967, it was first used to address the depletion of Atlantic salmon but was later broadened to allow to impose trade sanctions on nations trading threatened and endangered species in 1989.

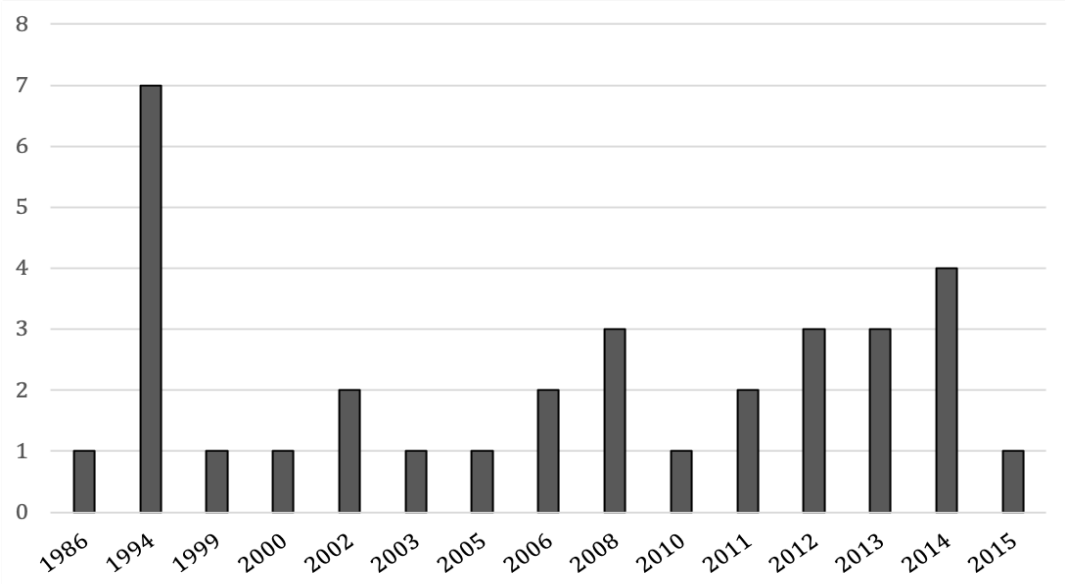
> Since the rhinoceros horn incident in November 1992, many international wildlife conservation groups have continuously accused our government of lacking measures in conserving wildlife animals. These accusations have made the US and the CITES prepare taking trade sanctions against Taiwan. It is going to damage Taiwan's international image and to put Taiwan under the constant pressure of trade punishments…The Executive Yuan should develop amendments to the Act in an attempt to resolve international trade sanctions. (Legislative Yuan, 1994, p. 49)[23]

The government and legislators' concerns over trade sanctions had facilitated the revision of the existing Wildlife Conservation Act to meet the CITES objectives. Figure 5.2 shows the number of proposed amendments to the Wildlife Conservation Act from 1986 to 2015. The amendments of the Wildlife Conservation Act in 1994 included raising the fines and incarceration from six months to five years for the trade/display of endangered wildlife products. The Taiwanese government also added heavy penalties for false labeling merchandise containing protected wildlife products and punishments for habitual offenders (Mcbeath & Leng, 2006, p. 79).

In response to the immediate strengthening of the wildlife production regulation in Taiwan, the Clinton administration revoked the sanctions considering the Taiwanese government had demonstrated sufficient improvement in regulating wildlife trading ("Termination of the Pelly Amendment Certification of Taiwan," 1997) on 29 June 1995. In the following year, Taiwan was hence removed from the Pelly Amendment's watchlist.

[23] The Original Text in Mandarin Chinese: 自八十一年十一月犀牛角風波以來，諸多國際野生動物保育團體不斷指責我國政府保育野生動物不利，導致美國與華盛頓公約組織紛紛醞釀對台灣實施經貿制裁，不僅嚴重損害國家形象，亦讓台灣長實受困於貿易報復壓力之下…行政院…快速研擬動保法修正案，企圖以化解國際貿易制裁。

Figure 5.2 Number of Amendments for the Wildlife Conservation Act



Source: Data from the Legislative Yuan records (1994), compiled by the author.

5.4 Taiwan's Initial Responses to the Kyoto Protocol

With the release of the Second Assessment Report by the IPCC in 1995, human activities to climate change were proven with scientific evidence. The report (1995), stating that "the balance of evidence suggests a discernible human influence on global climate," facilitated the discussion among international organizations and governments regarding responses toward human-induced global warming. Therefore, the Kyoto Protocol, which was the first international climate agreement under the UNFCCC, was adopted in December 1997 in Kyoto, Japan. The Kyoto Protocol aimed to assist industrialized countries in limiting and reducing GHG emissions according to the agreed individual targets.

Recognizing the different degrees of GHG emissions contributions, the protocol placed different weights of responsibility on the developed (Annex I) and developing countries (Non-Annex I) under the principle "common but differentiated responsibilities." For 36 industrialized countries in Annex I and the European Union, the Kyoto Protocol set binding emissions reduction targets. Except for national measures that each country established to meet their targets, mechanisms in assisting were established for assisting parties in meeting the designated emissions targets. These mechanisms included international

emissions trading, CDM, and Joint Implementation (JI)[24]. The purposes of these mechanisms were to encourage GHG abatement in the most cost-effective manner. These mechanisms also facilitated green investments and technology transfer in developing countries.

5.4.1 Climate-related Institutional Reforms

As the UN climate regime was gradually getting into shape, Taiwan established corresponding agencies and measures which aligned with the international climate developments. When the UNFCCC was adopted on 9 May 1992 at the Earth Summit in Rio de Janeiro, the Executive Yuan established the Working Group for Global Environmental Change (對外工作會報全球變遷工作小組) in the same year. When the UNFCCC entered into force in 1994, the Executive Yuan expanded the Working Group to a Steering Group for Global Environmental Change Policy (全球變遷政策指導小組) in 1994. In this steering group, it had six working groups focusing on the policy responses toward the Montreal Protocol, the Basel Convention, the UNFCCC, the CITES, the Agenda 21, and trade and environment. These working groups were organized by the EPA, the Council of Agriculture, and the MOEA.

To enhance the domestic measures, the Executive Yuan reorganized the Steering Group into a permanent cross-department organization, National Council for Sustainable Development (NCSD, 國家永續發展委員會) (Shyu, 2014, p. 338). The NCSD proposed several directions in pursuit of sustainable development. These directions include protecting the environment and ecologic system, ensuring social justice and fairness, promoting economic growth, establishing green Silicon Valley, and improving the living quality in Taiwan (Executive Yuan (行政院經濟建設委員會), 2004).

In addition to the institutional reforms, the government also established the China (Taipei) International Geosphere-Biosphere Program (IGBP) Committee

[24] The Join Implementation (JI) is a mechanism that allows non-Annex I countries to earn emission reduction units (ERUs) from climate mitigation projects. The EURs can be counted towards meeting its Kyoto target. See on the JI, for example, Kollmuss et al., "has Joint Implementation reduced GHG emissions?: Lessons learned for the design of carbon market mechanisms" published by Stockholm Environment Institute in 2015.

(國際地圈生物圈計劃中華民國委員會) at the national academy at the Academic Sinica in 1988. The IGBP Committee served as the first official academic exchange on global environmental change and participated in the first IGBP meeting in 1988. More research institutes and programs were established in addressing climate change. In 1992, the National Taiwan University established the first Global Environmental Change research institute. The National Science Council launched the World Climate Research Program (WCRP) and the International Human Dimensions Program on Global Environmental Change (IHDP) to strengthen the climate research in Taiwan (T.-L. Lin, 2008).

5.4.2 The Beginning of Climate Policymaking Process

Along the side of institutional reforms in addressing the global climate developments, legislative discussions and processes also began inside the Legislative Yuan since 1993.

On 26 May 1993, the KMT legislator Lin Xi-Shan (林錫山) proposed to address climate challenges and their potential impacts on Taiwan's agriculture industry. Lin suggested that the Taiwanese government should prepare corresponding measures to make the agriculture industry more resilient to natural disasters (Legislative Yuan, 1993a). In the same year, another KMT legislator Chang Chian-Kuo (張建國), made the first proposal suggesting that the government should respond to the establishment of the UNFCCC on 27 October 1993. Chang argued that there would be significant impacts on Taiwan's industrial sectors when a global emissions reduction regime was established. Chang requested the Working Group for Global Environmental Change to contemplate corresponding measures and strategies for participation in the UNFCCC (Legislative Yuan, 1993b).[25]

[25] Throughout the policymaking process, little attention was on Taiwan's climate adaptation before 2000. The adaption discussion only took place once in the Legislative Yuan. In 1995, the concerns over climate adaptation was raised by the KMT legislator Chiang Wei-Ping (江偉平) and the other 11 legislators, who demanded the government to address the climate adaptation, especially in the western part of Taiwan. Chiang stated that "in the combination of sea-level rise, which is induced by global climate change and global warming, and land subsidence, the impacts will cause the sea level to rise by one meter in 60 years and flood the 67 villages. The damages and losses will be unimaginable. We urge the government authorities to have appropriate measures in light of global climate challenges and disasters" (Legislative Yuan, 1995).

Perceived Trade Provisions under the Kyoto Protocol

Before the Kyoto Protocol was adopted in December 1997, policymakers in Taiwan were concerned that Taiwan would face trade-related provisions for failing to comply with the Kyoto Protocol's objectives. On 1 April 1997, led by the DPP legislator Shu Huan-Chih (蘇煥智) and other 17 legislators from different political parties, together they demanded that:

> A legally binding agreement with the sanction mechanism is expected to be adopted at the Third Conference of Parties in 1997. If Taiwan cannot respond in time and reduce its carbon emission to the 1990 levels by 2000, Taiwan will very likely face incomparable international trade sanctions, which will cause severe impacts to Taiwan's industry. We hence ask the Executive Yuan, including the MOEA, EPA, and other related agencies, to have corresponding measures for interpellation. (Legislative Yuan, 1997b)[26]

After the Kyoto Protocol was adopted in 1997, the Legislative Yuan called for an immediate and formal response to the Protocol in the same year. In the second session of the Economic Committee Sitting on 15 December 1997, Su and other legislators expressed their concerns over the Kyoto Protocol again. During this meeting, the DPP legislator Ker Chien-Ming (柯建銘) stressed that:

> If we cannot become a country that meets the Kyoto Protocol's objectives, other countries will use this protocol as a means to support their foreign trade [and hit Taiwan's economy]. The price we paid for the Pelly Amendment is the definitive evidence. (Legislative Yuan, 1997a)[27]

Nevertheless, the demands for climate adaptation measures did not receive substantial attention from the government, and there was no official response made on this issue.

[26] The original text in Mandarin Chinese: 全球氣候變化綱要公約預定於公元一九九七年舉行第三屆大會並將訂定具有法律效力的制裁性議定書，台灣若不能及時因應，於公元二零零零年將二氧化碳排放總量將至一九九零年的標準，就可能應此遭受國際的超級貿易制裁，對台灣的產業將早成嚴重的衝擊，故要求行政院全球氣候變遷政策指導小組的成員，包括經濟部經建會，環保署等相關部門至立法院進行應應對策專安報告並備質詢。

[27] The Original Text in Mandarin Chinese: 如果我國無法在國際成為一個符合公約標準的國家，就必須面對其他國家以此公約作為支援外貿的手段。證之過去我國在培利修正案所付出的代

Despite the demand for taking voluntary compliance from the DPP legislators, the KMT administration was more hesitant in adopting measures that align with the protocol's objectives. The representative of the Council for Economic Planning and Development under the Executive Yuan, Chiang Ping-Quen (江丙坤), stated that Taiwan had no legal responsibility in meeting the Kyoto Protocol's emissions targets (Legislative Yuan, 1997a). Wang Chi-Kan (王志剛), the Minister of the MOEA, stressed that if Taiwan ought to follow the protocol and return to the 1990 emissions levels by 2000, the Taiwanese GDP would drop 34% and caused severe impacts on the industry (Legislative Yuan, 1997a, p. 328).

After the Kyoto Protocol was adopted on 11 December 1997, 42 legislators across parties demanded the Executive Yuan again to adopt measures that align with the Kyoto Protocol in May 1998. They demanded the Executive Yuan again to adopt measures that align with the Kyoto Protocol. The KMT legislator Chao Yung-Ching (趙永清) and the other 41 legislators urged the KMT administration to have an appropriate response to the Kyoto Protocol and address Taiwan's sustainable development. Besides investing in the emissions reduction research, They also demanded the Executive Yuan to conducted a systemic reform of current energy and industrial structures (Legislative Yuan, 1998).

In response to the international climate developments and policymakers' pressure, the Executive Yuan hosted the first National Energy Conference on the 26 and 27 May in 1998 to secure economic development, stabilizing the energy supply, and protecting the environment while addressing the Kyoto Protocol (Legislative Yuan, 1998).

5.4.3 The First National Energy Conference in 1998

Although there had been several political discussions on taking proactive climate response, there were no specific measures adopted until the First National Energy Conference (NEC) took place on 26-27 May 1998 (MOEA, 2009). The first NEC was designed to make an official response to the adoption of the Kyoto Protocol in 1997.

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The NEC had five most essential agendas, which are the 1) response measures toward the Kyoto Protocol, 2) energy policy and energy structure adjustment, 3) industrial policy and industrial structure adjustment, 4) energy efficiency improvement, and energy technology development, and 5) energy policy tools. To respond to the Kyoto Protocol, the participants, including governmental officials, experts, and industrial representatives, suggested that Taiwan should proactively protect the environment and pursue sustainable development in a no-regret manner.

The proposal from the NEC marked the first official attempt to comply with the UN climate agreements voluntarily. Taiwan's first emissions reduction targets of reducing carbon emissions to the 2000 levels by 2020 (reduce to 223 million metric tons or ten metric tons of CO_2 per capita), which aligned with the Kyoto Protocol's objectives, was proposed and adopted at the NEC. The conclusion of the NEC also suggested that Taiwan should focus on renewable development and increased the usage of natural gas. That is, the government should give priority to promoting energy efficiency and vigorously promote energy conservation measures in various sectors (including industry, transportation, residential business, and power sector) to achieve a cumulative energy conservation rate of 16% in 2010, and of 28% by 2020. Moreover, the NEC made several recommendations regarding the renewable investments, economic mechanisms for the industrial sectors in reducing GHG emissions, and improvements of current energy-saving and efficiency rates. The participants at the NEC also urged the KMT administration to establish concrete policy tools, including energy price and tax systems, electricity management act, GHG emissions reduction act, and fossil fuel management act, in strengthening emissions reduction and energy conservation.

Although the decisions from the NEC were policy recommendations and had no legally binding power, it was also the first time the demands for GHG emission reduction legislation officially emerged in both the political and policy realms. The NEC thus marked the beginning of Taiwan's climate policymaking process.

5.5 Conclusion

Taiwan's voluntary compliance with the Montreal Protocol and the CITES served as an essential reference for climate responses toward the Kyoto Protocol in the 1990s. Both MEAs adopted trade provisions that applied to Party and non-party members to achieve their objectives. After the establishment of the Montreal Protocol Special Task Unit in 1989, Taiwan gradually phased out the ODSs to protect its foreign trade market from the trade provisions under the Montreal Protocol. On the other hand, Taiwan did not take voluntary compliance with the CITES when the CITES first adopted. Taiwan started to pay attention to wildlife conservation only after it was reported in 1992. Nevertheless, Taiwan did not revise and strengthen its Wildlife Conservation Act until the Clinton administration launched trade sanctions against Taiwan for involving in trading rhinoceros' horns in 1994.

With these experiences, the Taiwanese government was especially cautious after the Kyoto Protocol being adopted in 1997. Most Taiwanese policymakers referred to the Montreal and the CITES cases when demanding the Government to take voluntary compliance with the Kyoto Protocol. Scholars also suggested that the UN climate framework would have more significant impacts on Taiwan's industries and economic development comparing to the previous MEAs (Yeh, 1999, p. 323). Therefore, the concern for potential trade provisions under the Kyoto Protocol thus became a dominating factor in pushing the Taiwanese government to take voluntary compliance. To formulate appropriate responses to the international climate process, the Executive Yuan thus launched the first NEC in discussing Taiwan's climate commitments and measures in reducing GHG emissions in 1998.

6 The Formation of Climate Policy (2000-2008)

After the National Energy Conference in 1998, more concrete discussion regarding Taiwan's responses toward the international climate developments started to emerge during this period. This chapter first illustrates how Taiwan positioned itself under the Kyoto Protocol and the post-Kyoto negotiation from 2000 to 2008. It then describes the climate diplomatic approach adopted by the MOFA vis-à-vis the relationship with Beijing and how this foreign policy strategy shaped the climate discussion in Taiwan. The chapter also investigates how policymakers approached the GHG reduction bill and sheds light on why it was crucial for Taiwan to voluntarily adopt climate measures that aligned with UN climate developments.

6.1 Taiwan and the Kyoto Protocol

The Kyoto Protocol, which was adopted in 1997, marked the first intergovernmental attempt in regulating the global GHG emissions. After a prolonged struggle to gather a sufficient number of ratifications (Falkner et al., 2010, p. 8), the protocol came into force in 2005 when there were 55 parties officially ratified the climate agreement and covered at least 55 % of the global GHG emissions (*The Kyoto Protocol*, 1998).

The Kyoto Protocol encompassed both the significant global efforts in tackling climate change and the shortcomings in achieving its climate objectives. The Kyoto Protocol was the first global climate treaty with quantitative targets for GHG emissions reductions, which should be achieved in a specific timeframe. For instance, the Kyoto Protocol assigned reduction targets to the Annex I countries,[28]

[28] The Annex I included industrialized countries that were a member of Organization for Economic Co-operation and Development (OECD) in 1992 and countries with economies in transition (including the Russian Federation, the Baltic States, and several Central and Eastern the European States).

which ought to reduce their GHG emissions by at least 5% below the 1990 levels in the commitment period of 2008 to 2012. The protocol introduced flexible mechanisms such as the CDM, the JI, and emissions trading schemes to encourage its parties to carry out climate mitigation in a cost-effective manner (an Asselt et al., 2005). Other innovative provisions, such as a five-year commitment period and report on national emissions inventories, were also included in the protocol to ensure political and technical achievability from its parties.

On the other hand, several compromises were made for the Kyoto Protocol to be adopted. Comparing to other MEAs, such as the Montreal Protocol and the CITES, the Kyoto Protocol did not adopt any significant penalties, such as trade provisions or economic sanctions, to deter parties' and non-party members' non-compliance (Vespa, 2002). Without adequate monitoring and enforcement (Victor, 2001), the explicit consequences for non-compliance were so weak that curtailed the protocol's effectiveness (Grubb, 2004, p. 21). Moreover, the sharp division of GHG emissions responsibilities between Annex I and non-Annex I countries failed to address the emerging emitters' role in future mitigation efforts (Falkner et al., 2010, p. 11).

The absence of the United States, the world's biggest emitter, was considered a significant setback of the international climate process and dampers the Kyoto Protocol momentum (Eckersley, 2007, p. 315). The denunciation of the United States in 2001 also put heavier political and economic weight on the other Annex I countries. Canada, for example, renounced the Kyoto Protocol in 2011 and stated that the goals under the Kyoto Protocol were not realistic due to major CO_2 emitters such as the US and China did not agree to the Protocol. These shortcomings heavily undermined the incentives for countries to invest in climate mitigation and political will to take more ambitious climate actions (Falkner et al., 2010, p. 12).

6.1.1 Taiwan: Annex I or non-Annex I?

When the Kyoto Protocol was adopted in 1997, it was not clear that whether Taiwan would be considered as an Annex I or a non-Annex I country since Taiwan was neither a party to the UNFCCC nor a listed member of the OECD. Nevertheless,

other indications may serve as a reference in positioning Taiwan's climate responsibility. As the 15th largest trading economy in the world in 2004 (WTO, 2004a), Taiwan was categorized as a Newly Industrialized Economies (NIEs) along with South Korea, Singapore, and Hong Kong, which belonged to the non-Annex I category. Taiwan's economic status was once mentioned in a UNFCCC report "Investment and Financial Flows to Address Climate Change" (2007) that Taiwan (referred as "Chinese Taipei" in the report) was categorized as developing Asia, along with China, Cambodia, Thailand, and other non-Annex I countries. It is thus logical to assume that Taiwan would not be subject to emissions reduction targets and would be considered as non-Annex I country based on the categorizations.

Taiwan, on the other hand, recognized the potential economic costs for carrying out the emissions reduction responsibility as an Annex I country. According to the MOEA report, if Taiwan was considered as Annex I country, the emissions reduction requirements under this category would damage Taiwan's economic structure and development (P. H. (張伯豪) Chang & Ling, 2005; MOEA, 2007). Moreover, Taiwan was highly dependent on imported fossil fuel energy for nearly 80%. To meet the emissions reduction requirements as an Annex I country, Taiwan would have to reduce its GHG emissions by 227 percent in 2010 on a 1990 baseline (Y. W. Su, 2006). All coal-fired power plants, as well as major industries, would be expected to cease operation or move out of the island (Y. W. Su, 2006). Taiwan thus did not consider itself as an Annex I country with legally binding GHG emissions reduction responsibility.

6.1.2 Institutional Changes and Policy Responses

Even though Taiwan was not subject to the Kyoto Protocol's emissions targets, various climate mitigation measures that align with the UN climate developments were still being adopted by the Taiwanese government since 2004. Based on the document issued by the Executive Yuan's National Sustainability Development Committee (NSDC, 行政院國家永續發展委員會), the reason for the voluntary adoption was as follows:

> The Kyoto Protocol is scheduled to take effect in February 2005. Although Taiwan's GHG emissions are not regulated at this stage, Taiwan would attract international attention considering the fact that Taiwan ranks the world's 22nd place in GHG emissions, which accounts for nearly 1% of the world's emissions. After the Kyoto Protocol comes into effect, the next stage may be to discuss the reduction responsibilities of countries with large GHG emissions. Taiwan must be prepared in advance even though it is not a signatory to the Protocol. (NSDC, 2004, p. 6)[29]

As the excerpt from the NSDC document suggests, the NSDC was concerned that Taiwan might be subject to the post-Kyoto agreement considering its contribution to the global GHG emissions. In 2004, the Executive Yuan established a special task force, Climate Change and the Kyoto Protocol Responding Group (CCKPRG, 氣候變遷暨京都議定書因應小組) under NSDC. The CCKPRG constituted of four strategic sub-groups, including strategical planning and international negotiation (SB-1, 策略規劃與對外談判組) operated by the EPA, sectoral emissions reduction planning (SB-2, 部門減量規劃與策略組) operated by the MOEA, economic impacts mitigating and incentives planning (SB-3, 經濟衝擊調適與誘因規劃組) organized by the Council for Economic Planning and Development (CEPD), and scientific research and education (SB-4, 科學研究與教育宣傳組) organized by the National Science Council (NSC). Figure 6.1 provides a visualization of the CCKPRG's organizational structure. The NSDC demanded the responding group and related government agencies to propose Taiwan's emissions reduction strategies by the end of 2004 and to prepare the corresponding legislation. The NSDC also requested the MOFA to strive for opportunities in participating in the flexible mechanisms under the UN climate framework and prioritize the climate agenda as a foreign policy strategy in seeking international partnerships (NSDC, 2004, p. 6). These decisions later paved the way for the GHG Emissions Reduction Bill that was first proposed in 2006 and the launch of environmental diplomacy in 2007.

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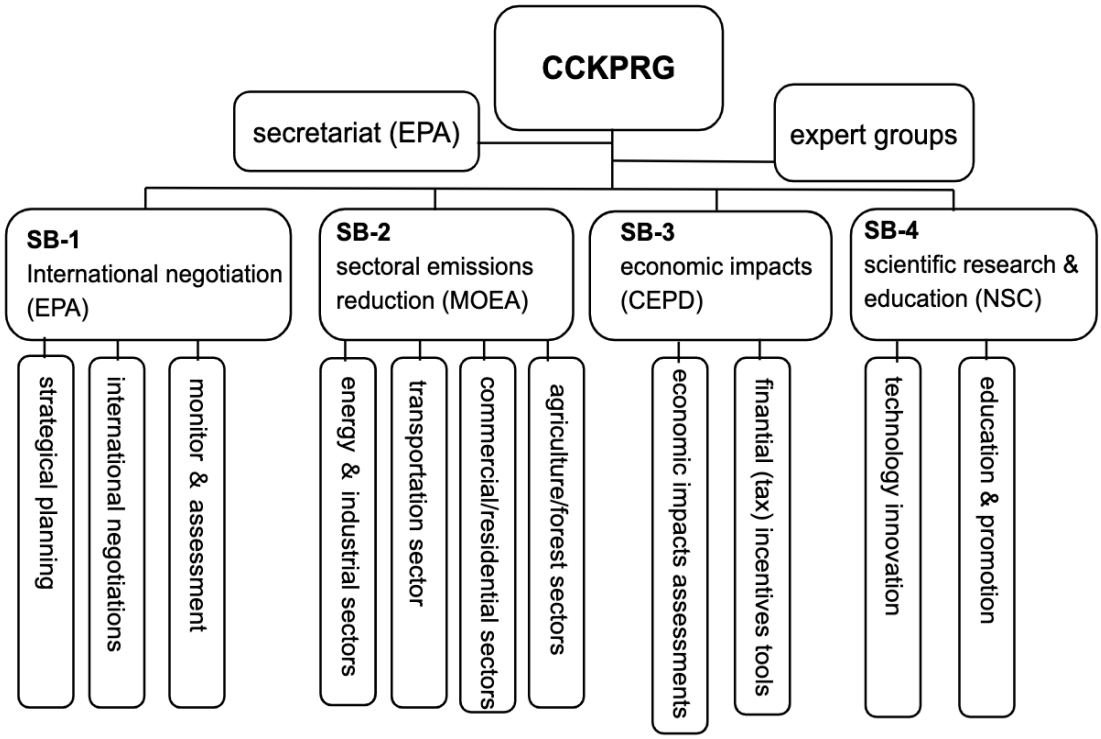
[29] The original text in Chinese: 京都議定書預定於明 (94) 年二月份生效，現階段雖未規範我國減量責任，但是，我國排放溫室氣體總量世界排名第 22 名，佔全世界近 1%，已經成為國際上不可忽視的目標。京都議定書生效後下一階段，可能將論及溫室氣體排放量較大國家之減量責任，我國雖非議定書簽署國，但須預做準備。

Figure 6.1 The CCKPRG's Organizational Structure



source: adapted from the NSDC report (2005, p. 42).
Compiled by the author.

In addition to the NSDC, the EPA (2005) also launched several projects in lowering the economic impacts on Taiwan's industrial sectors before the Kyoto Protocol coming into force in 2005. Starting from 2004, the EPA established an inventory registration platform that integrated the emissions data from the industry, transportation, and commerce sectors. The EPA also actively promoted the ISO 14064,[30]which provides governments and business clear guidelines and requirements to quantify, report, and verify GHG emissions among the electricity, petrochemicals, steel, cement, and semiconductor industries. To better assisted the significant emitters in reducing their GHG emissions, the EPA selected the

[30] The ISO, stands for International Organization for Standardization, is an independent NGO that provides common standards covering from manufacturing products, technology, food safety, agriculture and health care. The ISO is currently the world largest organization that publishes voluntary international standards. The ISO 14064 (published in 2006) has three parts, which includes principles and requirements at the organization, project level, and for those conducting or managing in quantification, monitoring, reporting of GHG emissions and removals. See more on the ISO 14064 at ISO "ISO 14064-1:2006" https://www.iso.org/standard/38381.html.

most polluted companies in Taiwan, including Taiwan Electric Power Company, China Steel Corporation, Chinese Petroleum Corporation (CPC Corporation, Taiwan), to participate in the trial of inventory reduction plans. The EPA Administrator Zhang Juu-En (張祖恩, 2003-2005) suggested that it was essential for Taiwan to act as early as possible in light of coming reduction demands from the UN climate process (EPA, 2005). To better integrate various sectors in carrying out GHG emissions reduction, the EPA launched a series of forums, meetings, and conferences and invited industry, government, academia, the public to participate. Among these events, the most important one was the second NEC, which not only reexamined the existing climate measures but also produced the future climate measures guidelines.

6.1.3 The Second National Energy Conference in 2005

The second NEC was designed to formulate a national response to the post-Kyoto discussion while uniting the opinions from both the private and public sectors (EPA, 2004b). It was Taiwan's first attempt to systemically streamline both the government and the civil society's efforts in mapping out the future direction of energy, climate, and sustainable development. The NEC laid down several vital guidelines, which included plans for energy structure and policy design, GHG emissions reduction planning, green energy development plan, and transport sector adjustments.

Seven years after the first NEC in 1998, the second NEC took place on 20-21 June 2005. The GHG emissions targets discussed in the second NEC were based on policies and measures proposed by different government departments. Through this bottom-up approach, the NEC aimed to produce climate targets that were both technologically feasible and economically viable (S.-W. (黃釋緯) Huang, 2006). The policy recommendations produced at the NEC suggested that the government should actively promote capacity building across sectors in GHG emissions reduction and voluntary reduction mechanisms in a step-by-step manner. The government should also facilitate measures such as cap and trade and carbon taxes at appropriate times. In terms of GHG emission reductions, the overall reduction target set by the NEC was to reduce CO_2 emissions by 170 million

metric tons by 2025 compared to the baseline emissions scenario. The target from the first NEC in 1998 was thus abolished and replaced with the goal of 1.5% annual CO_2 emissions growth rate from 2005 to 2025 (with the average 2.1% annual growth rate from 2000 to 2025)(Executive Yuan, 2009; S.-W. (黃釋緯) Huang, 2006). Unfortunately, there was no agreement reached on how much emissions should be reduced by sectors. To reach these new guidelines, the NEC recommended formulating a GHG emissions reduction legal mechanism that could provide legal bases for carrying out reduction measures. In addition, the NEC also suggested the government to decrease its energy dependence on fossil fuel and invest in renewable energy and low-carbon energy (natural gas) source. The share of renewable energy in the energy mixture was expected to reach 6% in the next 20 years (Liang, 2006).

Since the NEC's outcomes were based on what was achievable and feasible by each sector, the final policy recommendation did not satisfy most environmental organizations. The environmental groups demanded to establish a GHG emissions reduction target in the NEC but were denied by the MOEA and other industry representatives (Environmental Information Center, 2005). The MOEA claimed that Taiwan should not set an unrealistic climate target, which would damage Taiwan's economic development and future negotiation (MOEA Bureau of Energy, 2005). The industrial representatives also pointed out that Taiwan should not follow the path of a developed country in terms of emissions reduction. Instead, the NEC and the MOEA concluded that Taiwan should follow a step-by-step process in GHG emissions reduction while encouraging industrial sectors to reduce their emissions voluntarily (MOEA Bureau of Energy, 2005). The outcome of the NEC was later interpreted as lacking political will in complying with the Kyoto Protocol guidelines and preparing for the post-Kyoto agreement. The Chen administration (2000-2008) was then criticized for siding with industrial groups while scarifying Taiwan's sustainable development. That being said, the NEC still managed to set up guidelines for GHG emissions reduction mechanisms and initiated the first climate legislation that was being proposed in 2006.

6.2 Cross-Strait Relations and Environmental Diplomacy

Cross-Strait relations have been a critical factor in shaping Taiwan's foreign policy strategy and policymaking. Often these policies concern with issues such as national security and economic development. Under the DPP government (2000-2008), the cross-Strait relations contributed significantly to Chen's environmental diplomacy in 2007 and the policymaking process of the climate bill.

6.2.1 Cross-strait Relations under the Chen Shui-Bian

At the beginning of 2000, the victory of the DPP's presidential candidate Chen Shui-Bien marked the first peaceful and democratic power transition in Taiwan (Fell, 2010; M.-S. Ho, 2010, p. 4). It was the first political party rotation the Taiwanese history, as well as the ending of over 50 years of governance under the KMT. In comparison to the previous KMT government, Chen and the DPP were known for his pro-Taiwan independence position. Before the 2000 presidential election, Beijing published the *White Paper on the One China Principle and the Taiwan Issue.* According to the white paper, Beijing would not reserve to take military means if there was any sign for Taiwan declaring independence (and for foreign forces interfering with domestic affairs) (G. Lin, 2019, p. 143). Chen's victory of the 2000 presidential election was thus considered as the failure of Beijing's attempts to reunified Taiwan (C.-Y. Lin, 2007, p. 170).

When Chen first came into power in 2000, he managed to assure both Beijing and Washington governments that the DPP was able to safeguard peace and stability (Rigger, 2001, p. 958) by pledging the "Four Nos and One Without (四不一沒有)" at his inaugural speech on 20 May 2000. The *Four Nos* signified that the Chen administration would not declare Taiwanese independence, change the national title from "the Republic of China" to "the Republic of Taiwan," include the doctrine of unique state-to-state relations in the constitution and promote a referendum on unification or independence. The *Without* implied that the Chen administration would not abolish the National Unification Council, whose aim was to promote the reintegration of mainland China into the ROC. Despite Chen's assurance, Beijing did not refrain from tightening up the control of Taiwan's

already limited international space (Fell, 2010, p. 189).

During a video call at the annual conference of the World Federation of Taiwanese Associations in Tokyo on 3 August 2002, Chen publicly stated in Taiwanese that "with Taiwan and China on each side of the Taiwan Strait, each side is a country (台灣跟對岸中國一邊一國)" (S.-B. Chen, 2002). Chen emphasized that the ROC and the PRC were two different countries and emphasized that Taiwan should not be considered as a province of China nor a second Hong Kong or Macao. Beijing later claimed that Chen's remarks were a severe provocation against the One China principle and called Chen as the trouble maker to the international society (People's Daily, 2002).

6.2.2 The SARS: Catalyst for Greater International Participation

As the tension escalated with China, the Severe Acute Respiratory Syndrome (SARS)[31] outbreak in 2003 served as a significant catalyst in pushing Taiwan further away from Beijing. During the SARS outbreak in Taiwan, there were 346 cases reported, and of these, 73 people died, including 11 medical personnel who took care of patients, from March to July 2003. Among all countries, Taiwan had the highest death toll per capita worldwide (Lindemann, 2014, p. 193). As of early March 2003, Taiwan already had two known SARS affected patients and 23 probable cases. However, under the principle adhered by the WHO, the Taiwanese authorities were not able to receive direct assistance from the organization. Taiwan's medical research team was also denied access to samples and information on the virus. The WHO officials informed the medical research team that they should approach the Beijing government, which was the only government the WHO recognized. Taiwan was not able to obtain the virus sample and equipment stockpiles from the WHO (Schwartz, 2012, p. 326). Due to the lack of sufficient personnel and protective gear, there was the second SARS outbreak in Taiwan in mid-April. On 3 May, the WHO finally dispatched a two-person team

[31] SARS stands for Severe Acute Respiratory Syndrome and is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV), which will commonly lead to a fever of over 38 degrees and severely weaken the immune system. The first known case was reported at the end of February 2003 in southern China. In only a few months' time, SARS spread to nearly 30 countries before the SARS outbreak was contained in 2003.

to Taiwan under Beijing's permission. The DPP government thus used the SARS incident not only to condemn China for intentionally blocking Taiwan's access to the WHO but also to criticize the WHO officials for following China's political wills and failing to provide direct assistance to Taiwan. In a highly critical statement, the MOFA lambasted the WHO:

> The Ministry regards the WHO's action as an instance of deliberate ignorance of the fact that the two sides of the Taiwan Strait have been ruled by separate governments for more than half a century. This act also demonstrates that the WHO has succumbed to pressure from the PRC, thus allowing politics to override public health issues and resulting in the health rights of the people of Taiwan being ignored. (MOFA, 2003)

Despite the SARS incident, Taiwan's application for observer status at the WHA had been routinely turned down. The Chen administration exploited the domestic bitterness against Beijing to its own advantage and managed to secure the presidential office again in 2004 (Brown, 2003). From Beijing's perspective, Taiwan was drifting toward independence with the DPP government in power again.

Chen's re-election, from scholars' point of view, was the trigger for Beijing to pass the Anti-secession Law (反分裂國家法) at the 3rd Session of the 10th National People's Congress (Bellows, 2005). The DPP's victory at the presidential election was undoubtedly contrary to Beijing's preference and expectation (DeLisle, 2007, p. 104). The law strengthened the PRC's view on the cross-strait relations that Taiwan was a province of China, and the sovereignty of one China is indivisible. The Taiwan issue was considered an internal affair of China and should not be interfered with by foreign countries (C.-Y. Lin, 2007, p. 174). Additionally, the law gave the PRC the legal basis to adopt "non-peaceful" means against Taiwan's attempt to declaiming its independence (W. Chang & Chao, 2009, p. 112; G. Lin, 2019, p. 145). The Anti-secession Law has been criticized as an aggressive and provocative attempt to destabilizing the status quo across the Taiwan Strait (DeLisle, 2007).

Against this backdrop, the DPP government embraced the foreign policy strategy which "highlighted the historic achievement of democracy and the

vibrancy of Taiwan's political society" (Rawnsley, 2014, p. 170) as its central narratives and adopted proactive diplomatic approaches in enhancing Taiwan's international recognition (Lindemann, 2014, p. 80; T. Y. Wang et al., 2011, p. 252).

6.2.3 Environmental Diplomacy

By the end of 2007, the Taiwanese MOFA launched three critical diplomatic strategies in light of the changing global orders and the rise of China. These strategies, according to the foreign policy report, included engaging in combative diplomacy to confront a hegemonic China, employing a blue ocean strategy to expand global partnerships, and conducting environmental diplomacy to better connect Taiwan with the world (MOFA, 2007). The first strategy was made to combating China's increasing political pressures, including blocking Taiwan from attending international organizations, taking Taiwan's remaining diplomatic allies, and forcing Taiwan to change its name at the international events. Taiwan sought to break through China's diplomatic blockade and secure its remaining international engagement. The second strategy aimed to take advantage of Taiwan's competitive edge, such as technological development, cultural diversity, and advance social welfare, to build cooperative relations with other countries. The third strategy, environmental diplomacy, sought to become a partner for global environmental and climate change cooperation. The strategy was made based on considerations that "environmental protection has become a major trend, with environmental diplomacy given high priority by many developed countries" (MOFA, 2007). The MOFA also stated that:

> Due to adverse changes to the environment, people have begun to focus on preventive measures, such as sustainable development, instead of post-disaster cleanup. Taiwan must respond to the post-Kyoto Protocol era and let the international community know about its efforts and achievements in ecological preservation and environmental protection. (MOFA, 2007)

According to another report from the MOFA, the goal of environmental diplomacy was "to expand Taiwan's foreign relations through environmental protection, to strengthen global environmental sustainability through

environmental diplomacy" (MOFA, 2008a). Besides responding to the UN climate developments, Taiwan also sought to participate the international organizations by combining Taiwan's advantages in international trade, industrial development, and environmental technology. The environmental diplomacy strategy included multi-channel collaboration with various stakeholders. As MOFA suggested, Taiwan could take advantage of its membership in the Asian Development Bank and participate in projects under the Bank concerning sustainable development. Taiwan would also seek to join the Asia-Pacific Partnership on Clean Development and Climate, which was launched by the US government in 2005. The partnership provided Asia-Pacific members with platforms to cooperate on climate actions (MOFA, 2008a). Under the environmental diplomacy framework, the MOFA set up the Sustainable Environmental Diplomacy Working Group (環境永續外交小組) in September 2007 to actively participate COPs and international climate meetings and to better integrate Taiwan in the international climate developments (MOFA, 2009b).

Furthermore, since the Bali Road Map[32] was established in 2001, developing and small island developing states were becoming an essential priority in climate change adaptation and mitigation. The Nairobi Framework Partnership, which was established by the UN Secretary-General Kofi Annan in 2006, also sought to support developing countries in preparing and implementing measures to address climate change. Considering most of Taiwan's diplomatic allies were developing or small island developing states in Asia Pacific, Latin America, and Africa regions, the MOFA saw the opportunity to address the climate challenges in these countries through providing technical assistance in order to respond to the UN climate developments. According to the MOFA report, the climate collaboration with these diplomatic allies could not only enhance their capacities in counter climate challenges but also "promote Taiwan's image in international climate meetings"[33] (MOFA, 2008a, p. 33).

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[32] The Bali Road Map was adopted at the 13th Conference of the Parties in December 2007 in Bali and the establishment of the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (UN-OHRLLS) in 2001.

[33] The original text in Mandarin Chinese: 可藉由與我國共同合作之國家，於之後的全球氣候變遷綱要公約締約國會議或其他會議場合進行成果展現，提升我國環境永續外交形象與曝光之機

The MOFA provided a list of prioritized countries, which shared diplomatic ties with Taiwan for establishing climate partnerships and providing technological transfer concerning climate mitigation and adaptation. The list (see table 6.1) included three categories. The Category I consists of four small island developing states, the Category II consists of seven underdeveloped countries, and the Category III consists of two developing countries.

Table 6.1 Diplomatic Allies Prioritized for Climate Partnerships (2008)

Category I	Kiribati, Solomon Islands, Tuvalu, São Tomé and Príncipe
Category II	Nauru, Dominican Republic, Belize, Palau, Saint Kitts and Nevis, Saint Lucia, Saint Vincent
Category III	Burkina Faso, The Gambia

source: (MOFA, 2008a, p. 34)

The Taiwan International Cooperation and Development Fund (TaiwanICDF), which is commissioned by the MOFA, has launched projects following the environmental diplomacy guideline. The already known projects, according to the TaiwanICDF database, are illustrated in table 6.2. Parallel to building the climate projects in diplomatic allies, the TaiwanICDF also launched the Green Energy Special Fund in 2011 and targeted Central Europe, Eastern Europe and Central Asian countries in facilitating energy transition, promoting energy efficiency, and developing renewable energy.[34]

Table 6.2 Climate Projects Carried Out by the TaiwanICDF

country	**project**	**date**
Belize	Urban Resilience and Disaster Prevention Project	2019-2022
Saint Kitts and Nevis	Enhancing Agricultural Adaptive Capacity to Climate Variability Project	2018-2022
	Renewable Energy Policy Consultant-dispatching Project	2013-2015

會。

[34] The information regarding the Green Energy Special Fund is available here, https://www.icdf.org.tw/ct.asp?xItem=6776&ctNode=30467&mp=2

Nicaragua	Strengthen Capacity for GIS metadata and Disaster Resilience Project	2018-2020
Nicaragua, Honduras	Capability Enhancement in Using GIS in Central America	2014-2016
Marshall Islands	Home Energy Efficiency and Renewable Energy Project	2016

Source: TaiwanICDF Projects Database. Compiled by the author (https://www.icdf.org.tw/ct.asp?xItem=5293&CtNode=29880&mp=2)

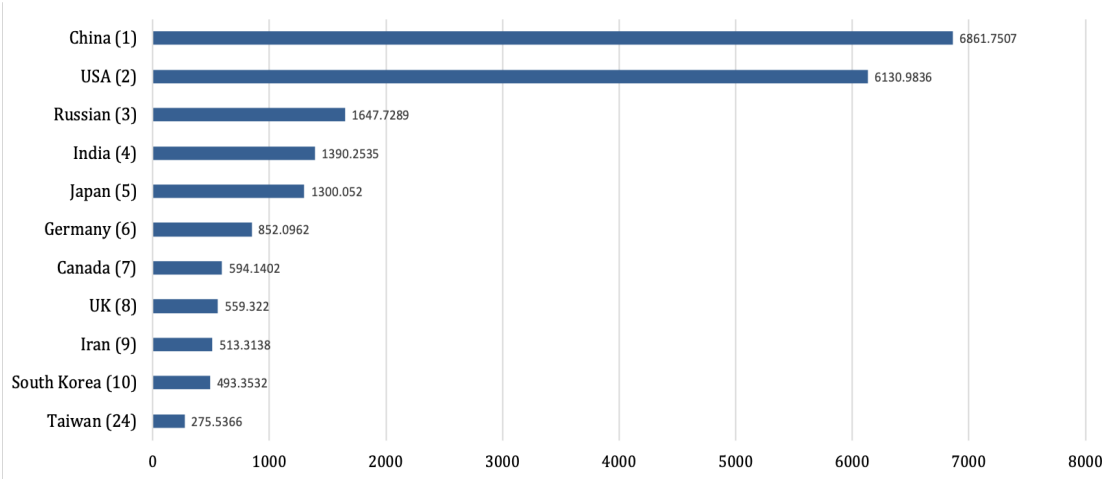
6.3 Taiwan's Responses to the Post-Kyoto Negotiations

As the major emitters such as China, India, and Brazil emerged after the Kyoto Protocol came into effect, the different responsibilities between Annex I and non-Annex I countries were challenged and seemly inadequate. Whether these emerging countries could still be categorized as developing countries or a new category of "advanced developing countries" with more responsibility to carbon reduction triggered heated debates (Bushey & Jinnah, 2010; Jinnah et al., 2009). Nevertheless, discussions regarding a new model of distributing emissions reduction responsibility as well as what would happen after the Kyoto Protocol's first commitment period were gradually getting into shape. Consensus on adjusting the emissions responsibility distribution model was achieved during COP 13 in Bali, 2007. The Bali Action Plan, which was adopted at the party meeting charting the course address climate change, included a set of decisions for more comprehensive measures in climate change mitigation and adaptation. Moreover, the action plan required developing countries to take nationally appropriate mitigation actions.

Following the adjustment made at COP 13 in Bali, Taiwan considered that it was not able to shy away from taking emission reduction responsibility. Putting Taiwan into the global perspective, as figure 6.2 shows, Taiwan ranked the 24th in terms of territorial emissions in $MtCO_2$ as a small island in 2007. In terms of $MtCO_2$ per person, figure 6.3 shows that Taiwan ranked 23rd on a global scale. The MOFA and the EPA officials and policymakers were thus concerned that Taiwan's GHG emissions performance thus could easily catch any concerned international

environmental organization's attention.

Figure 6.2 Top 10 Emitters Plus Taiwan in $MtCO_2$ (2007)



Source: adapted from Global Carbon Project, Boden et al. (2017), UNFCCC (2018), BP (2018). Compiled by the author.

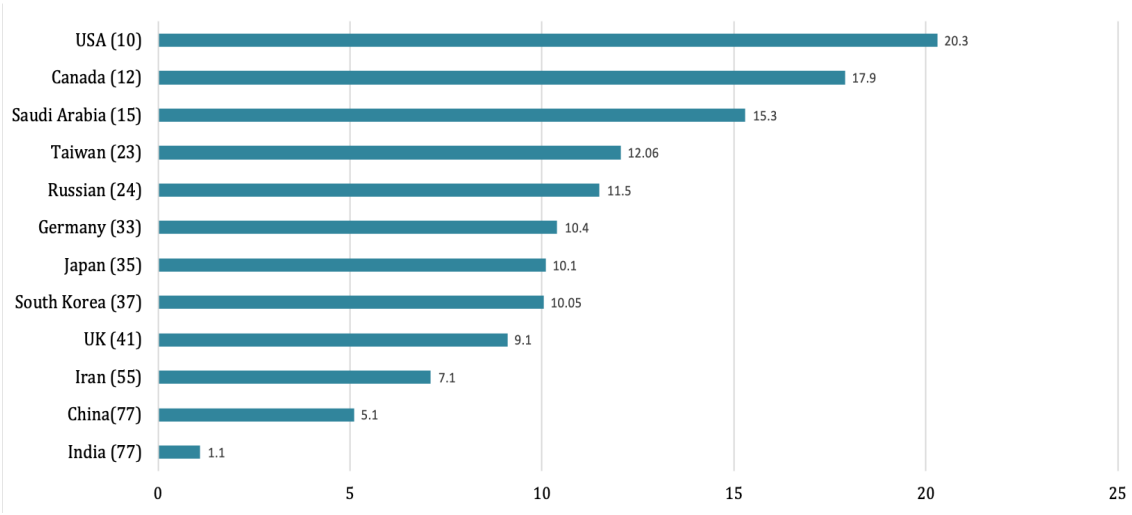


Figure 6.3 Top 10 Emitters Plus Taiwan in $MtCO_2$ per Person (2007)

Source: adapted from Global Carbon Project, Boden et al. (2017), UNFCCC (2018), BP (2018). Compiled by the author.

6.3.1 The GHG Reduction Bill in 2006

In light of the post-Kyoto climate negotiation and the potential impacts on Taiwan,

the EPA drafted the GHG Reduction Bill (GRB, 溫室氣體減量法)[35] under the coordination of the Executive Yuan. The GRB was submitted to the Legislative Yuan on 26 September 2006. The GBR was considered essential on two counts. First, when the draft of GRB was first proposed in 2006, there were only a limited number of developed countries had adopted climate change legislation or policy framework with various supporting legislations (W.-C. Shih, 2016). Setting climate legislation was considered a crucial step for Taiwan. Second, the GRB would provide the first legal basis to empower both the central government and the EPA in demanding heavy emitters to report their emissions and to comply with the regulations. Before the GRB was proposed, there were only patchy frameworks and rules in place in addressing climate mitigation without a specific legal framework for emissions reduction in Taiwan (W.-C. Shih, 2016). Therefore, scholars considered the GRB in 2006 as the most critical piece of climate legislation in implementing emissions reduction mechanisms in Taiwan (C.-J. Yang & Chien, 2010; C. Y. Young & Huang, 2012).

6.3.2 Legislation Process of the GHG Reduction Bill

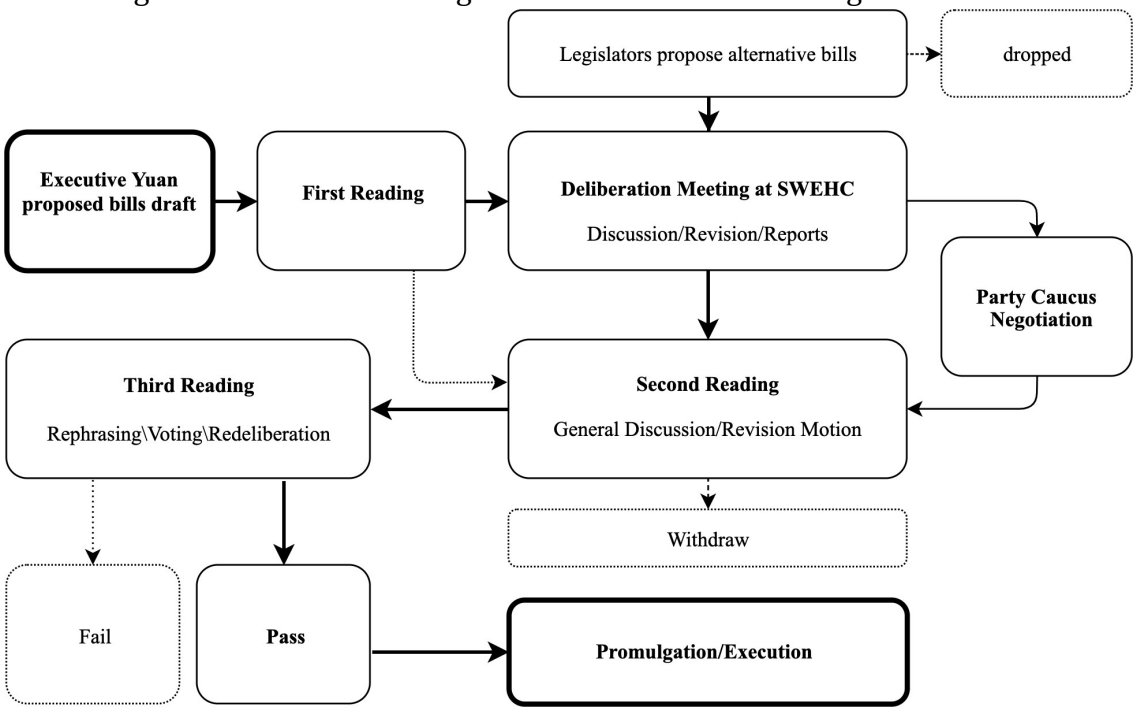
Regarding the policymaking process in the Taiwanese legislative system, figure 6.4 shows the general procedure at the Legislative Yuan. It starts with a bill proposal that either comes from the Executive Yuan and other three Yuans (院) (Judicial Yuan, Examination Yuan, and Control Yuan), as well as from Legislators and party negotiation caucuses. In the context of the GRB, the proposals come directly from the Executive Yuan and legislators. The bills from the Executive Yuan were first sent to the procedure committee and listed on the legislative agenda. Then they are passed through the first reading and read out in the Yuan Sitting. After the first reading, they are referred to appropriate committees for examination or proceed directly for the second reading. For the GRB, the committee in charge is the Social Welfare and Environmental Hygiene Committee (SWEHC). During the examination in the SWEHC, policymakers' additional proposals will also be included in the discussion. The committee may invite

[35] The excerpt of the GRB can be found in Appendix F: Greenhouse Gas Reduction Bill, 2006 (excerpt).

government officials and related stakeholders, such as industry representatives, experts, scholars, and NGO representatives, to attend the meetings and to present evidence and opinions for policymakers' reference.

After the committee's examination, the committee can decide whether to send the bill proposals to party caucus negotiation (黨團協商) or the second reading directly. The party caucus system is designed to solve disputes and conflicts that are derived from the bills. It also serves as a critical channel for coordination between the executive and legislative branches (Hawang & Ho, 2007). The second reading involved a thorough discussion, as well as revisions and re-examinations, among all legislators. The second reading then decides whether to withdraw or sent bills to the third reading, where bill proposals will not be able to be revised unless they are found unconstitutional or in conflicts with other laws. After the third reading, bills will be sent to the Executive Yuan, and the president shall promulgate these bills within ten days.

Figure 6.4 Overview of Legislation Procedure at the Legislative Yuan



Source: Adapted from "Legislative Procedure," Legislative Yuan, Republic of China (Taiwan), available at https://www.ly.gov.tw/EngPages/Detail.aspx?nodeid=335&pid=43232.
Compiled by the author.

The SWEHC consists of 20 members in total, which are distributed according to the number of seats held by political parties at the Legislative Yuan. Each political party that has at least one seat should have at least one member in the SWEHC. The two biggest parties, the DPP and the KMT, often have at least 7 or 8 seats at the SWEH Committee. Other small parties such as People First Party (PFP), Taiwan Solidarity Union (TSU), New Power Party (NPP), Taiwan People's Party (TPP), Taiwan People's Party (TPP), Non-Partisan Solidarity Union (NSU) or independent legislators often have one or zero seats in the committee. Based on the number of seats, the DDP and the KMT are the two most critical parties that can shape the committee's agendas and decide whether a bill proposal will be sent to the second reading or be dropped.

When the Executive Yuan first proposed the GRB on 26 September 2006, it passed the first reading and entered the SWEHC for further discussion and examination. Other legislators in the committee also proposed different versions of the GRB. Before the GRB was promulgated in 2015, there were in total thirteen different bills concerning the GHG emissions reduction, three bills from the Executive Yuan, and ten bills from the KMT and DDP legislators.

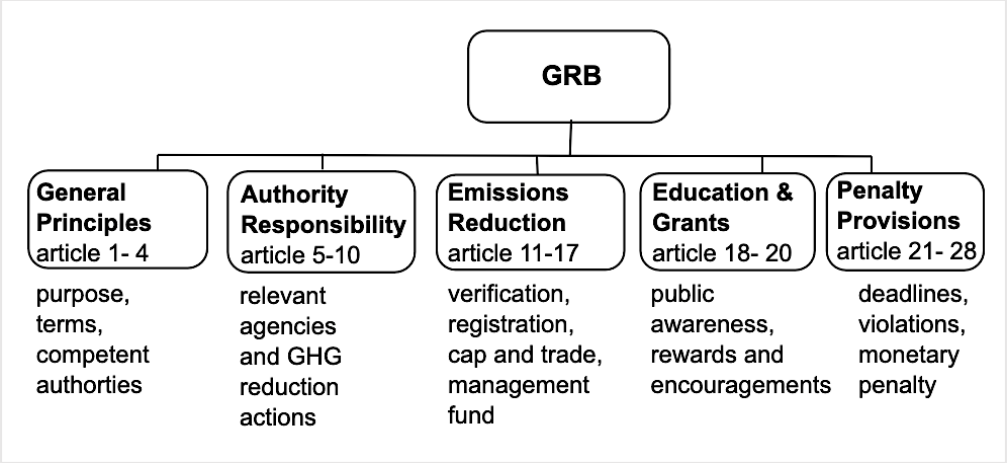
6.3.3 The Objectives of the GRB

The GRB, according to the legislative document (2006a), was to strengthen Taiwan's capacity building in GHG emissions reduction and to assist the domestic sectors in establishing competences for mitigating climate change. The document suggested that the GRB was critical for Taiwan based on three reasons: the island's total amount of emissions (nearly 1% of global total GHG emissions), the exclusion from the UN climate process (not able to obtain the observer status at the UNFCCC), and the environmental concerns (air pollutions) (Legislative Yuan, 2006a, p. 301). The EPA (2006a, p. 301) argued that current environmental regulations were not able to regulate GHG emissions effectively. The EPA stated that it was crucial to adopt climate mitigation regulations that were in line with international standards while demonstrating Taiwan as a responsible stakeholder in the international community (Legislative Yuan, 2006a, p. 301).

The GRB was based on two principles, sharing "common but differentiated

responsibilities (共同但差別責任)" and promoting "step-by-step emissions reduction (漸進推動溫室氣體減量)." These two principles, as explained by the EPA, signified that Taiwan would pursue climate mitigation while considering its economic growth, energy structure, and societal impacts. It also implied that the Taiwanese authority recognized the "uncertainty" regarding the post-Kyoto negotiations (such as deciding the targets and timeframes) and would take corresponding mitigation measures based on the speculation of the UN climate developments (Legislative Yuan, 2006a, p. 302). The GRB consisted of five primary chapters (28 articles), which comprise of general principles, authority, and responsibility of government agencies, emissions reduction measures, education and grants, and penalty provisions (see figure 6.5 for the GRB's structural overview). Besides the GRB, which served as an enacting law, the EPA also proposed six sub-laws with specific measures for regulating GHG emissions. For instance, the GHG emissions registration, monitoring, and trading regulations.

Figure 6.5 The GRB's Structural Overview (2006)



source: adapted from Legislative Yuan Gazette (2006a, p. 302).
Compiled by the author.

6.3.4 The Perceived Trade Sanctions for Non-compliance

As the GRB suggested, Taiwan had to follow the international climate agreements and to show its commitments in GHG emissions reduction. This argument was based on the concern that Taiwan would face international trade provisions for

not meeting the post-Kyoto agreement's climate objectives.

In a policy report - Our Foreign Policy Response toward the Post-Kyoto Protocol and Its Mechanisms (2008a), the MOFA suggested that the new agreement may damage Taiwan's foreign trade when Taiwan did not adopt corresponding GHG reduction measures (2008a, p. 15). The MOFA stressed that more countries were discussing implementing environmental standards that regulated environmental impacts during the production process, also known as "green barriers." The MOFA was especially concerned, for example, a European carbon tax on GHG emissions and a possible levy on imported products (from non-parties to the Kyoto Protocol) suggested by the French President Nicolas Sarkozy (2007-2012) in October 2007.[36] Another example that the MOFA raised was the inclusion of the aviation sector in the EU-Emissions Trading Scheme (ETS). For instance, in the EU's directive 2008/101/EC, it stated that all airlines (both EU based, and non-EU based) would be treated equally to avoid carbon leakage (EU, 2009). If similar measures were put into practice by the EU and other Taiwan's trading partners, the MOFA estimated that Taiwan's foreign trade would most likely be heavily impacted (MOFA, 2008a, p. 16).

This particular concern was also expressed repeatedly by legislators in 2006. During the discussion at the SWEHC on 27 December 2006, the DPP legislator Huang Sue-Ying (黃淑英) raised the question: "We are not a party to the UNFCCC. If Taiwan does not reduce its GHG emissions, will we be sanctioned?" (Legislative Yuan, 2006b, p. 255)[37] The EPA administrator Chang Kuo-Long (張國龍) responded with, "if any non-party member does not comply, it will be sanctioned." Chang then stated that Taiwan's emissions per capita were four times higher than the world average. If the international society decided to sanction Taiwan, as Chang stated, then Taiwan would face unimaginable economic consequences (Legislative Yuan, 2006b, p. 255).[38] The DPP legislator Tien Chiu-Chin (田秋瑾),

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[36] See more about Sarkozy's suggestion, for example, "Sarkozy Backs 'Carbon Tax' to Fight Climate Change" on Energy Daily (2007). Available at https://www.energy-daily.com/reports/Sarkozy_backs_carbon_tax_to_fight_climate_change_999.html

[37] The original text in Mandarin Chinese: 我國不是聯合國氣候變遷綱要公約的締約國，如果我們不配合減量，是否也會受到制裁

[38] The original text in Mandarin Chinese: 任何非締約國的國家如不配合減量，都會受到制裁,現在中國也不願意將台灣納入，因為我們排放量是他們的十幾倍,我們自己心理有數，我們的排放量是全世界平均的 4 倍，就好比每一次和別人吃午餐，吃的是其他人的 4 倍，卻出一人的

who is known for her pro-environment position, also agreed with the trade sanction argument and stated that:

> We are not eligible to join the UNFCCC and the Kyoto Protocol. We cannot participate in the negotiations for setting global climate regulations nor the reduction mechanism such as CDM, JI, and ET [emissions trading]. In fact, in the end, Taiwan is likely to be unable to trade with other countries in terms of carbon dioxide reduction, and Taiwan will be subject to international sanctions. (Legislative Yuan, 2006b, p. 258)[39]

Competition in the International Market

Besides the governmental officials and policymakers, the most emissions-intensive industrial sectors, such as the petrochemical and steel sectors, also expressed similar concerns regarding the perceived trade sanctions and barriers. For these industrial sectors, the primary focus centered around their competitiveness vis-à-vis the mitigation capability in the international market. To be more specific, the industrialized countries can carry out CDM projects in developing countries to earn CER credits, which can be traded and sold for meeting their emission reduction targets. The law expert Lee Chien-Ming (李堅明) (2006) points out that the major international trade competitors of Taiwan, such as South Korea, had already completed several CDM projects in easing their domestic costs and pressures in GHG reduction. When "low carbon" becomes a significant factor in global market competition, Taiwan needed to set up a similar CDM mechanism and GHG reduction measures to remain competitive (C.-M. (李堅明) Lee, 2006).

The emissions-intensive sectors with international exposure are the most vulnerable to this emissions reduction scheme (Reinaud, 2009, p. 6). These sectors rely heavily on fossil energy for their productions and bare higher costs in

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錢，哪一天人家不跟你吃午餐了，我們不就沒輒了

[39] The original text in Chinese: 現在我們沒有資格簽署聯合國氣候變化綱要公約及京都議定書，所以我們在 CDM, JI 及 ET (emissions trading) 方面都無法實際參與公約相關法制作業及所提供之減量機制。事實上，最後台灣很可能在二氧化碳減量上也沒有辦法與其他國家附上二氧化碳排放量的證明而無法交易，這將會遭到國際制裁

reducing their emissions. In Taiwan, the steel and petrochemical sectors, which were the top two emissions-intensive sectors (RSPRC, 2019, p. 214), were especially concerned about their competitiveness in the international market. As the representative of the China Steel Cooperation (CSC) argued, the steel sectors had demanded more immediate assistance from the government for lowering their costs in GHG reductions and maintaining their market competitiveness (interview-CSC-2017). At the public hearing held by the SWEHC on the 30 April 2007 (Legislative Yuan, 2007c), the chairman of Taiwan Responsible Care Association for Petrochemical Industry (中華民國化學工業責任照顧協會) Lee Bowei (李謀偉) stated that :

> The amount of GHG emissions is a critical issue for Taiwan, but the government and the private sector have been slow to act on this because it is indeed a difficult matter. In a few years, Taiwan's carbon emissions per capita will be among the top in the world and 1.3 times more than South Korea. South Korea is the main competitor of Taiwan's economy, so this is alarming for the industry or the government. (Legislative Yuan, 2007c, p. 534)[40]

Therefore, the legislative records above show that the officials and the policymakers were concerned about the perceived trade sanctions/barriers for not complying with GHG standards adopted by the intergovernmental agreements and trading partners. They considered Taiwan needed to adopt mitigation measures that align with international climate developments. The industrial sectors, on the other hand, believed that an adequate mitigation measure was necessary to help them lower the GHG emissions and stay competitive in the international market.

6.3.5 Debates on Setting Emissions Targets

The GRB did no face any strong opposition at the early stage of policymaking. One of the very few debates was on whether to include legally binding reduction

[40] The original text in Mandarin Chinese: 溫室氣體量是一個重要議題，可是政府和民間對此都遲遲沒有行動，因為這確實是一件困難的事。再過幾年，台灣每人每年排放的量 13 噸將高居全世界前幾名，是韓國的 1.3 倍，而韓國是我國經濟的主要競爭對手，所以這對業界或政府來說都是一大警訊

targets in the bill. Although most relevant actors involved in the GRB recognize the urgency to establish a Taiwanese climate mitigation law, not every actor agreed on adopting GHG reduction targets with specific timeframes and quantities. The disagreement emerged when the two DPP legislators, Wang Tu-Fa (王塗發) and Wang Rong-Zhang (王榮璋) strongly advocated for setting GHG emissions reduction targets. Together with other 77 legislators, Wang Tu-Fa proposed a bill arguing that "although the reduction models, targets, and timelines are still in discussion, Taiwan and other NIEs might subject to the Post-Kyoto agreement after 2012" (Legislative Yuan, 2007a, p. 56).[41] Wang T. suggested that Taiwan should return to the 2005 emissions level between 2025 and 2030 to comply with the future UN climate agreement. Wang Rong-Zhang also brought a similar bill with 55 legislators arguing that without emissions reduction timelines and objectives, the GRB would be considered as shell legislation that lacked sufficient binding powers (Legislative Yuan, 2007b, p. 2).

The emissions reduction target (returning to the 2005 level by 2025-2030) was accepted at the SWEHC meeting by both the DPP and the KMT legislators in May 2007. Despite the opposition from the MOEA, the reduction target was adopted by the committee (Legislative Yuan, 2007d). Most environmental groups and NGOs recognized the DPP legislators' efforts in including the reduction target in the bill. Nevertheless, the policymaking process was suspended in the second half of 2007 due to the coming legislative election in January 2008 and the presidential election in March 2008.

6.4 Public Attentions on Climate Change

Besides the increasing international efforts in GHG emissions reduction, the public attention on climate change was also on the rise in Taiwan. Despite not being a party to the UNFCCC, the Taiwanese public shared a relatively high awareness of global climate challenges.

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[41] The original text in Mandarin Chinese: 為後京都時期（post Kyoto)，即西元二〇一二年之後，我國與其他新興國工業國家亦可能成為下一波受規範的對項，其規範之減量模式、目標與期乘尚在討論階段，具有高度得不確定性。

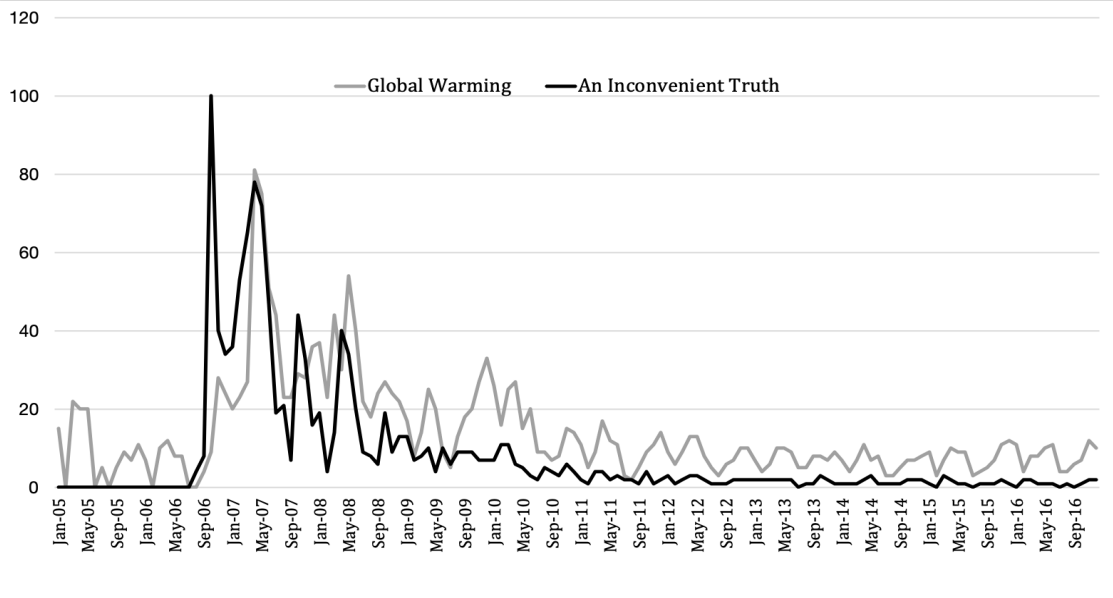
6.4.1 An Inconvenient Truth in Taiwan

The public attention on climate change had increased much more in the period of 2000 to 2008. Especially at the end of 2006 and the beginning of 2007, the public attention on climate change reached an unprecedented level. Although it may be difficult to pinpoint which event exactly had directly contributed to the rising climate awareness in Taiwan, some major events may have direct or indirect linkages to the increasing public awareness on climate change. Most notably, the climate change campaign launched by the former United States Vice President Albert Arnold (Al) Gore and his documentary film *an Inconvenient Truth* in 2006. The film centers around the human-induced global warming and features potentially catastrophic climate disasters. After the film's release, it became a huge critical success in raising international public awareness on climate change. Al Gore later shared the Nobel Peace Prize with the IPCC for building up and disseminating knowledge about human-made climate change, and to lay the foundations for the measures that are needed to counteract such change.[42]

Based on the data from Google Trends and news media archive, this wave of global climate campaign also energized climate awareness in Taiwan. Al Gore's documentary film was released in Taiwan in October 2006 and became the eighth most popular film by the end of the month. People's interests in understanding global warming also increased when the film received overwhelmingly positive reviews. Figure 6.6, which is based on the Google Trends, shows that the relative search intensity (100 being the highest) on two key terms, "global warming (全球暖化)" and "an Inconvenient Truth (不願面對的真相)" increased almost simultaneously between September 2006 and May 2007.

[42] The Norwegian Nobel Committee, The Nobel Peace Prize for 2007, available at https://www.nobelprize.org/prizes/peace/2007/summary/

Figure 6.6 Public Attention to Climate Change (2005-2016)



Source: Google Trends. compiled by the author

6.4.2 The First Large Scale Climate Protest

The film not only successfully raised climate attention in Taiwan, but also invigorated the climate discussion among the environmental groups. The Institute of Environment and Resources (IER, 財團法人環境資源研究發展基金會), together with Taiwan Environmental Protection Union (TEPU, 台灣環境保護聯盟), organized an international conference, "2007 International NGO Forum on Climate Change (2007 氣候變遷國際 NGO 論壇)," in order to bridge the climate actions between international and domestic NGOs in October 2007. By taking advantage of the increasing climate awareness in Taiwan, the organizers sought to encourage the people to take more ambitious climate actions. The flyer of the conference states that:

> Perhaps you already know that global warming makes the impacts of climate change more obvious, which may lead to the extinction of polar bears; perhaps you have watched the documentary an Inconvenient Truth and imagined how much land will be submerged after sea level rise, or you have already carried out a low-carbon lifestyle by saving electricity to reduce GHG. But in fact,

we can do more. (2007)[43]

The increasing attention on climate change later facilitated the first large scale climate change demonstration in Taiwan on 8 December 2007. In responding to the global campaign that was initiated in more than 80 countries in putting pressure on the ongoing COP 13 in Bali (2-15 December 2007), the Taiwanese environmental NGOs organized a climate march across cities on the same day. The demonstration, with the slogan "1208 Anti-Global Warming, March for the Next Generation (1208 抗暖化，為下一代而走大遊行)" was launched in seven cities in Taiwan. The secretary-general of the leading NGOs, Green Citizens' Action Alliance, Cui Su-Xin (崔愫欣) called out that:

> Fighting against global warming is the hottest topic today. From political figures Al Gore to movie star DiCaprio, from reports in scientific journals to advertisements in fashion magazines, from ardent appeals in the environmental protection community to followers in the business community. We all have to admit that there is a wave of "anti-warming" that is rapidly sweeping the world. (Cui, 2007)[44]

Besides calling for stronger climate actions, many participants also criticized the government for not taking sufficient measures. The Environmental Information Center (2007) reported that the chairman of the TEPU, Shin-Min Shih (施信民), condemned the Executive and Legislative Yuan for failing to take proper climate measures and to pass the GRB on time. The Green Party's legislative candidate Chen Man-Li (陳曼麗) also denounced the KMT and the DPP for not paying sufficient attention to climate issues. Chen appealed to politicians, including the presidential and legislative candidates, to propose concrete policies in addressing global warming. The goals of this protest thus centered on

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[43] The original text in Chinese: 或許您已經知道全球暖化使得氣候變異的徵兆日趨明顯，將可能導致北極熊滅絕；或許您已經看過紀錄片「不願面對的真相」，想像過海平面上升後將淹沒多少陸地；或者您已經力行低碳生活，節約用電以減少溫室氣體的排放。然而事實上，我們可以做得更多

[44] The original text in Chinese: 「對抗地球暖化」是當今最熱門的話題，從政界名人高爾到電影明星李奧納多； 從科學期刊的 報告到時尚雜誌的廣告；從環保界的殷殷呼籲到商業界的追隨時勢， 我們都不得不承認有一股「抗暖化」的風潮正迅速席捲全球

facilitating climate mitigation regulations with specific targets and timeframes, developing a low-carbon economy, greening the transportation system, protecting the natural environment, and promoting a sustainable lifestyle. On the day of the protest, there were more than 100 NGOs, and a thousand people gather together in eight different cities in Taiwan, calling for more ambitious climate measures.

The number of news articles covering climate change reflected this trend of increasing climate discussion in Taiwan. Based on a news search of the United Daily News (UDN, 聯合報) group archive in Mandarin Chinese, figure 6.7 shows the number of articles that contain "climate change (氣候變遷)" either in the content or title from 2000 to 2008. It is evident that the articles covering climate change increased before and after the climate protest and reached the highest peak by the end of 2007.

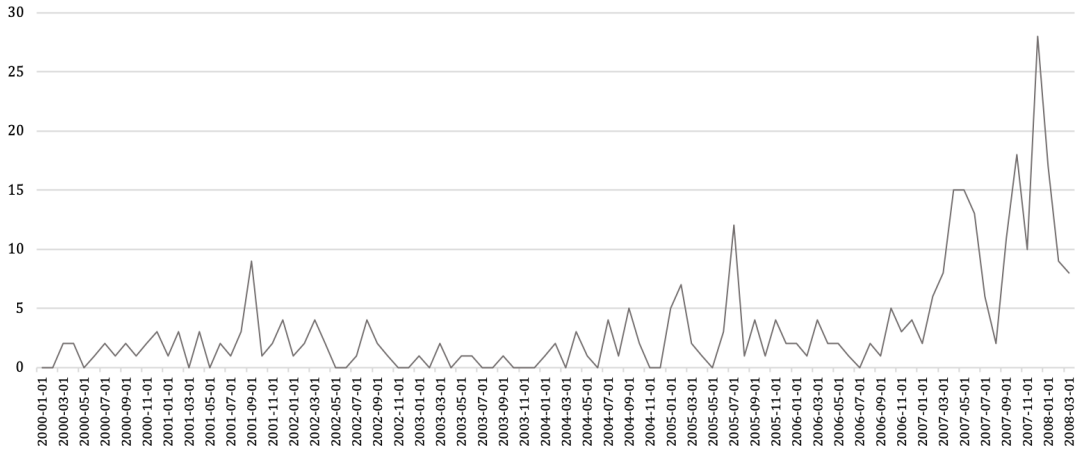

Figure 6.7 News Articles on Climate Change (2000-2008)

Source: the UDN Archive, compiled by the author

With the increasing media reporting and public attention on climate change, it raised policymakers' attention during the policymaking process. The DPP legislator Lu Tien-Lin (盧天麟) stated in the SWEHC meeting that:

> GHG emissions reduction is very important. Lately, the media has abundant coverages on GHG emissions reduction and climate change challenges, Taiwan should speed up in dealing with GHG

emissions reduction. (Legislative Yuan, 2007d, p. 232)[45]

The other DPP legislator Huang Sue-Ying (黃淑英), also pointed out that "with the overwhelming media coverage, the legislative environment for the GHG emissions reduction regulation is ripe" (Legislative Yuan, 2007d, p. 233).[46] This indicates that the increasing public attention on climate change, which was set off by Al Gore's climate documentary and the climate protest, aided, and perhaps pressured, the policymakers in facilitating the policymaking process.

6.5 Conclusion

Although recognizing that the climate objectives under Kyoto Protocol's responsibility did not apply to Taiwan, the government still voluntarily adopted a series of climate measures to prepare itself for the post-Kyoto agreement. These measures included the special task force formulating governmental responses to the UN climate process under the Executive Yuan, the projects assisting the industries to curb their GHG emissions and comply with international standards. Following these measures, the Taiwanese government attempted to establish systemic cross-sector energy and climate reforms through the second NEC in 2005. As there was a growing consensus on Taiwan's responsibility in global climate actions, the Executive Yuan proposed the first climate bill, the GHG Reduction Bill, in 2006. The bill aimed to create the legal foundation for GHG emissions reduction on the island, but also to prepare Taiwan for the successor of the Kyoto Protocol. At the same time, climate awareness and attention in Taiwan rose to an unprecedented level due to the release of Al Gore's climate documentary in 2006 and the first climate march in 2007.

Meanwhile, tensions with Beijing escalated under Chen's leadership. Beijing considered Chen's statements on Taiwan's sovereignty and statehood as a serious

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[45] The original text in Chinese: 溫室氣體減量相當重要。最近，媒體對溫室氣體減量及氣候暖化的問題有很多的報導，其實，台灣應該加緊腳步來處理因溫室氣體減量的問題。

[46] The original text in Chinese: 溫室氣體減量法的立法環境，在媒體大量的報導之下，已臻成熟

provocation to the One China principle. To counter Beijing's diplomatic oppression, including poaching Taiwan's diplomatic allies and blocking Taiwan from the WHO during the SARS crisis, the Chen administration launched environmental diplomacy in seeking international recognition in 2007. Under the environmental diplomacy framework, Taiwan sought not only to expand its international footprints through climate partnerships but also to demonstrate its voluntary compliance with the UN climate process.

To construct prudent climate legislation in supporting environmental diplomacy and protect Taiwan's export market from potential trade provisions adopted after the Kyoto Protocol, the SWEHC carried out several intensive discussions on formulating the GRB. The most debated topic, whether to include legally binding climate targets in the GRB, was resolved among policymakers adopted by the designated authorities in 2007. Nevertheless, the climate policymaking process was interrupted as the new government came to power.

7 The Process of Climate Policymaking (2008-2016)

This chapter examines the climate policymaking process and investigates the roles of critical events and actors in relation to the GGMRA under the KMT government. Several essential initiatives of climate and measures were launched during this period. Taiwan started its first international campaign to achieve meaningful participation in the UNFCCC in 2009. In response to the Copenhagen Accord's calling for countries to establish national climate measures, the KMT government announced a carbon reduction and energy-saving master plan that aimed to address GHG reduction across administrative units in 2010. After a contentious negotiation between the industrial sectors, political parties, and the ministries in charge, Taiwan's first voluntary climate legislation was promulgated on 1 July in anticipation of COP 21 in December 2015.

7.1 Taiwan's Responses to the Post-Kyoto Climate Discussions

Since the UNFCCC was established in 1992, parties have made substantial efforts in stabilizing the GHG concentration in the atmosphere and in preventing human-induced climate change from worsening (Falkner, 2016). Besides the Kyoto Protocol, these efforts include the Copenhagen Accord in 2009, which was meant to be the successor of the Kyoto Protocol, and the Paris Agreement in 2015. The Paris Agreement is a landmark climate accord that was adopted by almost every single nation in the world to address climate change. The Paris Agreement aims to reduce GHG emissions substantially and to limit the global temperature increase to 2 degrees Celsius above preindustrial levels in this century. Although Taiwan is not a party to either of the climate agreements, the Taiwanese government adopted voluntary compliances and followed the guidelines of both agreements (MOFA, 2009b, 2019).

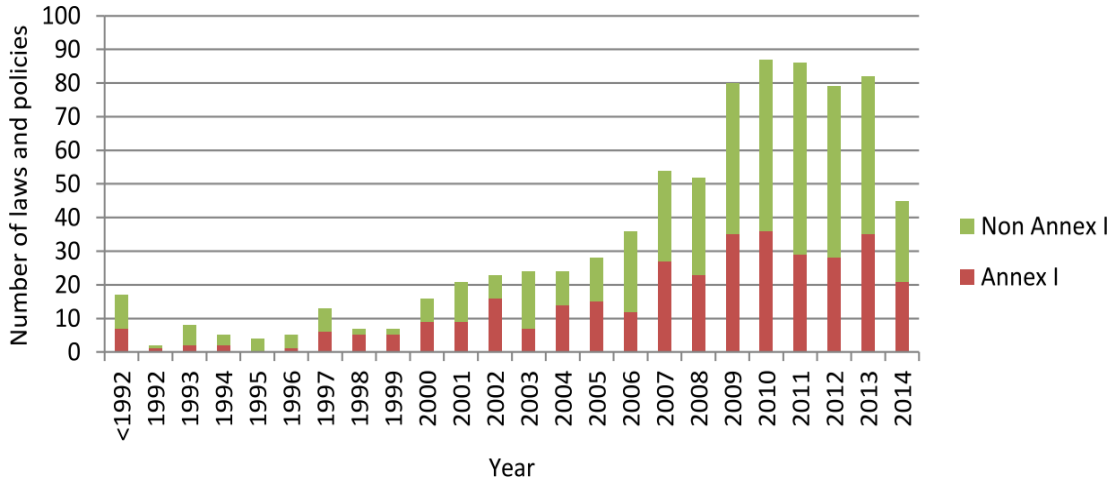
7.1.1 Post-Kyoto Climate Discussions and Regulations

The Copenhagen climate negotiations were expected to conclude in an agreement in which developed and developing countries would agree to action. Yet, the negotiation failed to deliver the expected result and did not manage to include reduction goals for holding the temperature rise below 1.5 degrees in this century. (Falkner et al., 2010). While widely considered a failure, the Copenhagen Accord still laid down some essential grounds for the next international agreement to come. For instance, the accord broke the division between Annex I and non-annex I countries while retaining the concept of NAMAs, which was one of the central building blocks from the Bali Action Plan in 2007. The accord encouraged non-Annex I countries to carry out their mitigation actions with financial and technical support from developed countries. At the same time, studies have shown that many climate initiatives were gradually being adopted voluntarily by sub-national actors, multinational corporations, and civil societies (Bäckstrand, 2008; Falkner, 2016; Held & Roger, 2018; Iacobuta et al., 2018). The increasing number of climate initiatives also led to more and more climate legislation at the national level.

The Global Climate Legislation Study suggests that the number of climate change-related laws and policies had been increasing since the late 1990s. By early 2017, there were already more than 1,200 laws and policies in the 164 countries, compared to about 60 climate laws in 1997 (Nachmany et al., 2017). The number of laws and policies passed by countries reached a peak between 2009 and 2013 when nearly 80 climate change related-framework laws were passed (Nachmany et al., 2017). Not just in developed countries, also developing countries contributed significantly to the total number of new climate change laws. These climate change-related laws varied in terms of their focus and approach. According to the study, 41.24% of the domestic laws focused on energy, while 25.93% concentrated on climate change and low carbon transitions. About 88% of countries had at least some integration of climate concerns into their energy policy, and about 76% of countries had introduced different degrees of climate measures. Figure 7.1 shows that more and more developed and developing countries have adopted climate change related-laws and policies since 1997.

This trend can also be observed from Taiwan's biggest rivalry for political recognition and international benevolence, China. The Chinese government established ambitious measures to reduce energy and carbon intensity, in line with the Copenhagen Accord's objectives (Falkner et al., 2010; Green & Stern, 2017), in its 12th Five Year Plan (2011-2015). China was eager to present itself as a pro-active stakeholder and played a critical role in the formation of the Paris Agreement (Tiberghien, 2018, p. 103). It is clear that there was growing recognition among both developed and developing countries in need to pursue more ambitious climate action and legislation.

Figure 7.1 New Climate Related Laws and Policies before 2015



Source: The 2015 Global Climate Legislation Study (2015)

7.1.2 Institutional Changes and Policy Response in Taiwan

In Taiwan, climate change slowly became a critical political agenda that attracted both attention from politicians and the public. Before the 2008 Presidential election, the presidential candidates from the two biggest political parties, the KMT's Ma Ying-Jeou and the DPP's Frank Hsieh (謝長廷, Xie Chang-Ting), addressed climate change and global warming in their presidential platforms. Ma and Hsieh proposed GHG emissions reduction measures, including emissions reduction regulations and targets, promoting renewable energy development, and improving current energy structures. Hsieh proposed to return to the 2005 GHG emissions level between 2025 and 2030 and to reach 20% of renewable energy in

the total energy mix by 2020. Ma proposed to return to the 2008 GHG emissions levels between 2016 and 2020 and the 2000 emissions levels by 2025 and to cut emissions to 50% of the 2000 levels by 2050. Both presidential candidates promised to pass the GHG emissions reduction bill and establish emissions trading schemes under their leadership. The campaign promises made by the presidential candidates in 2008 suggested that climate agendas were becoming a relevant issue for political parties and politicians. It also means that climate change had entered the sphere of public attention, and the voters would expect politicians from different camps to wrestle on the climate-related issues in the coming elections.

On 22 March 2008, Ma won the election with a 58% support rate to became the 12th president of Taiwan. This result was largely tied to the incumbent's low support rate and corruption scandals. Ma and his running mate Vincent Siew (蕭萬長) won the election with promises to revive the Taiwanese economy, rapprochement with China, and fight against corruption.

Although the GHG Reduction Bill (GRB) that was proposed by the DPP government in 2006 failed to pass before the presidential and legislative elections, Ma reaffirmed his commitments on climate change and announced mid- and long-term GHG emissions reduction targets. At the National NGOs Environmental Conference on 5 June 2008, Ma re-emphasized his campaign promise on the climate targets. The former EPA administrator Stephen Shen (沈世宏) stated that he would fulfill the climate targets set by Ma and facilitate the policymaking of the GHG reduction bill (Coolloud, 2008). Shen also promised that the EPA would speed up the reviewing process of climate-related bills in the next six months (Coolloud, 2008).

To curb Taiwan's GHG emissions, the Ma administration announced the Policy Guidelines on Sustainable Energy (PGSE,永續能源政策綱領) on 5 June 2008. The PGSE consisted of four critical regulations, including the Renewable Energy Development Bill, the Energy Management Bill, the GHG Reduction Bill, and the Energy Tax Bill. The purpose was to provide a sufficient legal basis for the government to carry out comprehensive GHG emissions reduction measures (Shyu, 2014) and reduce the dependency on fossil fuel energy. Under the PGSE,

the Ma administration pledged to increase energy efficiency by 2% in the next eight years, decrease energy intensity by 20% by 2015 and reduce the GHG emissions levels to 2008 between 2016 to 2020. It also promised to increase the share of clean energy and secure the stability of energy supply while ensuring 4% economic growth over a period of four years (Executive Yuan, 2008). With the advantage of having a majority of seats in the Legislative Yuan, the KMT government passed the Renewable Energy Development Act (REDA) and made amendments to the Energy Administration Act (EAA*)* on 8 July 2009.

The REDA was designed to encourage renewable energy development, promote energy diversification, improve environmental quality, and enhance sustainable development in Taiwan (*Renewable Energy Development Act*, 2009). The REDA also allowed the government to subsidize renewable energy facilities and other measures related to renewable energy promotion. The EAA was dedicated to utilizing energy efficiently and proportionately. The EAA regulated the operation of energy-related enterprises (industries and power sectors), including in relation to efficiency and consumption (*Energy Administration Act*, 2016). The EAA before 2009 did not adopt financial provision for non-compliance nor measures for carbon disclosure. The amendment to the EAA in 2009 thus focused particularly on sanctioning mechanisms in cases of enterprise non-compliance. The amended EAA required non-complying enterprises to adjust their production process and facilities to lower their energy intensity (Shyu, 2014). The Energy Tax Bill was designed to improve the energy consumption patterns of the high-tech and semiconductor industries, which are large consumers of fossil fuels and emitters of GHGs. The bill would allow the authority to tax the excessive use of fossil fuel energy and to encourage the impacted sectors to seek renewable energy sources (Shyu, 2014). The primary focus of the GHG Reduction Bill, under Ma's leadership, was to establish national reduction targets and to set up an emissions trading scheme.

Following the PGSE's announcement in 2008, the KMT government established the principle of *Two Highs and Two Lows* (二高二低) for its climate measures. *High* refers to increasing energy efficiency and the added value of energy usage, and *Low* refers to reducing carbon emissions and pollution as well as dependency on fossil fuel energy. To fulfill the goals under the PGSE, the

Executive Yuan announced the Policy Guidelines on Sustainable Energy - Action Plan for Energy Conservation and Decarbonization (永續能源政策綱領－節能減碳行動方案) on 4 September 2008 to have greater administrative power in coordinating energy, industry, transportation, environment, and living sectors.

7.1.3 The Third National Energy Conference in 2008

To implement the PGSE and the action plan, the government held the third NEC on 15-16 April 2009 and invited scholars, experts, and NGOs to discuss how to operationalize the climate objectives best. The third NEC was dedicated to addressing four major issue areas: 1) sustainable development and energy security, 2) energy management and efficiency improvement, 3) energy price and market liberalization, 4) energy technology, and industrial development. The third NEC concluded with some significant policy directions. For instance, it reaffirmed the climate targets of "returning to the 2008 GHG emissions level between 2016 and 2020; returning to the 2000 level by 2025" as well as adjusting the future climate targets in accordance to the post-Kyoto negotiations. Different actors at the third NEC also concluded that Taiwan should prioritize the development of green energy and non-energy sensitive industries and improve the power sectors' energy efficiency.

To most environmental groups' surprise, the NEC stood by the Ma administration's position on treating nuclear power as a crucial solution for decarbonization. Besides the three nuclear power plants that were already in operation, the KMT government planned to finish the fourth nuclear power plant (P.-F. (何佩芬) Ho, 2009), which was suspended by the previous government. Lastly, the third NEC recommended that more resources would be invested in research and development of renewable energy (NAR Labs Annual Report, 2009). The conclusion of the third NEC was later integrated with the Policy Guidelines on Sustainable Energy - Action Plan for Energy Conservation and Decarbonization into Policy Actions for Sustainable Energy (永續能源政策行動方案) that was announced by the Executive Yuan in September 2009.

Although the third NEC had produced significant resolutions, many NGOs and experts expressed their doubts and disappointments. From the environmental

groups' perspective, the NEC climate targets were hardly sufficient and ambitious (S.-J. (朱淑娟) Chu, 2009). The executive director of the Citizen of the Earth, Lee Geng-Zheng (李根政), questioned Ma's political will to achieve the reduction targets (S.-J. (朱淑娟) Chu, 2009). Moreover, whether nuclear power should be considered as a climate mitigation option was considered highly questionable by the NGOs.

7.1.4 Policy Response to the Copenhagen Accord

The Copenhagen Accord was announced at COP 15, which took place from 7 to 18 December 2009 in Copenhagen, Denmark. The accord acknowledged that it was critical to limit global warming to 2 degrees Celsius in the context of sustainable development and encouraged countries to peak the global and national emissions as soon as possible (Copenhagen Accord, 2009). In response to COP 15 and the Copenhagen Accord, the Executive Yuan established the Steering Committee on Energy Conservation and Carbon Reduction (行政院節能減碳推動會) on 11 December 2009 (Executive Yuan, 2010, p. 3). Under the direction of the Steering Committee, the Executive Yuan formulated the National Energy Conservation and Carbon Reduction Master Plan (國家節能減碳總計畫) in May 2010. The master plan was a cross-ministry initiative and covered two major goals. First, to increase energy conservation capacity, the master plan sought to increase energy efficiency by over 2% per annum in the next eight-year and lower energy intensity by more than 20% of the 2005 level by 2015 and more than 50% by 2025. Second, to curb CO_2 emissions, the master plan aimed to return to the 2005 emissions level by 2020 and the 2000 level by 2025. The master plan also included projects such as improving the existing regulations for climate mitigation and adaptation, low-carbon buildings, transportation networks, and low carbon education (Executive Yuan, 2010). The master plan acted as Taiwan's NAMAs to the Copenhagen Accord and sought to address climate mitigation across administrative units and sectors.

7.2 Taiwan's Climate Diplomacy

Besides the domestic policy responses to the international climate process, the KMT government launched a series of diplomatic strategies in seeking meaningful participation in the UNFCCC and its climate negotiations.

Since 1971, the Taiwanese government had sought to return to the UN as the ROC or as Taiwan. The Ma administration did not continue this path and placed the target on the UN specialized agencies. This decision was primarily based on Ma's strategy of *rapprochement to China*. Although the KMT had fought over the legitimate representation of "China" with the PRC for decades, re-establishing relations with China became the core of the KMT's guidelines under Ma's leadership (Fell, 2010, p. 191). From Ma's perspective, Taiwan's economic development was highly dependent on the increasingly growing Chinese economy (Muyard, 2010, p. 6). Considering that China was Taiwan's biggest export and import partner, it was thus crucial for the KMT government to maintain a friendly relationship with China (Y.-S. Wu, 2011, p. 66).

Ma's rapprochement with China involved several elements, including lowering political tensions between the two governments, strengthening economic ties with the Chinese market, and abandoning the pursuit of Taiwan's independence. In his inaugural address on 20 May 2008, Ma specifically emphasized that Taiwan would not claim its *de jure* independence during his term, and his administration would follow the so-called *1992 Consensus*. Ma stated that:

> I sincerely hope that the two sides of the Taiwan Strait can seize this historic opportunity to achieve peace and co-prosperity. Under the principle of 'no unification, no independence and no use of force,' as Taiwan's mainstream public opinion holds it, and under the framework of the ROC Constitution, we will maintain the status quo in the Taiwan Strait. In 1992, the two sides reached a consensus on 'one China, respective interpretations.' Many rounds of negotiation were then completed, spurring the development of cross-strait relations. I want to reiterate that, based on the 1992 Consensus, negotiations should resume at the earliest time possible. (Ma, 2008)

The 1992 Consensus was supposedly a political agreement reached by the KMT and Chinese Communist Party (CCP) in 1992 and was based on the principles of "one China, with respective interpretations." That is, according to Su (2008), the 1992 Consensus referred to "both sides of the Strait insist on the principle of One China, but the two sides have different views regarding its meaning." From the viewpoint of Beijing, "One China" refers to the PRC and the PRC only, but from the viewpoint of the KMT, "One China" refers to the ROC (Y. Chen & Cohen, 2019; C. Su, 2008). It is clear that the 1992 Consensus is far from a *consensus* in any meaningful sense but a formula for two governments for cooperation (Y. Chen & Cohen, 2019, p. 14). These ambiguous duo interpretations allowed the KMT and Beijing to have an amicable relationship throughout Ma's terms from 2008 to 2016. With the belief that Taiwan could and should engage with the Chinese government based on the 1992 Consensus,[47] Ma launched a series of diplomatic approaches that shaped Taiwan's foreign policies and domestic regulations.

7.2.1 The Diplomatic Truce with Beijing

Although the Beijing government still held firmly to its One China principle, it was willing to cooperate with the Ma administration under the 1992 Consensus (Y. Chen & Cohen, 2019; Matsuda, 2017; Muyard, 2010). Among all types of cooperation, economic relations were of the highest priority for both governments. Ma emphasized at his inaugural address that he would "address economic matters before political ones" (Ma, 2008), while Beijing firmly believed that "increasing economic integration would lead to political integration" (Y. Chen & Cohen, 2019, p. 19). To show the willingness to cooperate with the Beijing government, Ma declared a *diplomatic true* under the framework of *viable diplomacy*. Ma stated that:

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[47] However, the 1992 Consensus had no legally binding power and was based only on a several exchanged notes between the respective proxies, Taiwan's Straits Exchange Foundation (SEF) and China's Association for Relations Across the Taiwan Straits (ARATS). In 2016, the president-elect Tsai Ing-wen (蔡英文) and her DPP government refused to endorse the Consensus. The Chinese President Xi Jinping unilaterally shrink the duo interpretation of the 1992 Consensus and announced that the Consensus could only be explained as "the two sides of the strait belonging to One China and working together to seek the unification of the nation" in 2019. Whether the 1992 Consensus is still relevant for Taiwan was highly debatable today.

> I would like to call upon the two sides to pursue reconciliation and truce in both cross-strait and international arenas. We should help and respect each other in international organizations and activities. In light of our common Chinese heritage, people on both sides should do their utmost to jointly contribute to the international community without engaging in vicious competition and the waste of resources. (Ma, 2008)

The diplomatic truce[48] refers to a mutual understanding between Beijing and Taipei in their fight for international and diplomatic recognition. With announcing the diplomatic truce with China, Ma sought to improve the relationship with Beijing as well as to maintain Taiwan's remaining diplomatic ties. In addition, Ma claimed that Beijing would accept this diplomatic truce and would not lure away Taiwan's remaining diplomatic allies (K.-B. Huang, 2016, p. 470). Following the diplomatic truce strategy, the Ma administration also renounced its bid for UN membership and did not file any request for Taiwan to be included in the UN General Assembly agenda as in the previous 16 years (Lindemann, 2014, p. 270). This means that Ma suspended long-existing efforts to return to the UN as an official member country under the name of Taiwan/the ROC. Instead, Ma placed obtaining memberships in the UN specialized agencies on his administration's top priority.

The Ma administration considered it would be more feasible to have meaningful participation in the selected specialized agencies with Beijing's consensus. On 14 August 2008, together with Taiwan's diplomatic allies, a letter entitled *Need to Examine the Fundamental Rights of the 23 Million People of the Republic of China (Taiwan) to Participate Meaningfully in the Activities of the United Nations Specialized Agencies* was delivered to the UN General Assembly (UN A/63/194). The letter stated that:

[48] Both Taiwan and China had tried to prohibit allies from engaging with the other government. If one country had an official diplomatic relation with China, then that country would not be able to have a diplomatic tie with Taiwan, and vice versa. Therefore, a country could either choose China or Taiwan in terms of having diplomatic relations. During the Chen administration, checkbook diplomacy, which refers to using economic aid and investment to gain diplomatic recognition was introduced. China and especially Taiwan spent a large amount of money in securing and buying diplomatic allies from 2000 to 2008 under the Chen administration. Therefore, Ma launched a diplomatic truce and stopped fighting for and spending money on obtaining more diplomatic allies.

> While both sides of the Taiwan Strait are stepping up efforts to improve relations, we hope that the People's Republic of China will also understand the aspiration of the 23 million people of Taiwan to participate meaningfully in the United Nations specialized agencies and show its goodwill and flexibility in this regard.

Although Ma's foreign policy strategy had attracted strong criticism for sabotaging Taiwan's political sovereignty and integrity, Ma considered the previous efforts to become an official member state in the UN as neither practical nor realistic (MOFA, 2008b). From Ma's perspective, the relationship with Beijing would determine the size of Taiwan's international space. As Huang points out, "eventually, Taiwan's meaningful participation will always be more likely if Beijing does not oppose it" (K.-B. Huang, 2016, p. 474). Despite the criticism, Ma's approach indeed increased Taiwan's international participation and footprints (K.-B. Huang, 2018). Beijing was much more accepting of Ma's approach to cross-strait relations and willing to accept Taiwan having a limited degree of international participation (Matsuda, 2017). For instance, the Taiwanese team was allowed to participate in the Beijing Olympics in 2008 under the name "Chinese Taipei." Under Beijing's consent, Taiwan was also invited as an observer to the WHA from 2009 to 2016. For the first time, Taiwan received an invitation letter to participate in the annual meeting of the International Civil Aviation Organization (ICAO) in November 2013. More importantly, the countries that maintained diplomatic ties with Taiwan did not shift their recognition under Ma's administration from 2008 to 2016, except for the Republic of the Gambia, whose former dictator Yahya Jammeh, claimed that the decision to end the diplomatic relations with Taiwan was made based on the country's "strategic national interests" (BBC, 2013).

7.2.2 The Bid for Meaningful Participation at the UNFCCC

Following Ma's strategy of seeking meaningful participation at UN specialized agencies, the UNFCCC was chosen as a target. Ma's bid for meaningful participation in the UNFCCC was not only based on the need to increase Taiwan's international footprint but also on the consent from Beijing (Muyard, 2010, p. 8).

As the former Administrator of EPA argues, the UNFCCC bid was largely made based on Beijing's consent (Interview-Wei-2017). With the successful participation at the WHA in 2009 under Beijing's approval, the Ma administration considered the WHA experience would be a model for Taiwan's international participation as long as it did not imply statehood. On 21 September 2009, the MOFA announced that the government would seek meaningful participation at specialized agencies, the ICAO and the UNFCCC. According to the former MOFA official, the selection criteria of the UN specialized agencies was based on the feasibility for Taiwan to join and the significance of such agencies (Interview-Huang-2016). Taiwan considered that the UN climate regime was crucial in shaping international politics, and the post-Kyoto climate agreement was very likely to include non-state actors as part of the framework (Interview-Huang-2016). It was thus critical for Taiwan to officially take part in the UNFCCC while avoiding the question of statehood.

7.2.3 Typhoon Morakot in 2009

According to Ma, Taiwan had another legitimate ground for seeking meaningful participation at the UNFCCC: Taiwan's vulnerabilities to extreme weather events (Ma, 2009). As the former EPA administrator, Wei Kuo-Yen (魏國彥) argued, one of the major reasons to propose the UNFCCC bid was because Taiwan had been battered shortly before by the Typhoon Morakot in August 2009 (Interview-Wei-2017).

Typhoon Morakot landed in Taiwan at midnight on 8 August 2009. It brought more than 2,500 mm rainfall in Giayi County, Pingtung County, and Kaohsiung County, as well as more than 1,000 mm rainfall in the other ten counties. The heavy rainfall led to a large number of landslides in southern Taiwan. The landslide in the village Hsiaolin was particularly catastrophic. A landslide dammed the Chishan River, resulting in a dam-break after heavy rainfall. The dam-burst buried most of the village and caused nearly 400 causalities. Typhoon Morakot is the most devastating natural disaster recorded since the typhoon warning system was established in Taiwan in 1992 (S.-C. Chen et al., 2013; S.-Y. Yang et al., 2018); it resulted in the worst flooding in the history of Taiwan (H.-C. Li et al., 2019).

Typhoon Morakot brought the highest accumulative rainfall and was of the longest duration of any typhoon since 1990. It induced 36,000 hectare large areas of landslides, 15 landslide lakes, and substantial debris flows (Y. S. Chen et al., 2011). According to governmental statistics, there were 619 casualties, 76 missing people, and 24,950 people evacuated (Y.-L. Chen, 2009). Damages reached nearly 16 billion NT dollars (about 51 million US dollars), ranking the second highest after typhoon Herbert in 1996 (Y. S. Chen et al., 2011). It was categorized as a very rare extreme weather event. The village Hsiaolin was subsequently used to demonstrate the level of severity that extreme weather events could cause.

International Support for Taiwan's Participation

In light of the Morakot disaster, Ma emphasized Taiwan's vulnerability to climate change and advocated the importance of Taiwan's meaningful participation in the UNFCCC. At an event held by the European Commission at the National Sun Yet-Sen University on 13 November 2009, Ma described the impacts of typhoon Morakot on Taiwan:

> 2956 millimeters of rain fell on Mount Ali during Typhoon Morakot this past August. Unbelievably, a tourist center on Mount Ali was under six feet of water, at more than 2000 meters above sea level. Such things have never happened before. Global climate change is not some story from a faraway land. It is affecting us right here in Taiwan. I've come here to take part in this event because I want everybody to understand the importance of this issue. (Ma, 2009)

Ma then focused on the fact that Taiwan had been excluded from the UN climate process and called for international benevolence in supporting Taiwan's meaningful participation at the UNFCCC.

> I must make special mention of the fact that Taiwan is not a member of the United Nations Framework Convention on Climate Change, nor is it a member of the Kyoto Protocol. Our many efforts to combat climate change are precisely what various international bodies and conventions require, and we observe the requirements even though we are not members…The audience from overseas can lend a hand to help Taiwan take part

in international activities that benefit all of mankind. (Ma, 2009)

Ma's talk on 13 November 2009 sent out two important messages to the international community. First, Taiwan was vulnerable in light of extreme weather events, such as typhoon Morakot. Second, even though Ma saw cross-strait relations as his primary foreign policy agenda, international support remained critical for Taiwan to expand its international presence (K.-B. Huang, 2016, p. 472). As Huang suggested, "[the Ma administration] has not, and would not, communicate with Beijing on international participation issues until major actors like the US, Japan, and the European Union have shown their support for Taiwan, which has annoyed Beijing to a certain degree" (K.-B. Huang, 2016, p. 472). Therefore, Ma tried to secure the international community's support for its meaningful participation at the UNFCCC. As Huang suggested, Beijing would not support Taiwan's international participation without sufficient endorsement from the international community, and it would not risk any chance to hinder the One China principle by granting Taiwan more international space.

7.2.4 The UNFCCC Campaign and Strategies

Under Ma's campaign for meaningful participation at the UNFCCC, the MOFA launched a series of strategies to increase Taiwan's participation in climate actions through various international platforms and partnerships in 2008.

According to the MOFA report on *Our Foreign Policy Response toward the Post-Kyoto Protocol and Its Mechanisms* (我外交應如何因應後京都議定書及其機制) released in 2008, the first approach was to take part in climate actions hosted by the IGOs that Taiwan already took part in (MOFA, 2008a). The IGOs that Taiwan had official membership included the APEC, the Asian Development Bank (ADB), and the Central American Bank for Economic Integration (CABEI), and the WTO. The MOFA aimed to provide both technological and financial assistance to developing member countries in carrying out climate measures and establishing bilateral partnerships on climate projects. The second approach was to participate in climate initiatives launched by Taiwan-friendly countries, for instance, the Asia-Pacific Partnership (APP) on Clean Development and Climate. The third approach

was to actively participate in sub-national climate networks and platforms. Taiwanese cities could join global city networks such as C40 or Local Governments for Sustainability (ICLEI) and establish partnerships on climate actions with other sister cities. As for the meaningful participation in the UNFCCC, the MOFA not only sought to obtain observer status but official membership as an "entity." The MOFA intended to follow the UN Fish Stocks Agreement (1995) model, where Taiwan gained a new legal status as a "fishing entity" and formal access to many regional fisheries organizations[49] (N.-T. A. Hu, 2006).

In responding to the Post-Kyoto agreement, the MOFA suggested that it was critical for Taiwan to have domestic regulations that corresponded with international climate standards. If Taiwan established a GHG emissions reduction mechanism (such as ETS), then it could not only connect itself to the international emissions trading markets but also comply with international standards without being a member of the UNFCCC. Therefore, under the premise that Taiwan would be barred from the UNFCCC, the MOFA recommended that Taiwan should implement effective GHG emissions reduction regulations and support Taiwanese industries in reaching climate targets (MOFA, 2008a).

7.3 The GHG Reduction Bill of 2008

A GHG Emissions Reduction bill, which was made following the previous discussion under the DPP government, was proposed again by the Executive Yuan on 15 April 2008. The GRB first illustrated Taiwan's vulnerability to climate change. It would be beneficial for Taiwan's sustainable development if there was a GHG emissions framework in place. Second, the GRB pointed out if Taiwan's GHG emissions regulations were not in line with international standards, it would be challenging for Taiwan's trade-oriented economy. Third, the GRB was designed to reduce Taiwan's energy dependence on exported fossil fuel energy and strengthen its climate mitigation and adaptation capacities (Legislative Yuan, 2008a).

[49] Taiwan was a major fishing country but was not regulated by the UN Convention on the Law of the Sea. In order to promote effective implementation of the Convention, the UN Fish Stocks Agreement in 1995 adopted the term "entity" to regulate Taiwan on fishing straddling fish stocks and highly migratory fish stocks (N.-T. A. Hu, 2006).

Another critical goal was the promotion of Taiwan's international image. Transcripts from the SWEHC meetings show that policymakers felt maintaining Taiwan's international reputation was seen as essential. The former EPA administrator Shen Shi-Hong (沈世宏) argued that the GRB would demonstrate Taiwan as a responsible state fulfilling international climate responsibilities (Legislative Yuan, 2008b, p. 23). Many policymakers emphasized that the GRB would increase Taiwan's international footprints and portray a positive image to the international society. For instance, the KMT legislator Huang Yi-Giao (黃義交) stated that by setting legally binding climate targets, it would show Taiwan as a responsible country that was willing to contribute to global climate governance (Legislative Yuan, 2008b, p. 80).

7.3.1 The Industry's Positions on the GRB

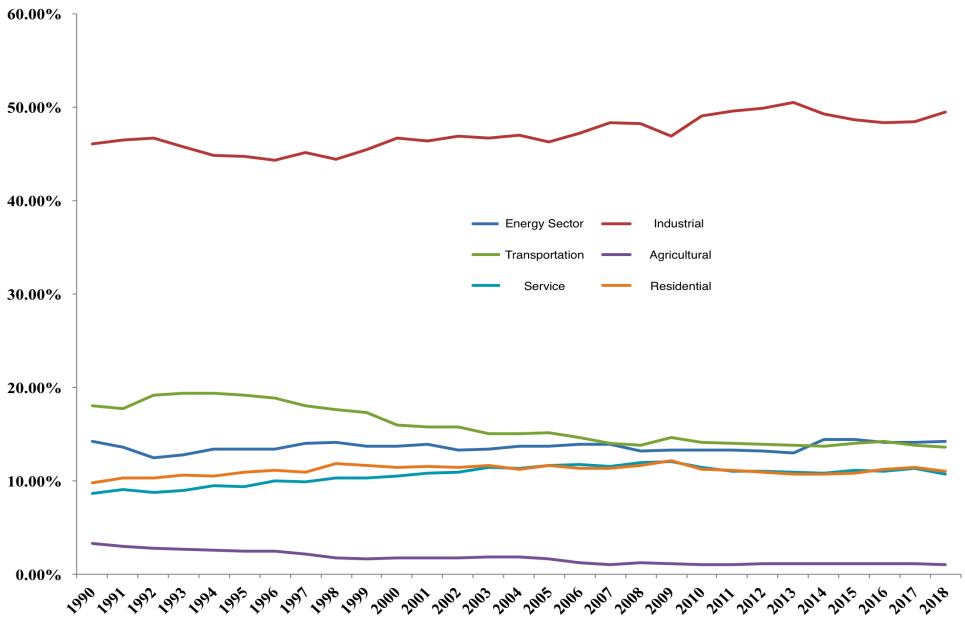
According to an expert from the Environmental Science Technology Consultants Corporation, addressing the Taiwanese industrial sector had always been essential in the making of climate regulations and was especially critical for the GRB in 2015 (interview-Shu-2017). As the MOEA statistics show, the industrial sector accounted for around 50% of total CO_2 emissions since 2000 and was the most emissions-intensive sector in Taiwan (see figure 7.2). The participation and support of the Chinese National Federation of Industry (CNFI, 中華民國工業總會)[50] – the biggest industrial association representing the most companies on the island – in reducing GHG emissions were thus critical in the GRB's policymaking process. The CNFI's position on climate regulations can be found in the Industrial White Paper (IWP, 工總政策白皮書)[51] published by the CNFI since 2008. Based

[50] The CNFI was established in 1942 in mainland China and moved to Taiwan with the Chiang Kai-shek regime after the KMT lost the civil war to the communist party in 1949. It is an industrial association representing the majority of manufacturing businesses in Taiwan. According to the CNFI website, it represents more than 100,000 industrial companies in Taiwan as well as associations of various industrial sectors. The CNFI serves as a representative of these industrial associations in conveying their opinions and concerns about governmental policies and is by far one of the most influential lobby groups.

[51] The CNFI has been publishing an Industrial White Paper every year since 2008. The White Paper includes suggestions to the government based on the CNFI's position as well as concerns and warnings about current policies and events. The content of the White Paper is made in collaboration with industrial associations, experts, and members of the CNFI, as well as scholars and business representatives. The White Paper consists of nine issue areas, including industrial

on the IWPs issued from 2008 to 2020, the CNFI did not oppose the GRB. Instead, the CNFI urged the KMT government to follow international standards and to establish domestic GHG emissions reduction mechanisms.

Figure 7.2 CO_2 Emissions by Sector (1990-2018)



Source: Bureau of Energy, MOEA (2019)

In the 2008 IWP, the CNFI acknowledged the significance of global climate actions and the impacts on Taiwan's environmental policymaking. Although the CNFI urged the government to propose policies covering industrial, energy, and carbon emissions reduction measures, it also showed the disapproval of turning the GHG emissions target into legally binding commitments in 2008 (CNFI, 2008). The CNFI argued that "considering there is no Annex I country under the Kyoto Protocol which has legalized the emissions reduction targets, it is inappropriate for Taiwan to establish reduction targets in the GRB" (CNFI, 2008, p. 33).[52]

policy, energy policy, environmental security, tax and finance, labor relations, international trade, cross-strait policy, intellectual property, and youth policy. After the White Paper was published, the governmental organization, National Development Committee (國家發展委員會) will make an official response to the demands and suggestions listed in the White Paper. The White Paper is considered an important policy suggestion to the government and carries enough weight in representing the majority of the industrial sectors in Taiwan. From the suggestions made in the White Paper, one can identify the industrial sectors' attitude toward certain policies and events and observe their policy positions over time.

[52] The original text in Mandarin Chinese: 在母法中訂定減量目標與基準年並不妥適，目前沒有

Instead of including the emissions reduction target in the GRB, the CNFI proposed that the reduction targets should be included under an executive order, which has no legally binding power and could be adjusted when necessary. The CNFI argued that setting legally binding targets would constrain Taiwan's economic development, and a non-legally binding order would be sufficient enough to demonstrate Taiwan as a responsible stakeholder (CNFI, 2008, p. 33). In the 2009 WPI, the CNFI pointed out that "for an export-oriented country like Taiwan, it would contribute to Taiwan's competitiveness in the international market if we lower the carbon emissions of these export products" (CNFI, 2009, p. 37).[53] To lower the products' carbon footprints, the CNFI proposed to increase the share of nuclear power from 17.3% to 30% in the energy mix (CNFI, 2010). From the CNFI's perspective, renewable energy would not be able to support industrial demands and contribute to the increase of electricity prices (CNFI, 2011).In the 2012 IWP, CNFI raised the concerns regarding competitiveness impacts and potential trade barriers derived from Taiwan's trading partners' climate regulations (CNFI, 2012, p. 30). The CNFI argued that:

> To inform consumers about the products' carbon footprints, the EU has required imported products to disclose their carbon emissions, and many Taiwanese companies have received such requests from their European customers. Taiwan's carbon emissions coefficient is much higher than its major competitors South Korea. This situation makes the Taiwanese products much less competitive in the international market. (CNFI, 2012, p. 25)[54]

The CNFI thus urged the Taiwanese government to improve the market competitiveness by pursuing a low carbon economy. The CNFI also asked the government to follow the UNFCCC objectives closely (CNFI, 2011, 2012) and adopt the most cost-effective approaches to achieve Taiwan's green economy. Although

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任何京都議定書非附件一國家，所法另中明定減量目標。

[53] The original text in Mandarin Chinese: 對於以出口為導向的台灣，降低產品標示上的談排放量有助於台灣產品與世界各國間之競爭。

[54] The original text in Mandarin Chinese: 近年來，歐盟對節能減碳的要求亦逐 漸升高，強制產品揭露碳足跡，要讓消費者瞭解購買的產品在製造過程中，所產生 的二氧化碳量，國內的廠商，也都接獲歐盟客戶的要求須揭露碳足跡。然而我國的電力碳排放係數較韓國的 0.456 高很多，影響產品碳足跡的含碳量與外銷競爭力甚鉅。因此，如何降低碳排放係數，成為攸關我國產業國際競爭力的重要課題

the CNFI considered it was crucial to remain competitive in the international market by adopting more low carbon measures, the CNFI representative Liu Kuo-Chung (劉國忠) points out that the CNFI did not support the technical details in the GRB, the reduction targets in particular, in early 2015 (Interview-Liu-2017). The CNFI's objection thus created another truing point in the GRB policymaking process.

7.3.2 Alternatives to Curb GHG Emissions

Considering the CNFI's objection toward the GRB, on 9 May 2012, the EPA announced that it would list GHG emissions as pollutants under the Air Pollution Control Act (APCA) to ensure there would be GHG emissions reduction regulations in place. Based on the APCA, if GHG emissions were listed as pollutants, the local authorities would have the legal responsibility to regulate GHG emissions directly. Local authorities would be able to implement air pollution control fees on polluters (Article 16, *Air Pollution Control Act*, 2018). Following the EPA's announcement regarding the APCA adjustment, major cities, including Kaohsiung, Pingtung, Taichung, formulated emissions quota controls to regulate GHG emissions in their areas. Kaohsiung, for instance, established a total quantity control zone and set up its air pollution reduction targets and timeline right after the EPA's adjustment.[55]

In response to the EPA decision to regulate the GHG emissions under the APCA framework, the CNFI expressed its objection:

> The EPA listed the GHG as pollutants on the 9 May 2012 despite the strong opposition from other governmental sectors and related industry groups. The APCA allows the local government

[55] According to Kaohsiung EPB statistics , the city had the worst air quality among cities and counties in Taiwan (Kaohsiung City Government, 2018). Kaohsiung was the heartland and home to many polluting and large heavy industries in Taiwan. A large cluster of heavily polluting industries (oil refineries, cement plants, and steel manufacturers) are concentrated in the southern port of Kaohsiung, Xiaogang (小港) and Linyuan (林園) districts. These industries also contributed heavily to the city's GHG emissions (Kaohsiung City Government, 2015). In order to regulate the heavy emitters, the Kaohsiung city government discussed a "climate change mitigation fee (氣候變遷調適費)" to be imposed on factories in the areas. The decision attracted strong opposition, especially from the CNFI. The biggest steel company - China Steel Corporation – had its headquarter and main factories based in Kaohsiung. At the same time, China Steel Cooperation was also one of the principle actors in the CNFI.

> to have too much power [in regulating air pollution], and the APCA will have a severe impact on the Taiwanese industry's sustainable development. (CNFI, 2012, p. 30)[56]

The CNFI thus urged the EPA to withdraw the decision and advocated the central government not to empower local authorities to carry out their own emissions control. The CNFI wrote in the 2014 IWP:

> To meet the international standards and to maintain Taiwan's international competitiveness, the industrial representative urges the government to pass the GRB, which can achieve economic growth and decarbonization and stop regulating the GHG emissions with APCA. (CNFI, 2014, p. 29)[57]

As interviewees point out (Interview-Fang-2017, Interview-Liu-2018), the decision to regulate the GHG emissions with the APCA created a window of opportunity to persuade the CNFI to support the less stringent GRB. For the CNFI and many industrial groups, the GRB provided much more flexibility in reducing GHG emissions. The GRB was centralized, top-down legislation that gave the CNFI more space for lobbying and negotiating with competent authorities and political parties. The CNFI had four scenarios to choose from regarding GHG emissions reduction in 2014 (interview-Liu-2018). First, the EPA regulated GHG emissions with the APCA. Second, the local authorities regulated GHG emissions with total quantity control. Third, the central government regulated GHG emissions with the GRB. He stated that if none of this happens, the worst-case scenario would be fourth, Taiwanese companies would be "sanctioned" by trading partners for not meeting adequate GHG emissions standards. Liu stated that the industrial sector had to choose among these four options, and "the GRB is the better option among the four" (interview-Liu-2018).[58] The CNFI thus reached the consensus with its members and decided to support the GRB in 2014.

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[56] The original text in Mandarin Chinese: [環保署為]不顧政府其他相關部門及相關產業團體之反對，於 101 年 5 月 9 日公告 溫室氣體為空氣污染物並納入空氣污染防制法管制。對此，本會表示遺憾與強烈反對....空污法相關管制措施如許可審查核發將賦予地方政府過大之管制權限，在目前的政治氛圍下，將對產業的永續發展影響甚大

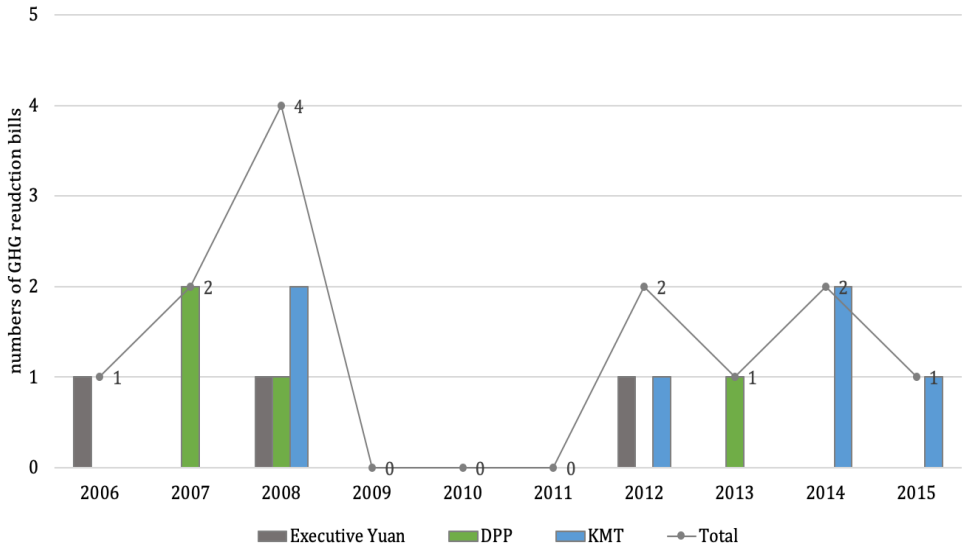
[57] The original text in Mandarin Chinese: 為了與國際接軌並維持產業之國際競爭力，產業界深盼政府儘早通過能兼顧減碳與經濟發展的減碳法律，停止以空污法管制溫室氣體的各項措施

[58] The original text in Mandarin Chinese: 以上 4 項比較，顯然是第 3 項比較好。因此工業界在

7.3.3 The GRB Proposals and Negotiations

During the nine years of the GRB policymaking process, many different versions of the GHG emissions bills were proposed by policymakers from the DPP and KMT in the SWEH Committee. Figure 7.3 shows the 13 bills proposed by legislators and the Executive Yuan between 2006 and 2015.

Figure 7.3 Numbers of Proposed GRBs (2006-2015)

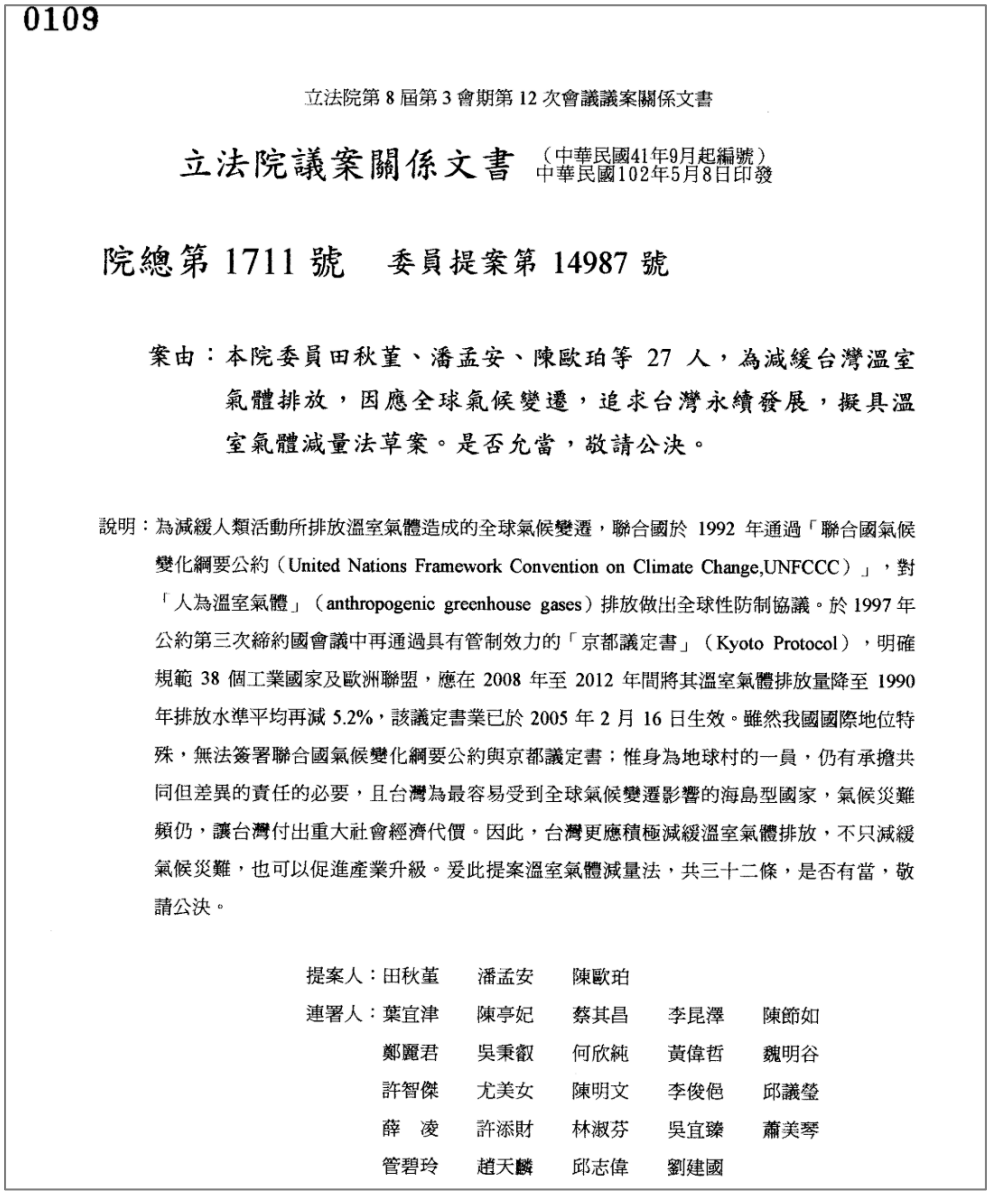


Source: Data from the Environmental Protection Agency (EPA).
Compiled by the author

Only some contained a limited degree of technical difference. For instance, the proposals from the DPP policymakers in 2007 adopted the legally binding emissions reduction targets. The 2013 proposal, also from the DPP policymaker, combined the concept of climate adaptation and mitigation in the proposal. As the excerpt of a proposal shows (figure 7.4), each proposal contains an explanation section ("說明") which entails the motivations and reasons for this proposal at the beginning of the document, and it is followed with the name of bill proposers ("提案人") and endorsers ("連署人") at the bottom.

「積極從事溫室氣體立法」上有了共識。

Figure 7.4 Excerpt of Proposed GRB by Policymakers



0109

立法院第 8 屆第 3 會期第 12 次會議議案關係文書

立法院議案關係文書 （中華民國41年9月起編號）
中華民國102年5月8日印發

院總第 1711 號　委員提案第 14987 號

案由：本院委員田秋堇、潘孟安、陳歐珀等 27 人，為減緩台灣溫室氣體排放，因應全球氣候變遷，追求台灣永續發展，擬具溫室氣體減量法草案。是否允當，敬請公決。

說明：為減緩人類活動所排放溫室氣體造成的全球氣候變遷，聯合國於 1992 年通過「聯合國氣候變化綱要公約（United Nations Framework Convention on Climate Change,UNFCCC）」，對「人為溫室氣體」（anthropogenic greenhouse gases）排放做出全球性防制協議。於 1997 年公約第三次締約國會議中再通過具有管制效力的「京都議定書」（Kyoto Protocol），明確規範 38 個工業國家及歐洲聯盟，應在 2008 年至 2012 年間將其溫室氣體排放量降至 1990 年排放水準平均再減 5.2%，該議定書業已於 2005 年 2 月 16 日生效。雖然我國國際地位特殊，無法簽署聯合國氣候變化綱要公約與京都議定書；惟身為地球村的一員，仍有承擔共同但差異的責任的必要，且台灣為最容易受到全球氣候變遷影響的海島型國家，氣候災難頻仍，讓台灣付出重大社會經濟代價。因此，台灣更應積極減緩溫室氣體排放，不只減緩氣候災難，也可以促進產業升級。爰此提案溫室氣體減量法，共三十二條，是否有當，敬請公決。

提案人：田秋堇　潘孟安　陳歐珀

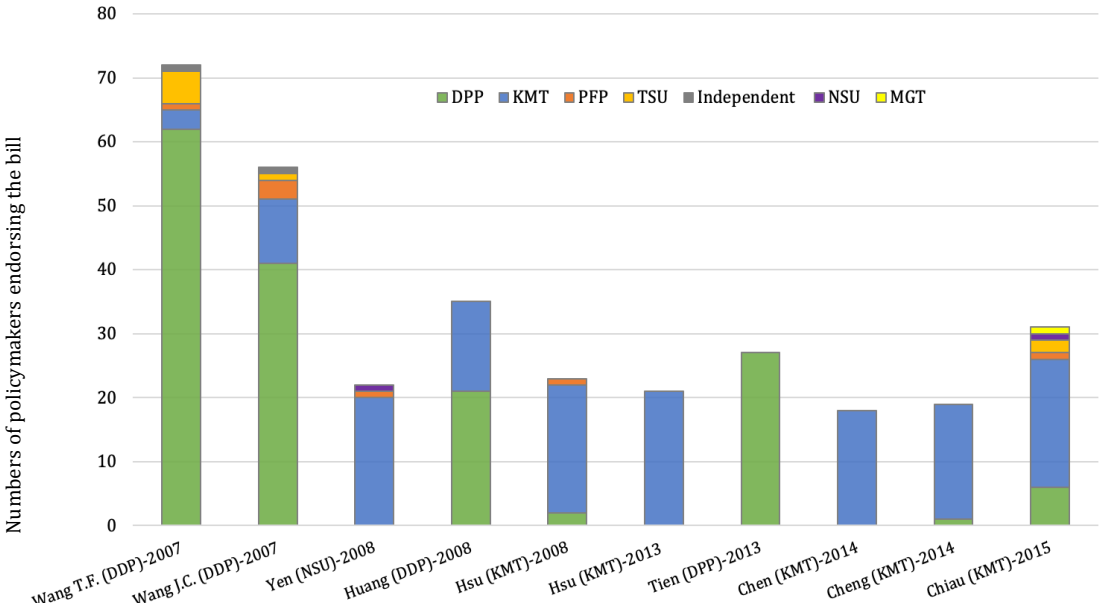
連署人：葉宜津　陳亭妃　蔡其昌　李昆澤　陳節如
鄭麗君　吳秉叡　何欣純　黃偉哲　魏明谷
許智傑　尤美女　陳明文　李俊俋　邱議瑩
薛　凌　許添財　林淑芬　吳宜臻　蕭美琴
管碧玲　趙天麟　邱志偉　劉建國

Through examining the *explanation* of each proposed GRB from policymakers, the framings that "Taiwan is a responsible stakeholder and subject to the UN climate agreements"[59] and "Taiwan will be subjected the UN climate treaties" were the most prevalent ones and appeared in all ten proposals. Three proposals

[59] This framing includes sentences such as "although Taiwan is not a member to the international society and the UN climate treaty, Taiwan has to fulfil its responsibility as a member to the international society (雖然我國不是聯合國的一員，也不是氣候公約簽署國，但有承擔共同責任之必要)" or "Taiwan is a responsible stakeholder to the international society and should response to the GHG emissions reduction (身為國際社會一員，我國應對溫室氣體減量有所回應)."

(from the DPP and the KMT) mentioned the perceived probability of "trade sanctions"[60] if Taiwan did not have the adequate GRB. Only one proposal from the DPP mentioned "Taiwan's vulnerability"[61] in light of extreme climate events. This illustrates that most policymakers considered Taiwan *should* and *have* to adopt climate regulations that align with UN climate developments.

Figure 7.5 Endorsements of Each GRB (2007-2015)



Source: Data from the Legislative Yuan. Compiled by the author

Figure 7.5 shows each GRB proposal's received endorsements from other policymakers. It also illustrates that most of the proposals, no matter the proposers were from the KMT or the DPP, obtained the other party's endorsement and support. There was no clear division between the parties on the proposed GRB. In other words, the DPP and the KMT were not competing with each other with their climate agendas. Although there were some proposals only received support from its own coalition members[62], such as the proposals in 2008, 2013, and 2014,

[60] This includes sentences such as "we will be subject to the next UN climate regulations (我國亦可能成為下一頗受規範的對象)" and "we may be subject to trade regulation or sanction" (為來仍有受國際通約管制或衝擊之虞).

[61] The proposal from the DPP's Tien mentioned that "Taiwan is an island country and will be affected strongly global climate change (台灣為最容易受到全球氣候變遷影響的海島型國家)."

[62] There are two loose partly coalitions, pan-blue (泛藍) and pan-green (泛綠) in the Legislative Yuan. The pan-blue consisted of the KMT, the PFP, the NSU and the MGT. The pan-green consisted of the DPP and the TSU.

it did not suggest that there were confrontations or competitions between parties on the topic. The political scholar Sheng Shing-Yuan (盛杏湲) argues that when policymakers' proposals received a small number of supports only from their party coalition, these proposals often just served as symbolic gestures to policymakers' voters or leverages for further negotiations with other political parties (Sheng, 2005, p. 12).

The GRB Policy Brokers

Among all proposals from the DPP and the KMT, the GRB proposed by Chiau in 2015 was the most critical one. According to the interview with climate experts, a critical policy entrepreneur here in the GRB discussion was the KMT legislator Chiau Wen-Yan (邱文彥)[63] (Interview-Fang-2017, Interview-Shu-2018).[64] In March 2015, Chiau proposed his version of the GRB and named it as GHG Emissions Management Bill (溫室氣體管理草案), which covering both climate mitigation and adaption measures. Although Chau was not a member of the SWEH Committee, Chiau's proposal was still accepted and included in the SWEH Committee discussion.

According to the interviews with Chiau, he was carrying out the direct request from the premier of the Executive Yuan, Mao Chi-Kuo (毛治國), in facilitating the GRB legislation before the end of Ma's presidency in 2016 (interview-Chiau-2017). Together with another KMT legislator Cheng Ru-Fen (鄭汝芬), who was the convener of the SWEH committee in 2015, Chiau and Cheng managed to prioritize the GRB on the agenda. On 28 April 2015, Chiau and the KMT hosted a public hearing[65] on the bill together with experts and industry representatives. During the public hearing, the KMT argued that Taiwan must follow the Lima Call for Action that was announced in 2014 and tool upon the common responsibility in GHG emissions reduction. To achieve the UNFCCC

[63] Chiau was the former EPA deputy administrator from 2008 to 2011.
[64] Although not being a member at the SWEH Committee, Chau was the vice administrator of the EPA from 2008 to 2011 under the Ma administration and had profound knowledge and expertise on climate mitigation and adaptation.
[65] The KMT Party Caucus Forum on GGRMA (國民黨立法院黨團座談會:溫室氣體管理立法) on 28th April 2015. Available at: https://cic.tw/videos/349 Accessed on 1st June 4, 2020.

climate objectives, the KMT stated that: "it was critical for Taiwan to address climate change and promote industrial upgrading. Taiwan had to fulfill its climate responsibilities even it is not a member of the UNFCCC." [66]

During the public hearing, Chiau called for an adequate climate policy, which was essential for Taiwan to participate in the UN climate negotiations and maintain access to the international market. The climate expert Fang Chien-De (范建得) echoed Chiau's argument by stating that countries like South Korea, the EU, and China were already working on their emissions trading schemes. "Taiwan could not be left behind from this emerging emissions trading market," Fang suggested. The representative of the CNFI, Liu Kuo-Chung, also reaffirmed the significance for both Taiwan and the industrial sectors to have appropriate GHG emissions reduction legislation. The KMT's public hearing illustrated that the coalition among the incumbent, the industry, and the experts.

Debates on the GHG Emissions Reduction Targets

After the KMT's public hearing took place in April, the convener of the SWEH committee, the KMT's Cheng Ru-Fen, scheduled a three-day meeting (May 18, 20, and 21) for reviewing all the GHG reduction bills. The most significant disagreement between the DPP and the KMT was on setting the GHG emissions reduction targets. Even though Ma had specified the target - returning to 50% of the 2000 emissions level by 2050 when he was first elected in 2008, the KMT government did not intend to turn this target into a legally binding commitment and preferred to set targets after the announcement of the post-Kyoto agreement. The DPP, on the other hand, insisted on including emissions targets in the climate bill (Legislative Yuan, 2015b, 2015a).

During the three-day meeting, there were six versions of the GHG reduction bill discussed in the SWEH Committee (Legislative Yuan, 2015b). These six versions included the Executive Yuan proposal of 2012, the KMT Shu Shao-Ping's

[66] The original text in Mandarin Chinese: 由於 2014 年祕魯會議時通過"利馬行動呼籲（Lima Call for Action)"，確認溫室氣體減量是各國共通的責任；此外，我國溫室氣體之減量仍有相當改善空間，為接軌國際，妥善因應氣候變遷，並促進產業升級，我國雖非聯合國氣候變化綱要公約與京都議定書之簽署國，惟身為地球村之一員，仍應依據公約精神，承擔共同但差異之責任，來防制全球氣候變遷，並追求國家永續發展

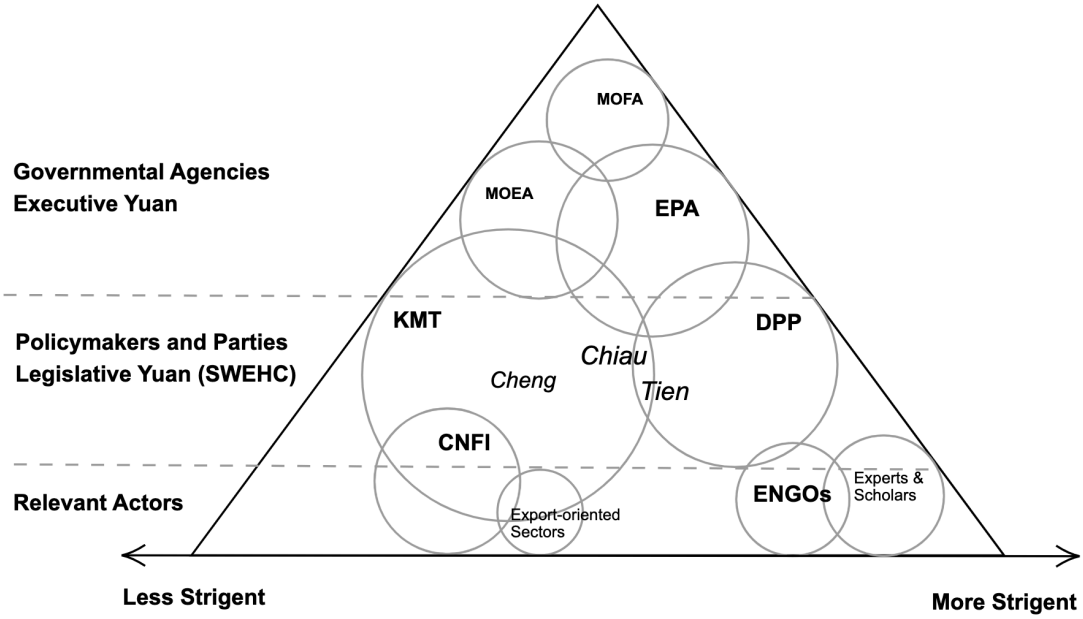
(徐少萍) proposal of 2012, the DPP Tian Qiu-Jin's (田秋堇) proposal of 2013, the KMT Chen Gen-De's (陳根德) proposal of 2014, the KMT Cheng Ru-Fen's proposal of 2014, and the KMT Chiau's proposal of 2015. Tian's proposal was the only one that included specific emissions targets, fulfilling Ma's promise of returning to 50% of the 2000 emissions level by 2050 (Legislative Yuan, 2013). Nevertheless, no consensus on the reduction targets was reached during the three days, and the discussion was postponed to the party caucuses negotiation on 10-11 June 2015. After Chiau managed to persuade the industrial groups to support the climate targets, he proposed a motion to set a climate target of returning to 50% of the 2005 GHG emissions level by 2050 (Legislative Yuan, 2015a, p. 185). This motion was then accepted by Tien and other policymakers (Legislative Yuan, 2015a, p. 185). Other minor disagreements were solved during the party caucuses negotiation, and the GRB was renamed the *GHG Reduction and Management Act* (溫室氣體減量與管理法) as Chiau proposed. On 15 June 2015, the GGRMA was passed on the third reading at the Legislative Yuan and promulgated by Ma on 1 July 2015.

During the negotiation in June, Chiau persuaded the industrial groups and the officials to support the climate targets and convince the DPP policymakers to accept less stringent reduction goals. Chiau proposed a motion to set the climate targets of returning to 50% of the 2005 emissions level by 2050 (Legislative Yuan, 2015a, p. 185), instead of the 2000 emissions level proposed by Tien. This motion was then accepted by Tien and other policymakers (Legislative Yuan, 2015a, p. 185). As other minor disagreements were solved during the party caucuses negotiation, the GRB was renamed to *GHG Reduction and Management Act* (溫室氣體減量與管理法) as Chiau and Tien proposed. On 15 June 2015, the GGRMA was passed by the third reading at the Legislative Yuan and promulgated by Ma on 1 July 2015.

Based on the legislative records, figure 7.5 shows the most relevant actors in facilitating the GRB during Ma's second term (2012-2016) and policymakers that served as policy brokers in the last party caucus in June 2015. The relevant actors were positioned from left to right based on their demands for less stringent climate legislation (i.e., the CNFI specifically argued that most industrial sectors

did not wish to have legally binding GHG reduction targets) to more stringent one (i.e., environmental NGOs wished to adopt much more ambitious reduction targets). Figure 7.6 also illustrated the efforts of policy brokers, Chiau and Tien, in reaching terms that were both acceptable to all actors. As the convener of the SWEHC, Cheng also played a significant role in prioritizing the GRB discussions and was thus highlighted in figure 7.6.

Figure 7.6 Relevant Actors in Facilitating the GRB



Source: compiled by the author

Taiwan's Intended Nationally Determined Contributions

Following the promulgating of the GGRMA on 1 July 2015, Taiwan made another attempt to comply with the UN climate process. Even though the UNFCCC secretariat did not accept it, the Executive Yuan announced Taiwan's Intended Nationally Determined Contributions (INDCs) on 17 September 2015 in supporting the Paris Summit. The Taiwanese INDCs stated that:

> The Republic of China (Taiwan) supports the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) to deliver a new strong and effective global climate change agreement in Paris in December 2015. In response to the Lima Call for Climate Action, Taiwan is committed to communicating its INDC (*INDC (Taiwan)*,

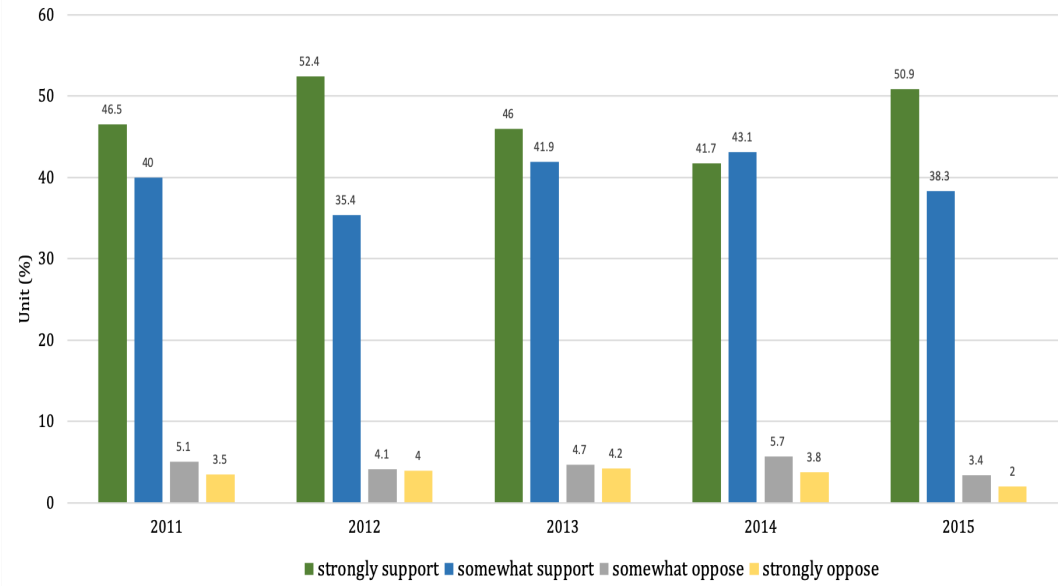
2015).

Taiwan's INDCs covered sectoral mitigation measures and an adaptation plan. Built upon the GGRMA's emissions reduction targets and measures, the INDCs pledged to reduce GHG emissions by 50% from the BAU level by 2030, which equals to cutting 20% below the 2005 level. By combining the GGRMA and the INDCs reduction targets, Taiwan's emissions targets consist of two important phases, which were reaching 20% below the 2005 level by 2030 and 50% below the 2005 level by 2050. Taiwan thus has a more concrete blueprint for its GHG emissions reduction trajectory.

7.3.4 Public Perception of Climate Measures

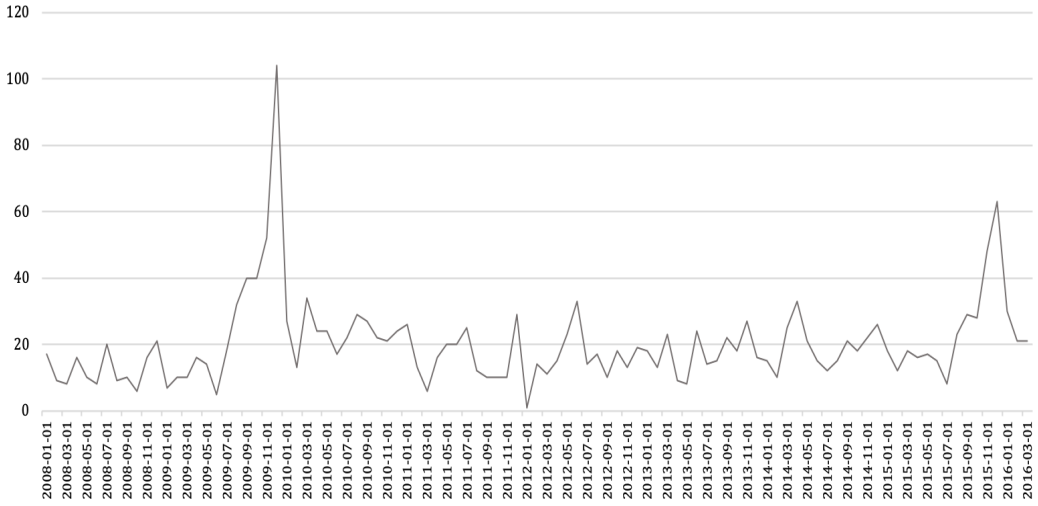
According to the studies published by the Risk Society and Policy Research Center, most Taiwanese considered climate change as the most severe global challenges in 2015 (67.9%). They understood that the climate challenges were real (74.3%) and hold little skepticism toward climate science (RSPRC, 2015). More than 70% of the people also recognized Taiwan's vulnerability toward extreme weather events as an island country in 2016 (TAISE, 2018). Consequently, the demands for governmental climate measures were strong. Figure 7.7 shows that under the question "do you support governmental climate measures," nearly 90% of respondents strongly supported and somewhat supported climate measures between 2011 and 2015. According to the survey carried out by the Taiwan Institute for Sustainable Energy (TAISE), 54.4% considered Taiwan's total GHG emissions as very high, and 57.2% believed that the Taiwanese government had not addressed climate change issues sufficiently (TAISE, 2011).

Figure 7.7 Public Perception of Climate Measures (2011-2015)



Source: Taiwan Institute for Sustainable Energy (2015)

Figure 7.8 News Articles on Climate Change (2008-2015)

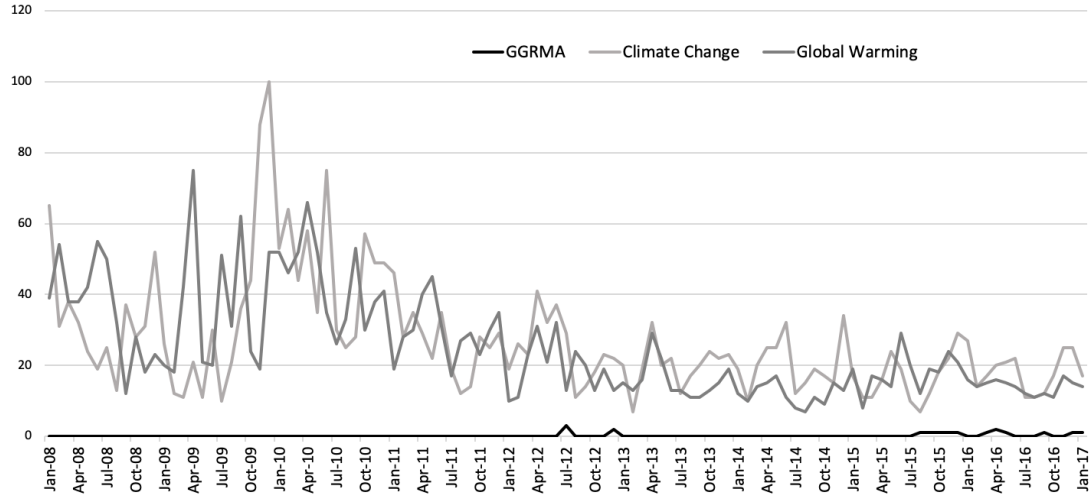


Source: Data from the UDN Archive, compiled by the author.

Although people showed strong support for governmental climate measures, several interviewees suggested that public attention on climate change had little impact on the GGRMA (interview-Huang-2017, interview-Lin-2017). The number of news articles on climate change and the Google Trend during this period reflect this perspective. Figure 7.8 shows the number of Chinese news articles in Taiwan that contained “climate change (氣候變遷)” in the contents or the titles from 2008 to 2015. The figure was compiled based on the search result from the United Daily

News (UDN) group archive. The news articles covering climate change only started to increase after typhoon Morakot hit Taiwan on 8 August 2009 and the Copenhagen Summit that took place in December 2009. The second increase, as figure 7.9 shows, was when COP 21 took place in Paris between the 30 November and 12 December 2015. The GGRMA that passed in June received limited coverage from the UDN group compared to the other events mentioned above. The GGRMA also did not gain much attention on Google. As figure 7.9 shows, the number of searches on "the GGRMA (溫管法)" in Taiwan was very low. Compared to the terms "climate change (氣候變遷)" and "GHG emissions (溫室氣體)," there was no apparent increase of attention on the GGRMA between 2008 and 2016.

Figure 7.9 Public Attention to Climate Change (2008-2016)



Source: Data from Google Trends. compiled by the author.

The survey from the TAISE in 2016 may provide some significant explanations for the lack of news articles, and Google searches on the GGRMA. Despite the very high climate awareness and the strong support for climate action in Taiwan, only 4.2% of Taiwanese were aware of the GGRMA in 2016 (TAISE, 2016). Most people expressed that they knew very little or had never heard about this climate law. Transcripts from the SWEHC meetings show the public's concern for climate challenges was not given as a reason for climate legislation. Interviewees also indicated that people's climate awareness was not a relevant factor for the making of the GGRMA. There was thus no identifiable linkage between public attention on climate change and Taiwan's first climate legislation.

7.4 Conclusion

As the post-Kyoto discussion began to take place during 2008 and 2016, a growing number of countries, both developed and developing, began adopting climate legislation. After the 2008 presidential election, climate change became an influential political agenda item in Taiwan. The KMT government issued a series of policies and introduced institutional changes in conjunction with the international climate process. The KMT government also launched its first international campaign to seek meaningful participation in the UNFCCC. Ma took advantage of improving cross-strait relations and attempted to increase Taiwan's international visibility through climate diplomacy. The typhoon Morakot in August 2009 also exposed Taiwan's vulnerability toward extreme weather events.

While seeking international support for meaningful participation at the UNFCCC, Ma also proposed various policy guidelines to support the UNFCCC's bid and to ensure sustainable development in Taiwan. Among many policy measures, the GHG emission reduction bill was the most significant climate legislation. The bill not only established the first legal basis for emission reduction but also demonstrated Taiwan's commitment to climate action. Nevertheless, the industry did not show its support for the bill until the EPA intended to regulate GHG emissions with the APCA. With the active coordination from critical policy brokers, the bill was finally passed and renamed the GGRMA in 2015. The GGRMA thus not only served as an essential achievement under the Ma administration but also laid the cornerstone for Taiwan's climate governance.

In summary, the adoption of the GGRMA in 2015 was not only a diplomatic token to show the international community, especially the liked-minded countries, that Taiwan was able to fulfill its climate responsibility as any other party to the UNFCCC. More importantly, the KMT government passed the GGRMA to secure its GHG emissions standards were aligned with its major trading partners' and ensure its competitive advantage.

8 The Implementation of Climate Policy (2016-2020)

This chapter illustrates the GGRMA's policy implementation process and traces Tsai Ing-Wen's climate and energy initiatives in response to the objectives of the Paris Agreement. Although the DPP government lost the "mutual-understanding" shared by the KMT with Beijing by expanding Taiwan's participation in international organizations, the DPP government strengthened the quest for finding meaningful ways to contribute to global climate actions. While Tsai inaugurated Taiwan's first offshore wind farm, her government was critically challenged by pro-nuclear advocates, who managed to frame nuclear power as a clean energy source that could tackle air pollution problems.

8.1 The Paris Agreement and the Climate Process

The Paris Agreement marked a significant milestone for global climate governance. As of 2020, the agreement had been ratified by 189 out of 197 nations[67] that are member states or observers to the UN. Shifting from a regulatory-based approach to a *catalytic* and *facilitative* approach (Hale, 2016), the Paris Agreement does not include legally binding targets as did its predecessor. Instead, each party to the Paris Agreement "shall prepare, communicate and maintain successive nationally determined contribution it intends to achieve" and "pursue domestic mitigation measures" (Article 4(2), *The Paris Agreement*, 2015) for the post-2020 period. The parties of the UNFCCC established an enhanced transparency framework to review and to track each party's progress in achieving its individual NDC. According to the NDC registry, 186 parties have submitted their first NDCs, and four parties had submitted their second NDCs.[68]

[67] The countries that have not ratified the Paris Agreement in 2020 are Iran, Turkey, Iraq, Angola, Eritrea, Libya, South Sudan and Yemen.
[68] The link to the UNFCCC's NDC Registry is here: https://www4.unfccc.int/sites/NDCStaging/Pages/Home.aspx

8.1.1 Non-Party Stakeholders

While the Paris Agreement encourages its parties to determine their achievable climate goals, it also encourages bottom-up climate actions from the domestic level. As Keohane and Oppenheimer suggest, the Paris Agreement facilitates a *two-level game* that integrates domestic climate actions into climate governance at the international level (Keohane & Oppenheimer, 2016). COP 21 places greater emphasis on the efforts of non-state actors in global climate mitigation (Sander Chan et al., 2016). In the *Adoption of the Paris Agreement* preamble, parties agree to "uphold and promote regional and international cooperation to mobilize stronger and more ambitious climate action by all parties and non-party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples" (*Adoption of the Paris Agreement*, 2015). Besides, COP 21 specified in the *Enhanced Action Prior to 2020* that "parties welcomed the efforts of non-party stakeholders to scale up their climate actions" (IV, 118, *Adoption of the Paris Agreement*, 2015) and "encourages non-Party stakeholders to increase their engagement" (IV, 120, *Adoption of the Paris Agreement*, 2015). Non-state actors are thus considered significant actors for the development of climate solutions and were encouraged to take part in the UN climate framework (Bäckstrand et al., 2017; Sander Chan et al., 2016; Hale, 2016; Rajamani, 2016).

What does the Paris Agreement's new provision on non-party stakeholders mean for Taiwan? The Paris Agreement diminishes the state-centric boundaries and encourages non-party actors to participate and to engage in achieving the Paris climate goals. It also unlocks the opportunity for *hybrid* or *administrative entities*, such as Taiwan, to take part in this collective climate action (Yeh & Lin, 2018, p. 167). This implies that, through mechanisms such as the Non-State Actor Zone for Climate Action platform (IV, 118, *Adoption of the Paris Agreement*, 2015),[69] Taiwan may have greater opportunities to establish official and non-official partnerships with parties to the Pairs Agreement (Peng, 2015). Although

[69] Global Climate Action (NAZCA) was launched in 2014 by UNFCCC, Peru and France and is an online platform is an online platform where actors, including countries, regions, cities, companies, investors and other organizations, can register their climate commitments. Available at http://climateaction.unfccc.int/

Taiwan may not join the platform as a state actor, where membership to the UNFCCC is the prerequisite, Taiwan may participate in these mechanisms through its domestic actors, such as cities, NGOs, and enterprises. The Paris Agreement framework may indeed open more windows for Taiwan's voluntary engagement in the UN climate framework (Yeh et al., 2015), but it also means that Taiwan's climate commitments may be subject to international scrutiny and potential criticism if they lack in substance (Peng, 2015; Yeh & Lin, 2018, p. 167).

8.2 Taiwan's Responses to the Paris Agreement

One month after the Paris Agreement was announced on 15 December in 2015, Taiwan had its sixth presidential direct election on 16 January 2016. The China-skeptic DPP candidate Tsai Ing-Wen (蔡英文) was elected as Taiwan's first female president. The DPP also gained voters' support and obtained a majority of seats in parliament for the first time. Tsai won the election with 6,894,744 (56.1%) votes, while the KMT candidate, Eric Chiu (邱立倫), had 3,813,365 (30.1%) votes. In the legislative election, the DPP gained 68 seats, while the KMT only managed to obtain 35 seats in parliament. It was a clear victory for Tsai and the DPP (Bush, 2016, p. 475). The DDP's victory was made possible largely because of Taiwanese society's skepticism and distrust[70] toward Ma Ying-Jeuo's over-dependence on China, both politically and economically, as well as frustration toward the decreasing economic performance of the KMT government. After Tsai entered office on 20 May 2016, She and her government redirected Ma's China policy and sought to maintain a balance between China-skeptic and China-friendly policy extremes. Tsai took a rather moderate position and emphasized she would

[70] Due to Ma's over-dependence on the Chinese market and attempt to forcefully pass the cross-Strait Service Trade Agreement (CSSTA) without clause-by-clause review at the Legislative Yuan, students and civil groups organized large scale protests against the trade deal starting from 18 March 2014. The protests were known as the Sunflower Movement. The protesters argued that the trade agreement should be reviewed carefully and transparently. Nevertheless, the Sunflower movement also reflected the people's (especially the younger generation's) skepticism toward the Chinese government. The protesters believed that this trade deal with China would not only hurt Taiwan's economy and leave Taiwan extremely vulnerable to Beijing. As of June 2020, the Sunflower movement is the largest student movement in the 21st century.

"maintain the status quo" and "respect the ROC constitutional order and Taiwan's democratic principles" (Michael Hsiao, 2016, p. 506).

Although Tsai readjusted Ma's approach to cross-Strait relations, Tsai did not diminish the GGRMA that was passed under Ma's leadership nor his climate diplomacy (i.e., the bid for the UNFCCC membership). Instead, Tsai reaffirmed her administration's position on climate actions and sought to galvanize action for the energy transition and low carbon development. At her presidential inauguration on 20 May 2016, Tsai stated that:

> We must not endlessly expend natural resources and the health of our citizens as we have done in the past. Therefore, we will strictly monitor and control all sources of pollution…We will gradually adjust our energy options based on the concepts of sustainability. The new administration will seriously address issues related to climate change, land and conservation, and disaster prevention. After all, we only have one earth, and we only have one Taiwan (Tsai, 2016b).

To achieve their sustainability goals, the Tsai administration created a specialized agency, the Office of Energy and Carbon Reduction (能源減碳辦公室)[71], and promised to "regularly review goals for cutting GHG emissions in accordance with the agreement negotiated at COP 21 meeting in Paris (Tsai, 2016b)." Tsai also pledged in the inauguration speech that Taiwan "will also not be absent on the prevention of global warming and climate change" (Tsai, 2016b).

8.2.1 Energy Policy and Reforms

Under Tsai's leadership, the government launched a series of energy initiatives to achieve climate targets and transform Taiwan into a sustainable society. In May 2016, the Tsai administration announced its first crucial step in adjusting the fossil fuel-intensive energy structure. The Minister of the MOEA, Lee Chih-Kung (李世

[71] The primary aim of establishing the Energy and Carbon Reduction Office is to coordinate the planning of national energy policies, promote energy transformation and GHG reductions, and integrate cross-ministerial meetings to coordinate related matters. The Office invited not only cross-ministry officials into its planning committee, but also industrial representatives, scholars, experts and NGOs (Executive Yuan, 2019a).

光, 2016-2017), made a public statement on 25 May 2016 stating that "nuclear-free homeland" was the biggest common denominator in the society, the government was determined to phase out nuclear power in Taiwan by 2025 (LTN, 2016).[72] Paralleling plans for phasing out nuclear power, the Tsai administration promised to reduce coal-fired power generation to 30% of the energy-mix and to raise the share of renewables from 4.8% to 20% also by 2025. The Tsai administration planned to replace nuclear power by investing heavily in large-scale offshore wind farms near Miaoli County, which is located on the northern island. On 12 November 2019, Taiwan's first offshore wind farm, *Formosa 1*, was inaugurated; 22 turbines were installed with a capacity of 128 megawatts, which is expected to power 128,000 households in Taiwan.

To achieve energy diversification and autonomy, Taiwan's legislature made substantial progress in adjusting its electricity structure. The Legislative Yuan passed an amendment to the Electricity Act on 11 January 2017. The amendment liberates the green energy market by opening up generation, direct sales, and supply mechanisms, which had been monopolized by the state-owned Taiwan Power Company (Taipower). It also reforms the energy sector by dividing Taipower operations into separate lines of business (ECOVIS, 2017; Executive Yuan, 2019b). Furthermore, the legislature included the "nuclear-free homeland" goal into the amendment and established the legal framework for phasing out nuclear power by 2025.

On 25 April 2017, the Executive Yuan announced the Guidelines on Energy Development (GED, 能源發展綱領) to serve as a national framework for energy programs and action plans. As the GED suggests, the primary aim is to "ensure balanced development in energy security, green economy, environmental sustainability, and social equity so that the target of the nuclear-free homeland can be achieved by 2025 and the sustainable development in energy can be attained"(MOEA, 2017). The GED also made a strong reference to the Paris Agreement. It states in the preamble that:

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[72] As of 2016, Taiwan has the total number of four operable nuclear power plants and accounted for 16% of the total electricity generation. The construction of the fourth nuclear power plant would be suspended, while the other three power plants would be decommissioned as scheduled.

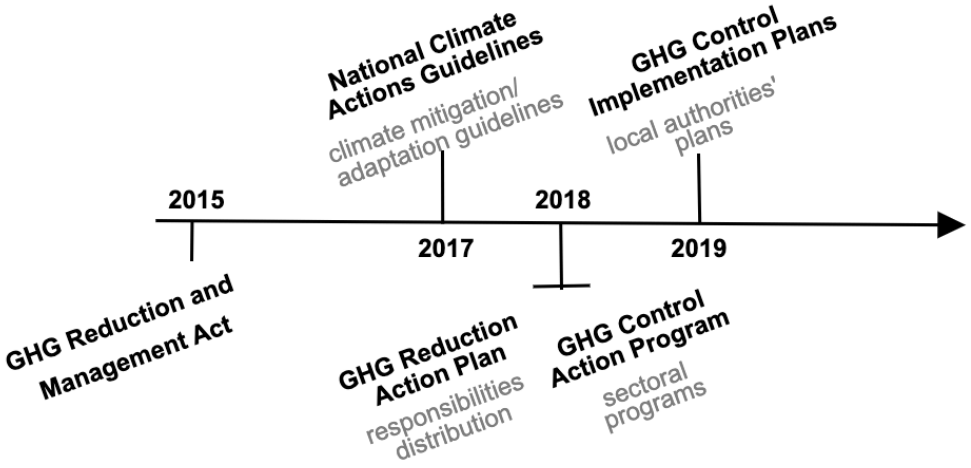
> Consider the shortage of self-produced energy and the dependency on imported and fossil fuel energy as high as 98% in Taiwan, the Greenhouse Gas Reduction and Management Act promulgated in 2015 and Paris Agreement reached in UNFCCC COP 21, Taiwan is bound to follow the trend of energy transition and seize this opportunity for green growth. (MOEA, 2017)

With the amendment of the Electricity Act and the announcement of the GED, the Tsai administration officially established the critical foundation for reaching the climate commitments pledged under the Paris Agreement and establishing a "nuclear-free" and sustainable homeland.

8.2.2 Climate Policies and Guidelines

Alongside the reforms of Taiwan's energy structure, the Tsai administration published policy frameworks for carrying out the GGRMA and achieving its climate mitigation and adaptation goals. There are four essential policy guidelines and action plans implemented following the GGRMA. Figure 8.1 illustrates the timeline and aims of these climate policies. The four guidelines and actions plans include the overarching National Climate Change Action Guidelines (國家因應氣候變遷行動綱領) announced in 2017, the climate mitigations plans, the Greenhouse Gas Reduction Action Plan (溫室氣體減量推動方案) and the GHG Emission Control Action Programs (溫室氣體排放管制行動方案) announced in 2018, and the local governments' GHG Control Implementation Plans (溫室氣體管制執行方案) in 2019.

Figure 8.1 Climate Measures under the GGRMA (2015-2020)



source: adapted from the EPA (GHG emissions reduction strategy, 溫室氣體減緩策略)

To implement GHG emissions reduction goals and to follow the GGRMA Article 9(1),[73] the Executive Yuan announced the overarching National Climate Change Action Guidelines (國家因應氣候變遷行動綱領) on 23 February 2018. The Action Guidelines, complying with the "provisions of the Paris Agreement to enhance greenhouse gas mitigation," contain climate policies that cover both mitigation and adaptation measures. The action guidelines contain two essential objectives, which are, first, enhancing overarching adaptability, minimizing vulnerability, building up resilience, and second, gradually reducing GHG

[73] The GGRMA Article 9:
(1) In order to implement the nation's GHG reduction policy, the central competent authority shall develop a National Climate Change Action Guideline ("Action Guideline") and GHG Reduction Action Plan ("Action Plan") reflecting the nation's economy, energy supplies, environment, current international situation, and the assignment of responsibilities mentioned in Paragraph 1 of the previous Article, and shall implement the Action Guideline and Action Plan in consultation with the central industry competent authorities after requesting approval from the Executive Yuan.

(2) The Action Guideline pursuant to the foregoing paragraph shall be reviewed once every five years; the Action Plan shall include periodic regulatory goals, implementation timetables, implementation strategies, expected benefits and an evaluation mechanism.

(3) The central industry competent authorities charged with the nation's energy, manufacturing, transportation, residential and commercial, and agriculture sectors shall determine GHG Emission Control Action Programs for the sectors under its supervision on the basis of the Action Plan pursuant to the foregoing paragraph; the Action Programs shall include GHG emissions targets, timetables, and economic incentive measures.

emissions to 50% of the 2005 emission levels by 2050. The measures formulated in the action guidelines include a total number of 14 provisions covering a wide range of issue areas (six for mitigations and eight for adaptation), such as enhancing disaster risk evaluation and disaster management, raising the resilience of infrastructure, and adjusting the energy supply structure (EPA, 2017). In addition, these regulatory measures and objectives will be reviewed every five years and examined for their validity.

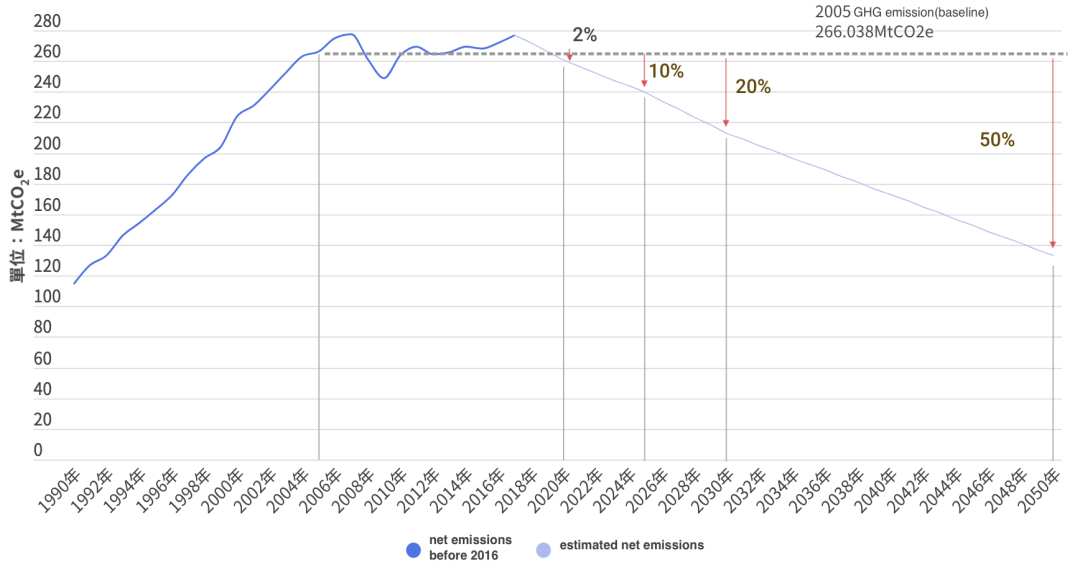
In the following year, the Executive Yuan published the Greenhouse Gas Reduction Action Plan (溫室氣體減量推動方案) on 22 March 2018. The action plan focuses primarily on GHG emissions reduction and achieving climate targets with periodic regulatory goals (EPA, 2018b). Figure 8.2 shows the periodic goals of GHG emissions reduction under the GGRMA. The action plan establishes advancement procedures, promotion strategies, expected benefits calculations, and management and examination mechanisms. The action plan also sets up GHG emissions responsibilities for the six major sectors, including energy, manufacturing, transportation, environmental, agriculture, and commercial /residential sectors, to achieve the reduction goals. To support the action plan in distributing reduction responsibilities, the Executive Yuan announced the GHG Emission Control Action Programs (溫室氣體排放管制行動方案) on 3 October 2018. The action programs determine the specific GHG emissions strategies, targets, timetables, and incentive measures for the six major sectors. Besides regulating the GHG emissions across sectors, the GGRMA also empowered the government to supervise the emissions reduction at the local level. The Executive Yuan demanded all 22 municipalities, country and city authorities to formulate their GHG Control Implementation Plans (溫室氣體管制執行方案) based on the GGRMA Article 15, which specifies that "special municipality, county, and competent city authorities shall develop GHG control implementation plans in accordance with the Action Plan."[74] The local authorities are encouraged to

[74] The GGRMA Article 15: Special municipality, county and city competent authorities shall develop GHG control implementation plans in accordance with the Action Plan approved by the Executive Yuan and the Action Program determined by the central industry competent authorities; such implementation plans shall be finalized after requesting the approval of the central competent authority.

develop localized emissions reduction strategies and measures to engage with their residents and businesses. In September 2019, all 22 local authorities submitted their implementation plans in cutting GHG emissions.

According to the GHG reduction periodic timetable, Taiwan should achieve a GHG emissions reduction of 2% by 2020, compared to 2005 levels. Although the EPA pointed out that Taiwan was expected to achieve the 2% goal in 2020, it is primarily due to the decrease of economic activities in light of the coronavirus outbreak. Both the EPA and the policymakers are planning to refine and strengthen the GGRMA to regulate better the GHG emissions reduction in Taiwan (Chiang, 2020).

Figure 8.2 The Periodic Goals of GHG Reduction (2020-2050)



source: the EPA (https://www.climatetalks.tw/blank-20)

8.3 Taiwan's Climate Diplomacy

Under Tsai's leadership, Taiwan continues calling on international society to support its meaningful participation in the UNFCCC. Nevertheless, Tsai has gradually shifted climate diplomacy narratives from seeking Taiwan's "meaningful participation" to making a "meaningful contribution" to global climate actions. With the development and the completion of Taiwan's first offshore wind farm, Taiwan adopted the slogan "Taiwan Can Help" to demonstrate its climate commitments and contributions.

8.3.1 Taiwan-China Relations

As the previous chapter illustrates (see chapter 7), one of the critical conditions for seeking significant participation in the UNFCCC under the KMT government was obtaining Beijing's consent, which allowed for Taiwan to have limited international presence under the condition of the One China principle. The KMT thus described Taiwan-China relations under Ma's leadership as "harmonious and tension-free"(Michael Hsiao, 2016, p. 505). In contrast to the KMT's China-friendly position, cross-Strait relations have always been a thorny problem for the DPP since the Chen administration began in 2000. A tense relationship emerged with Beijing under Chen's leadership from 2000 to 2008. After Tsai came to office in 2016, Taiwan-China relations deteriorated again. Tsai refrained from accepting the "1992 consensus,"[75] which was upheld strongly by Ma, and referred to the "1992 consensus," a verbal understanding between the CCP and the KMT, as a historical fact. Tsai respected the "consensus" but insisted that the existing Taiwanese legislation and constitution would be the guiding principle in conducting cross-Strait relations. In Tsai's inauguration speech on 25 May 2016, Tsai stated:

> In 1992, the two institutions representing each side across the Strait [SEF & ARATS], through communication and negotiations, arrived at various joint acknowledgments and understandings. It was done in a spirit of mutual understanding and a political attitude of seeking common ground while setting aside differences. I respect this historical fact...The new government will conduct cross-Strait affairs in accordance with the Republic of China Constitution, the Act Governing Relations Between the People of Taiwan Area and the Mainland Area, and other relevant legislation. The two governing parties across the Strait must set aside the baggage of history, and engage in positive dialogue, for the benefit of the people on both sides. (Tsai, 2016a)

Although the way Tsai approached the cross-Strait relations was considered to be more pragmatic and centrist than the previous presidents (D. P. Chen, 2017,

[75] Under the KMT interpretation, the "1992 consensus" refers to "one China, respective interpretations" and that "one China" is the ROC. While Beijing considered "one China" as the PRC and the PRC only.

p. 173), Beijing deemed Tsai failing to provide the satisfactory results that Beijing had hoped for (Xinhua, 2016). The Beijing government had threatened to terminate communication mechanisms between both sides if Tsai did not affirm the One China principle (Cabestan, 2017, p. 58). Without Beijing's consent, Taiwan's ability to participate in international organizations was weakened compared to that of the Ma administration (K.-B. Huang, 2018). For instance, the WHA and ICAO refused to let Taiwan continue taking part in meetings and stated their adherence to the One China principle even though Taiwan had in the past been invited as an observer and guest (Feng, 2016; Shattuck, 2020, p. 342). In addition to blocking Taiwan from IGOs, Beijing also attempts to restrain the DPP government by "poaching" Taiwan's remaining diplomatic allies (Shattuck, 2020, p. 334). Right after Tsai won the presidential election, Beijing established official ties with the Gambia,[76] and São Tomé and Príncipe also switched recognition to the PRC. In 2017, Panama ended its diplomatic ties with Taiwan and established official ties with the PRC. Similar steps were taken by the Dominican Republic, El Salvador, and Burkina Faso in 2018 and the Solomon Islands and Kiribati in 2019. From 2016 to 2020, Taiwan lost seven diplomatic allies, and the total number of remaining allies decreasing from the 22 held during the Ma administration to 15. Furthermore, Beijing pressured countries that already had official ties with the PRC to remove Taiwan's representative offices or to remove any mention of either Taiwan or the ROC in their countries (Dreyer, 2018).

Similar challenges occurred to Taiwan's involvement in COPs. During COP 22 in Marrakech, Morocco in 2016, it was reported that Taiwan was barred from hosting any side events at the conference venue (Shi, 2016). During COP 23 in Bonn, Germany, Taiwan's EPA administrator Li Ying-Yuan (李應元) stated that he was prevented from entering the conference venue, even with credentials as a non-party stakeholder and an NGO. Taiwanese officials and experts later claimed that the incident was the result of China's objection (Yu, 2017). Taiwan's bid for meaningful participation in the UNFCCC has been rejected every year since 2009.

[76] The Gambian president announced it would cut ties with Taiwan during the Ma administration and recognize the PRC as the only legitimate representative of China in 2013. Nevertheless, Beijing refused to establish diplomatic relations with Gambia.

8.3.2 Taiwan's Bid for Meaningful Participation at the UNFCCC

Although relations with Beijing have deteriorated, Taiwan continues to brand itself as a responsible "eco-citizen" in seeking meaningful participation in the UNFCCC (Grano, 2019). The Tsai administration launched its UNFCCC bid under the slogan "Leaving No One Behind" in 2016. The proposal highlighted Taiwan's voluntary climate commitments, the GGRMA and the INDCs announced in 2015, and suggested that Taiwan was ready and willing to be "part of the global solution to climate change." The Tsai administration implored all parties to "look beyond political considerations and support Taiwan's meaningful participation in the UNFCCC" (MOFA, 2016a). With the increasing climate ambition of the island, Taiwan's narrative in seeking participation in the UNFCCC shifted from "Taiwan fulfills the climate responsibility" adopted by the Ma administration to "Taiwan can help." During COP 23 in Bonn 2017, the MOFA pleaded for the international society to "Let Taiwan Help" in contributing to global climate actions (MOFA, 2017). Prior to COP 24 in Katowice, Poland in 2018, Taiwan stressed its recognition of its own climate responsibility as a member of international society and emphasized its aim to pursue an energy transition and GHG emissions reductions. The MOFA highlighted Taiwan's climate commitments by illustrating the guidelines and action plans that were implemented under the GGRMA, and the goal of reaching 20% renewable energy in its energy mix by 2025 (MOFA, 2017).

During COP24 in Madrid (2-13 December 2019), the MOFA adopted the slogan "Combating Climate Change – Taiwan Can Help" as the advertising slogan (MOFA, 2019; Taiwan Today, 2019). The MOFA's advertisement featured the first offshore wind farm, the *Formosa 1*[77] that was inaugurated in 2019 to present Taiwan's efforts in realizing Paris Agreement objectives. The Tsai administration considered that the new strategy, *Taiwan Can Help*, can not only portray Taiwan as a responsible and capable climate protector but also serve as a crucial catalyst for lowering domestic GHG emissions and facilitating energy transition (Taiwan Today, 2019).

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[77] The Tsai administration also produced a short film, *Riding with Wind*, to promote Taiwan's commitments to mitigate GHG emissions. The film features the Formosa 1 and the Taiwanese efforts in developing its first offshore wind farm. The short film is available here: https://www.youtube.com/watch?v=o5DNLQg6gOY&feature=youtu.be

8.4 Greener Trade under the Paris Agreement

As Chapter 5 shows, MEAs' trade provisions have played a critical role in ratcheting up voluntarily its environmental and climate standards. The most prominent cases include the Montreal Protocol and the CITES' trade provisions on non-Party members. Although the international climate treaties, including the Kyoto Protocol and the Paris Agreement, did not adopt trade-related provisions (i.e., sanctions for non-compliance) for achieving their climate goals, member parties may formulate environmental standards on foreign trade to achieve climate objectives (Morin et al., 2018). International trade organizations, such as the WTO, already acknowledge that "some degree of trade restriction may be necessary to achieve certain policy objectives" in the context of climate change (Eliason, 2019, p. 548; WTO, 2016). Since the Paris Agreement is shifting towards a bottom-up approach, such flexibility allows countries to adopt trade measures to achieve their climate objectives (Di Leva & Shi, 2017; Droege et al., 2016, p. 13). It is also expected that countries' demands for low carbon products and services will increase drastically.

8.4.1 Industrial Sectors' Emissions Reduction Measures

Taiwan joined the WTO in 2002 and gave up its developing economy status in 2018.[78] It may encounter challenges if its export sectors are not able to respond swiftly and smoothly (K. (徐遵慈) Hsu, 2008; MOFA, 2018). To better prepare Taiwan's business and industrial sectors for potential climate-related trade provisions, Taiwan's MOEA established the Green Trade Project Office (經濟部推動綠色貿易專案辦公室) in 2011. After the Paris Agreement entered into force on 14 November 2016, the MOEA launched a five-year "Green Trade Action Plan (綠色行動計畫)" in December 2016 to improve the export sectors' competitiveness in the international market. The plan aimed to assist domestic companies in obtaining international green certificates, taking part in international green

[78] Taiwan joined the WTO as a "separate customs territory of Taiwan, Penghu, Kimmen" on 1 January 2002. The Tsai administration decided to give up its developing country status in the WTO in 2018 to distinguish itself from China and to boost Taiwan's international profile.

procurement lists, and promoting the export of low-carbon products and services. Parallel to the MOEA's action plan, on 5 January 2016 the EPA launched a Measures for the Administration of Inventory and Registration of Greenhouse Gas Emissions (溫室氣體排放量盤查登錄管理辦法) under the GGRMA framework to assist industries to control better and reduce their GHG emissions (EPA, 2016). The EPA then announced the first batch of GHG sources/industries that were subjected to GHG accounting and registration (第一批應盤查登錄溫室氣體排放量之排放源). These included the electricity, cement, steel, and semiconductor industries. In 2018, 294 companies and businesses had registered their GHG emissions with the EPA accounting for 85% of total GHG emissions from both the energy and industrial sectors (EPA, 2016).

Most emission-intensive industries have also taken measures to reduce GHG emissions following the GGRMA. Most corporations have proposed detailed plans, including renewable energy installation, setting GHG emissions targets, and subscribing to green electricity, as part of their future energy outlook. For instance, the China Steel Corporation (台灣中鋼) enhanced its GHG emissions calculation and verification and set a target to achieve up to a 330,000 tCO2e GHG reduction by 2020.[79] Some sectors have seen results in curbing GHG emissions. Petrochemical companies, including the Formosa Petrochemical Corporation (台塑石化), Formosa Chemicals & Fiber Corporation (台灣化學纖維), Formosa Plastic (台灣塑膠), and CPC Corporation (台灣中油), have reduced their GHG emissions between 3.3% and 7.3% from 2013 to 2017 (RSPRC, 2019, p. 218). The steel industry and the electronic industry, on the other hand, did not achieve a significant decrease in their GHG emissions in 2019.

[79] More CSC's GHG emissions reduction plans and targets can be found on their website under the topic *Corporate Social Responsibility: Environmental Protection*. https://www.csc.com.tw/csc_e/hr/csr/env/env3.htm

8.5 Public Demands and the Air Pollution Problem

Despite the government's efforts to reduce GHG emissions, public demands for more aggressive climate measures and protests over air pollution have accelerated. Air pollution has been a tricky issue plaguing Taiwan for decades and has been one of the key instigators of environmental protests since the mid-1980s (M.-S. Ho, 2017). Although the air quality has gradually improved since 2000, the number of protests and public attention to air pollution increased drastically in 2017 and 2018.

According to the EPA report (2018a), the intensity of air pollutants (PM_{10}, $PM_{2.5}$, SO_2, NO_2, CO, O_3) has been decreasing steadily every year since 2000. Take the $PM_{2.5}$ for example. The highest intensity was in 2000 with 33.3 $\mu g/m^2$; it dropped to 19.0 $\mu g/m^2$ in 2018. The Air Quality Index (AQI), which is based on the measurement of the pollutants mentioned above, indicates that the air quality in a total of seven administrative areas has improved since 2014. The EPA determined that more than 30% of $PM_{2.5}$ in Taiwan came from overseas sources (mainly from China).

Air quality in Kaohsiung and Pingtung remains relatively poor[80] compared to other administrative areas (EPA, 2018a, pp. 3–3) due to the heavy industries in the areas. Despite some improvements, discontent about the poor air quality is shared among people across cities and administrative areas. The Taichung Power Plant, which has the second-largest thermal power plant with the highest CO_2 emissions in the world (T.-L. Chen, 2017), attracted overwhelming criticism from anti-air pollution protestors. One of the biggest anti-air pollution protests was held in Taichung on 19 December 2017. The Taichung protest, organized by an NGO called Air Clean Taiwan (台灣健康空氣行動聯盟) under the slogan "Ending One Taiwan, Two Skies (終結一個天空兩個台灣)," decried the poor air quality in Taichung in contrast to the cleaner air in the capital city Taipei (Ferry, 2018). Local mayors and government officials from all political parties showed up in support of the protest. KMT legislators proposed three amendments (one in 2016 and two

[80] The AQI in Taipei area has improved 20%, from 70 in 2014 to 56 in 2018, while in Kaohsiung and Pingtung the AQI only improved 13.5, from 89 in 2014 to 77 in 2018 (EPA, 2018a).

in 2017) to the GGRMA, suggesting that the Tsai administration should strengthen the GHG emissions reduction targets and impose a heavier fine on emitters for non-compliance. Although the EPA and the local authorities have adopted more restrictive regulations, there were more anti-air pollution rallies organized by environmental and civic groups, as well as political parties, in Taichung, Taipei, and Kaohsiung.

8.5.1 "Go Green with Nuclear" Referendum

As people's discontent over air pollution accelerated, the focus gradually expanded to become a complex criticism against Tsai's energy and climate policies. Taiwan's pro-nuclear groups, the Nuclear MythBusters (核能流言終結者)[81] in particular, took advantage of rising public awareness toward air pollution to justify nuclear power as being zero-emissions and green energy. Nuclear advocates argued that nuclear power was "green and clean energy" with the least harmful impacts of GHG emissions comparing to fossil fuel energy on the environment in response to the Tsai administration's amendment of the Electricity Act describing plans for a *Nuclear-free Homeland* in January 2017.[82] Nuclear advocates tried to paint a picture of renewable energy as unstable and too inefficient to support Taiwan's power system needs. They argued that a nuclear phaseout would condemn Taiwan to a future of severe air pollution (Aspinwall, 2019) and power shortage.[83] By tapping into the public's concerns,[84] nuclear advocates succeeded in winning support for their viewpoints in a pro-nuclear referendum in 2018.

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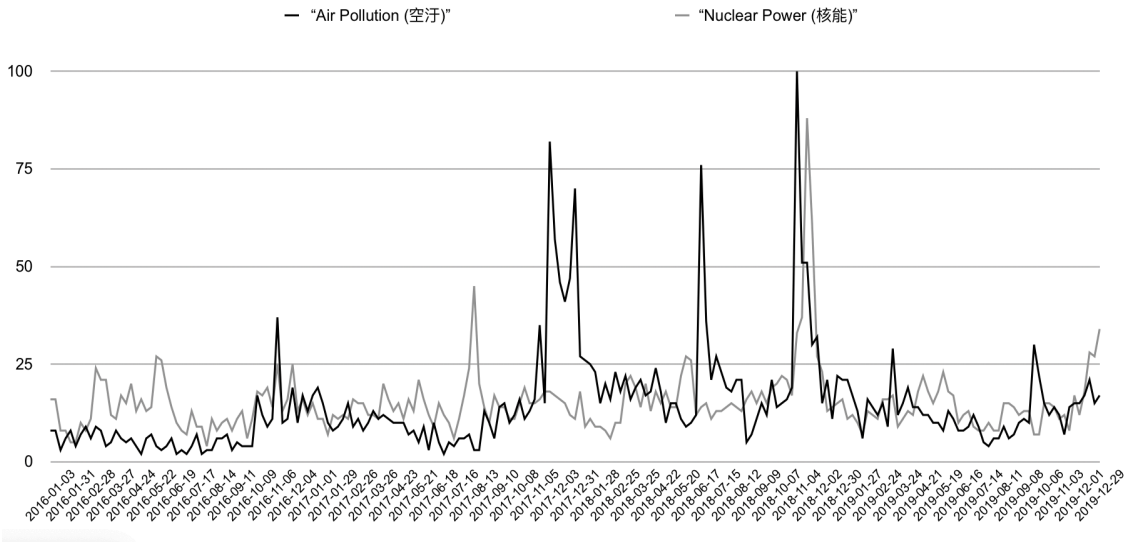
[81] The Nuclear MythBusters is an advocacy group founded by Huang Shih-Hsiu shortly after the Fukushima disaster in March 2011. The group aims to combat nuclear skepticism in Taiwan.
[82] The details of the amendment of the Electricity Act can be found in the previous section (Chapter 8.2.1).
[83] However, according to the Taipower statistics, nuclear power only contributed to about 11% of total electricity production. For more details, see Taipower's website https://www.taipower.com.tw/.
[84] A research carried out by the Risk Society and Policy Research Center (National Taiwan University) suggests that the public did not fully understand the current energy structure. According to the research, about 44% of people believed that nuclear power was the most important energy source in Taiwan, while only 32% of people knew that coal was the major energy source. For more information, see https://e-info.org.tw/node/215372.

The pro-nuclear advocates harnessed people's frustration toward air pollution and fear for power shortage and successfully collected some 200,000 signatures for a petition against Tsai's *Nuclear-free Homeland* policy. The petition, which later became a referendum entitled "Go Green with Nuclear (以核養綠)," held on 24 November 2018. The "Go Green with Nuclear" requested the Tsai administration to abolish Article 95(1) of the Electricity Act, which stated that "all nuclear energy-based power-generating facilities shall completely cease operations by 2025." The referendum asked the voters, "do you agree with abolishing the first paragraph of article 95 of the Electricity Act, which means abolishing the provision that all nuclear-energy based power-generating facilities shall cease to operate by 2025?"

At the same time, may KMT politicians, including the former president Ma Ying-Jeuo, publicly endorsed the referendum and supported the pro-nuclear advocates (R.-Q. (吳睿騏) Wu, 2018). On 24 November, the pro-nuclear groups and the KMT won a landslide victory with 59.9% of voters saying "Yes" to their proposal. The success of nuclear advocates is shown in figure 8.3. The searching intensity for "air pollution (空汙)" and "nuclear power (核能)" on Google increased simultaneously as the referendum took place in November. Following the referendum result, the Legislative Yuan removed the paragraph in the Electricity Act in May 2019.

The KMT and the pro-nuclear groups continued advocating a nuclear agenda. The KMT candidate for the 2020 presidential election, Han Kuo-Yu (韓國瑜), who is also a China-friendly populist, announced that he would adopt "Go Green with Nuclear" to mitigate GHG emissions and reduce air pollution. Han proposed to increase the share of "clean energy" to 25-30% renewables and 20-25% nuclear power and to decrease coal energy to 50% of the energy mix by 2035. Comparing these figures to Tsai's energy promises (reaching 20% renewables, 30% coal, and 50% natural gas by 2025), many environmental groups, including the Greenpeace Taiwan and Citizen of the Earth, criticized that Han's energy policy was not only based on false information that served the interests of nuclear advocates but also provided misleading promises regarding Taiwan's future renewable energy development (Sun, 2020).

Figure 8.3 Public Attention to “Air Pollution” and “Nuclear Power” (2016-2019)



Source: Google Trends. Compiled by the author.

Although Han lost the presidential election to Tsai Ing-Wen by a large margin on 11 January 2020, his controversial “Go Green with Nuclear” proposal was endorsed by over five million voters. Environmental NGOs and experts warned that the collaboration between the populist’s supporters and pro-nuclear advocates had produced a plan which would severely damage the future of Taiwan’s renewable energy development (TEPN, 2019).

8.6 Conclusion

The Paris Agreement diminishes state-centric climate governance and invites non-party actors to take part in achieving the agreement’s objectives. While Taiwan may engage with the climate initiatives under the UN climate framework through collaboration with other NGOs, it is still not able to participate in the UNFCCC as an official entity. The One China policy adhered by the UN remains the primary obstacle for Taiwan’s bid for significant participation in the UNFCCC.

Nevertheless, under Tsai’s leadership, Taiwan continues its climate diplomacy and voluntary climate compliance and aligns itself with international climate developments. The Tsai administration implemented the GGRMA by setting up specific climate mitigation and adaptation action plans, which entail

clear guidelines for GHG emissions reductions across sectors and administrative units. Alongside these climate measures, Tsai vowed to phase out nuclear power in Taiwan and increase renewable energy capacity to 20% in the energy mix by 2025. To achieve this goal, the Tsai administration constructed Taiwan's first offshore wind farm to stimulate renewable development. Taiwan's climate ambitions were also reflected in its international narrative when the MOFA announced that "Taiwan Can Help" in combating climate change. Taiwan not only voluntarily complies with the Paris Agreement, but actively seeks to achieve the agreement's objectives. In order to promote greener international trade, Taiwan launched several climate-related provisions to assist its industries in meeting the environmental provisions adopted by trading partners.

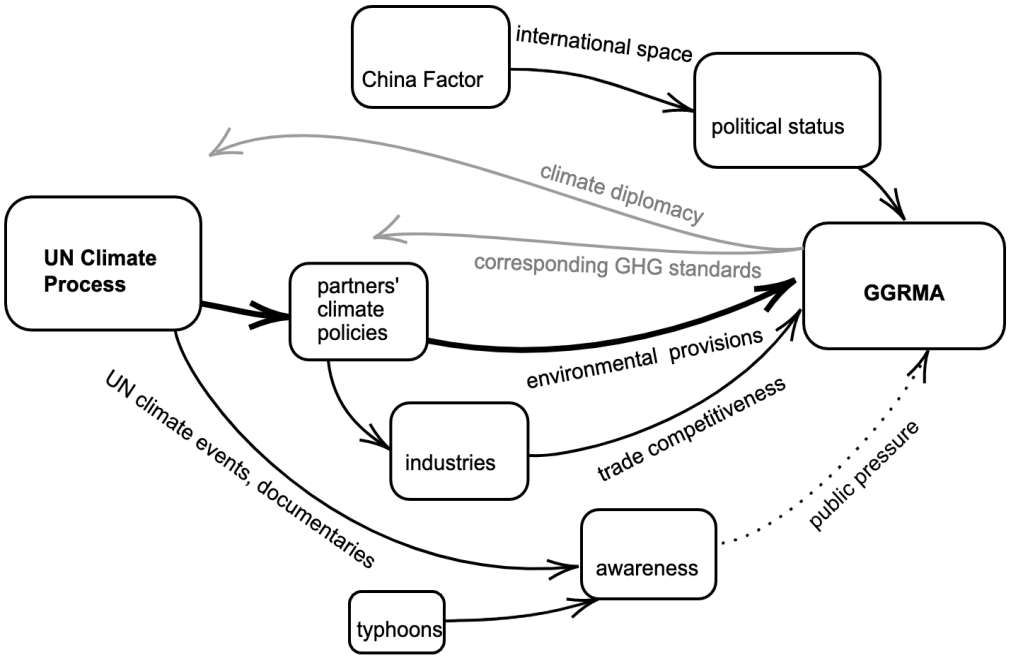
However, Tsai's *Nuclear-free Homeland* policy did not receive positive feedback from the people and was rejected in the 2018 referendum. As people increasingly recognize the severity of air pollution in their living environment, numerous protests took place in major Taiwanese cities. Most Taiwanese' discontent concerning air pollution was later channeled against Tsai's nuclear phaseout plan by nuclear advocates. After the "Go Green with Nuclear" referendum won a landslide victory, the Legislative Yuan removed the nuclear phaseout plan in the Electricity Act in May 2019. Although Tsai reaffirmed her position on climate and energy plans at the beginning of her second term in May 2020, Tsai's ambition to tackle air pollution problems effectively while achieving climate and renewable targets as scheduled remains challenging.

9 Conclusion

This dissertation has analyzed the policymaking process of the GGRMA and other climate measures in Taiwan from 1990 to 2020 to understand why Taiwan voluntarily adopted climate mitigation policies that align with international climate developments. Three hypotheses, which were drawn from the existing literature, served as the guiding analytical frameworks for examining the dynamics of climate politics across four different periods. Based on the observations presented in the previous four chapters (see Chapter 6, 7, 8, and 9), this chapter refines the analytical framework in order to provide the most plausible explanations for Taiwan's voluntary climate change actions.

In the context of intergovernmental climate governance, it would seem reasonable to assert that participation in the UN climate framework is the default condition for governments to comply with international climate agreements. Nevertheless, the findings from Taiwan's voluntary climate actions suggest otherwise. Figure 9.1 illustrates why Taiwan adopted the GGRMA in achieving the UN climate objectives and the causal mechanisms between the UN climate process and the GGRMA. The findings from this research illustrate Taiwan's ability and willingness, regardless of the political and economic calculations behind, to be an active contributor to global climate governance. By identifying the main drivers for Taiwan's climate actions, this research provides significant implications and analytical framework in examining Taiwan's role in other areas outside of climate and energy.

Figure 9.1 Mapping out the Process of Taiwan's Voluntary Climate Policy



Source: compiled by the author

9.1 International Politics and the Climate Bandwagoning

Taiwan does not have official diplomatic ties with most major powers nor membership in the main international organizations. Its ambiguous political status, the result of complex cross-Strait relations, underlies Taiwan's foreign policy behavior and its quest to expand its participation in the international community. Taiwan's government and officials are of the view that *international strategic communications* might persuade the international community to "sympathize with their predicament and support their political agenda"(Rawnsley, 2014, p. 162). Scholars have confirmed that Taiwan's proactive adoption of global norms, including democracy, human rights, and trade liberation, are highly correlated with its inability to gain official recognition from most countries and international organizations (Y. Chu, 2004; Glaser, 2013a; Rawnsley, 2014).

The examination of the policymaking process behind Taiwan's climate measures, especially the GGRMA, suggests that strategic interests were indeed a compelling factor. This finding, therefore, echoes the *climate bandwagoning* thesis presented by Jinnah (2011) and shows how and when linkages between the UN

climate regime and Taiwan's political status were pursued and how they were utilized. Meaningful participation in the UNFCCC was thus a crucial "overlap" between Taiwan's search for international acceptance and participation. Taiwan's UNFCCC bid was not only considered *politically feasible* during the Ma administration but also *welcomed* and *supported* by society. The UNFCCC bid fulfills the critical bandwagoning criteria proposed by Jinnah (2011b) and McDermott et al. (2011) and was expected to benefit Taiwan's quest for participation in the international community. This strategical linkage facilitated the Ma and Tsai administrations in taking proactive climate measures in response to the UN climate process and fulfilling the image that it wished to portray.

These diplomatic strategies were tailored to the UN climate process and produced a distinct set of narratives—Taiwan appealed for recognition as a sovereign state. The findings from 2000 to 2020 confirm the climate bandwagoning assumption that Taiwan's voluntary adoption of the UN climate objectives was a strategy to advance its broader political agenda, and especially the official recognition in the UNFCCC.

Nevertheless, it is important to note that Taiwan adopted this strategic linkage only gradually when the UN climate negotiations led to the Kyoto Protocol. Adopting voluntary climate actions was not considered as a means to obtain international recognition before 2000, despite the increasing climate discussions around the world in the 1990s. Taiwan's foreign policy was mainly fixated on enhancing economic cooperation and participating in the GATT/WTO (S. Chan, 1994; Qin, 1992). Taiwan was at the time boosting economic growth and expanding the international market. It was only reasonable for Taiwan to comply with MEAs when it perceived that the non-compliance could hinder its foreign trade (Niu, 1999). Environmental and Climate-related working groups were thus established under the Executive Yuan to produce regulations corresponding to the international agreements.

During the Chen (2000-2008) and Ma (2008-2016) administrations, both governments sought to portray Taiwan as a responsible stakeholder and expand the international space by following the UN climate objectives. Although these strategical adaptations align with the pattern described in the Bandwagoning Hypothesis, it is important to point out that the motivations behind the two

administrations were not precisely the same.

9.1.1 The China Factor and the UNFCCC Bids

The China factor, in this case, played a critical role in shaping Taiwan's climate bandwagoning strategy. Beijing considered that Chen violated the One China principle with his provocative claim, "One Country on Each Side," and launched attempts to subdue Chen's intention for Taiwan's *de jure* independence. To counter the political oppression targeting Taiwan's international participation, the MOFA's environmental diplomacy starting in 2007 focused on portraying Taiwan as a good partner for international climate partnerships (MOFA, 2007). The GHG reduction bill, which was proposed around the same time, was framed as proof of Taiwan's climate commitments both for domestic and international audiences (Executive Yuan, 2006; Legislative Yuan, 2007c).

When Ma came to power in 2008, the China factor opened some doors to discussing Taiwan's participation in the international climate community. The KMT and the CCP agreed upon the "1992 Consensus," which allowed both parties to reconcile on the debate of Taiwan's statehood (D. P. Chen, 2017; Y. Chen & Cohen, 2019). Under the diplomatic truce guideline, the Ma administration abandoned the longstanding quest to "rejoin" the UN to avoid challenging the One China principle. Instead, Ma proposed to obtain meaningful participation in the less sensitive (or less provocative to the One China principle) UN specialized agencies, which included the ICAO, the WHO, and the UNFCCC. Ma thus launched the international campaign to obtain international support for Taiwan's UNFCCC's observer status in 2009. The KMT government and policymakers across parties felt passing the GHG emission reduction bill would be the prime example illustrating Taiwan's commitment to climate action and the most persuasive means to obtain international recognition (Legislative Yuan, 2008c, 2015a). Before Ma's second term ended, the KMT government passed the GGRMA with legally binding climate targets, marking the first climate legislation on the island.

Contrary to the Ma administration, the DPP government under Tsai's leadership did not win any acceptance from Beijing for its efforts to expand its international engagements. Taiwan's participation and observer status in the WHA

and ICAO were revoked because of their adherence to the One China policy. Nevertheless, meaningful participation in the UNFCCC remained a foreign policy top priority. The Tsai administration did not stop its efforts to win international recognition by voluntarily fulfilling the Paris Agreement's objectives. Different from Ma's approach, Tsai took advantage of the success of the renewable energy project, *Formosa 1*, to exemplify that Taiwan could contribute significantly to international climate mitigation actions. Under the slogan "Taiwan Can Help," the Tsai administration not only demonstrated Taiwan's domestic implementation of the GGRMA but also exhibited its capacity in renewable energy development.

Comparing the approaches among Chen, Ma, and Tsai's leaderships, it shows that having a pro-Beijing policy may increase the chances for Taiwan to participate in the UNFCCC. Still, with Beijing's acceptance or not, the cross-strait relations would not alter Taiwan's climate bandwagoning trajectory. This is because actors across different governments, political parties, and administrative units strategically linked Taiwan's quest for greater participation in international society with the UN climate process. The intention was especially apparent when significant UN climate agreements were about to be announced (i.e., the Paris Agreement). The need to construct this strategic linkage facilitated the Taiwanese legislative body to produce climate measures corresponding to the UN climate objectives. With these climate measures, Taiwan was able to portray itself as a responsible stakeholder and a credible member of climate partnerships.

9.1.2 Future Prospects of the Bandwagoning Strategy

Did the climate bandwagoning strategy help the Taiwanese government achieve its goal to obtain international support and recognition? According to the MOFA and EU parliamentary reports, the EU expressed its support for Taiwan's meaningful participation in the UNFCCC (EU, 2020; MOFA, 2010, 2011). The MOFA stated that the EU strongly supported Taiwan's participation in the UNFCCC and other international organizations where "Taiwan's participation is important to the EU and global interests"(MOFA, 2010). The EU Parliament's annual report released in 2020 (EU, 2020) also "reiterates its support for Taiwan's meaningful participation in international organizations, mechanisms, and activities." Other

political bodies, including the Australian Senate and Central American Parliament, as Simon (2011) points out, passed resolutions supporting Taiwan's bid for the UNFCCC.

Nevertheless, Taiwan may need to consider broadening its climate diplomacy strategy for greater participation in the international community. As China has become the largest CO_2 emitter in the world by surpassing US emissions in 2006, the international society considered China's engagement in the UN climate process as a much more important priority than endorsing Taiwan's meaningful participation in the UNFCCC (Glaser, 2013b; Grano, 2019). After the US announced its withdrawal from the Paris Agreement, the leadership vacuum in global climate governance provided China an opportunity to assume its leadership in fighting global warming (Engels, 2018; Grano, 2019; Tiberghien, 2018). It is unlikely that Taiwan will be allowed to participate in the UNFCCC without significant contributions[85] to global climate governance.

The parties at COP 21 also recognized the climate efforts delivered by non-party stakeholders and opened up the potential for a polycentric approach to climate governance (Pattberg et al., 2018). The polycentric approach in climate governance diminishes state boundaries and allows for a "complex, multi-level system" (Ostrom, 2009) to cope with climate change (Dorsch & Flachsland, 2017; Zelli & van Asselt, 2014). Taiwan should utilize both state and non-state channels, including bilateral and regional initiatives (Biedermann, 2017), urban climate alliances (C.-M. Chen & Shu, 2012), and NGOs' climate collaborations to achieve greater integration into the international climate community. Through these multi-level channels, Taiwan may be able to strengthen its credentials as a responsible stakeholder in climate change and obtain greater participation in the international climate community.

In summary, the Taiwanese government strategically linked its pursuit of international acceptance to the UN climate process. The Bandwagoning

[85] What constitutes significant contributions? Taiwan's performance in combat the global pandemic covid-19 may serve as the best example. Taiwan was one of the very few countries that managed to contain and control the outbreak of the covid-19, despite its geographic closeness to China. The Taiwanese experience and the governance framework served as best practices for many countries which are still struggling to contain the outbreak. Taiwan's participation in the WHA was thus endorsed by most major powers including the EU members, the US, Japan, Australia and Canada.

Hypothesis helps this research explain climate diplomacy strategies launched by different administrations. It is expected that Taiwan would voluntarily comply with the UN climate process and achieve its climate objectives, as long as climate change remaining salient to the international community and Taiwan seeking to become a normalized state.

9.2 Trade Provisions and Voluntary Compliances

Taiwan, as Gerald Chan (G. Chan, 1997, p. 37) described, is "financially rich, but diplomatically poor." Despite its diplomatic constraints, Taiwan is one of the wealthiest countries in Asia and a powerhouse in global high-tech production. Taiwan's foreign trade has been one of the most significant backbones of its economy and contributed around 62.7% of GDP between 2015 and 2017 (WTO, 2017). As most developed and developing countries, including Taiwan's major trading partners and competitors, were adopting their own GHG emissions regulations (Nachmany et al., 2015), it could be argued that Taiwan introduced climate regulations in order to avoid potential future trade barriers and economic losses.

Taiwan's adoption of GHG reduction measures follows the *trading up* pattern (Vogel, 2000), in which Taiwan had to ratchet up its climate standards to maintain access to the markets of its trading partners. Taiwan's initial responses toward the Montreal Protocol and the CITES showed how Taiwan adjusted its domestic environmental regulations to maintain access to international markets. These previous experiences with MEAs profoundly shaped how Taiwan approached the Kyoto Protocol in the 1990s and early 2000s.

A first observation concerning the linkage between trade and climate regime in Taiwan was first identified in the 1990s. The trade provisions employed by the Montreal Protocol and the CITES, such as sanctions on a non-party member, to achieve environmental objectives indirectly and directly shaped Taiwan's adoption of environmental policies and programs.

The findings show that the MEAs' trade provisions were a dominant factor behind Taiwan's compliance with international environmental goals during an

early stage of climate policymaking, especially during the Lee administration in the 1990s and the beginning of the Chen administration in the early 2000s. The Montreal Protocol and the CITES included measures that extended to non-parties. Thus, the Taiwanese government and policymakers believed that Taiwan would face severe trade sanctions if they did not meet MEA objectives. The US' Pelly Amendment in 1994 was the first case where Taiwan was sanctioned for non-compliance with the MEAs' targets. The sanction was lifted by the US government after Taiwan revised and strengthen its regulations on wildlife conservation. This case thus established a specific pattern, *voluntary compliance*, for the Taiwanese government in responding to MEAs even when it was not a member party in the 1990s. This particular finding confirms an expectation from the institutional interplay literature (Oberthür, 2009; Oberthür & Gehring, 2006; Zelli & van Asselt, 2014) addressing how MEAs achieve their collective goals through implementing trade restrictions.

This "pattern" can also be identified in Taiwan's domestic climate discussions in the 1990s. The legislative records show that when the Kyoto Protocol was first announced in 1997, the policymakers' concerns were fixated on whether this protocol adopted trade provisions on non-parties in relation to the achieving of emissions reduction targets and preventing carbon leakage. Corresponding regulations in GHG emissions reductions were drafted with the aim to avoid possible trade provisions in the first National Energy Conference in 1998. While there was no specific clause suggesting that a non-party would be regulated under the Kyoto Protocol, this utilitarian concern was repeatedly mentioned by policymakers and officials in the SWEH meetings. Most interviewees also confirmed this pattern during the first half of the policymaking process.

9.2.1 The Perceived Probability of Green Barriers

In the second half of the policymaking process, when the first climate bill was proposed (in 2006), the perceived probability of trade provisions was gradually replaced by the perceived urgency to maintain Taiwan's access to the international market. The findings confirm the core assumption of the *trading up* effect that Taiwan needed to ratchet up its GHG standards to maintain market access to

countries that imposed or were about to impose such standards. There were two crucial factors facilitating climate discussions during the Ma administration. The first was the concern that major trading partners, especially EU member countries, might impose "green barriers" (MOFA, 2008a, 2009a), which would significantly impact on Taiwan's export to these partner countries. As the MOFA claimed, Taiwan must "safeguard its own economic and trade interests and avoid losing competitiveness or suffering economic and trade sanctions due to environmental provisions"(MOFA, 2009a).

Scholars Prakash and Potoski referred to this phenomenon as the *EU Effect* that exporters to EU markets are incentivized to enact costly changes in their production because of the perceived probability that the EU might impose emissions standards on imports (Prakash & Potoski, 2017). This perceived probability was especially apparent in the MOFA reports and in the policymaking process, where *potential green barriers* from the EU were mentioned repeatedly. The GGRMA can thus be considered a preventive measure to protect Taiwan's export markets.

This *Effect* can also be observed in how industrial sectors reacted toward the post-Kyoto discussions. The industrial sectors encouraged the government to strengthen emissions standards in the domestic market so they can better compete with their trade opponents who already adopted stricter regulations.

This perspective was endorsed by policymakers and officials during the SWEH meetings and confirmed by interviewees. With the increasing number of environmental provisions introduced by countries around the world, Taiwan - as a major exporter - considered it crucial to adopt corresponding climate legislation to minimize potential economic losses from falling behind on GHG regulations. Climate law scholars Yeh Jiunn-Rong and his colleagues also suggest that "it seems like the government had no choice but to pass the GGRMA to avoid international trade sanctions." (Yeh et al., 2015, p. 21)[86]

Nevertheless, many countries, including the EU and the US, are currently discussing implementing border adjustment taxes on imported products to

[86] the original text in Mandarin Chinese: 這次溫減法的通過，似乎是為了避免被國際制裁而不得不作的選擇

prevent carbon leakage (Mehling et al., 2019). Without effectively reducing GHG emissions, Taiwan may be subject to greater challenges when its major trading partners implement taxes on imported products. It is crucial for the industry to decarbonize their supply chain (Chiou et al., 2011; C.-S. Yang et al., 2013) to a significant extent.

In summary, the Trading-up Hypothesis confirms the importance of economic considerations in Taiwan's climate policymaking process from the 1990s to 2020. The interplay between the environment and trade institutions was especially relevant for a "financially rich but diplomatic poor" Taiwan, which was subject to the MEAs' goals despite being a non-party to the agreements. The findings show that economic considerations were a potent and critical driver explaining Taiwan's "voluntarily" adoption of climate regulations that have aligned with the UN climate agreements since the 1990s. This particular consideration was prevalent in governmental reports, legislative records, and industrial reports. This reflected the fact that Taiwan's top 10 most emission-intensive industrial sectors were also the top 10 export sectors. The economic costs of non-compliance were thus expected to be unbearable for these sectors. To maintain their competitive strength in the international market, the GGRMA was the biggest denominator that could be accepted by the government as well as industry. The strategic adaptation of GHG standards is in line with the assumptions of the trading up literature that argues trade can ratchet up climate standards when exporters seek markets or wish to maintain competitiveness in importing countries with more stringent standards. Nevertheless, to what extent Taiwan's strategic adaptation actually corresponded to specific target countries' environmental regulations needs further examination.

9.3 The Gap Between Climate Awareness and Policy Change

Natural disasters and extreme weather events could serve as an important pathway raising public and policymakers' attention to climate challenges, eventually leading to policy changes (Birkland, 1998b; Brulle et al., 2012; Dannevig et al., 2013). The risk perception of climate change and climate actions

are presumably correlated (R. E. O'Connor et al., 1999). If more people recognize the impacts of the climate-related disasters they face, the more they will pressure their governments to take climate actions (Leiserowitz, 2007; Pralle, 2009).

Taiwan is not only a vibrant democratic society where the protection of civil liberties is robust but also an island country that is prone to climate challenges (Dilley et al., 2005). Surveys also suggest that most Taiwanese people recognize this situation and consider climate change a potent threat to Taiwan (Chou, 2013; TAISE, 2011). It is thus expected that public climate awareness in Taiwan would be a crucial reason for the adoption of climate mitigation measures. The Awareness Hypothesis suggests that climate awareness can explain Taiwan's voluntary and proactive climate actions from 1990 to 2020. However, the findings show that there was indeed a very high percentage of people recognizing the risk of climate change, but only a small number of climate protests took place in 2007 and 2019. Compared to the environmental movements in the 1980s and anti-air pollution movements in 2018, the scale of climate protests in Taiwan was much smaller and had little impact on the government's decision making.

9.3.1 The Changes of Public Attention on Climate Change

According to the findings presented in the previous chapters (chapter 6 and 7), public attention to and news articles on climate change only started to increase around 2006. This is mostly due to the release of Al Gore's climate documentary, *an Inconvenient Truth*, which went viral in Taiwan in the same year. According to Google Trends statistics, an increasing number of people became interested in searching "climate change" and "global warming" during this period. Another increase of climate attention in Taiwan started when typhoon Morakot battered the archipelago in August 2009, bringing the most disastrous rainfall recorded in recent decades. The public and the news media reacted even more strongly when the UN climate summit took place in Copenhagen in December 2009 (see figure 7.4 and 7.5). These were *focusing events* that gained public and media attention due to the severity of the sudden and external climate-related incidents (Birkland, 1998a, 2016). Nevertheless, it appears that this surge in public awareness did not have a noticeable impact on the GGRMA policymaking process. Both the public's

and the media's attention to climate change synchronized with the UN climate process and increased to a limited extent whenever a COP took place. People's attention to climate change primarily correlated with the UN climate negotiations and had limited relations with the domestic climate policymaking process. This rising climate attention was not embedded in political attention nor utilized by political elites or policy brokers to drive policy change.

As the legislative records show, the focusing events also did not trigger any significant political debates concerning the existing climate policy regime. Only a handful of small and medium-size climate demonstrations organized by environmental NGOs have taken place since 2007, and these have been concentrated in Taipei and Kaohsiung. The most notable were the Climate March in December 2007 and Fridays for the Future march in May 2019; both were launched following international climate events.[87] There is limited discussion of Taiwan's climate mitigation and adaptation measures at the local level. The survey shows that little attention was focused on the climate policymaking process or discussions (TAISE, 2016). The demands for more ambitious governmental climate measures thus did not spill-over from the epistemic community to a larger audience.

According to interviewed policymakers and officials, people's climate awareness was not a reason for why Taiwan voluntarily adopted climate mitigation legislation in 2015. The legislative records show that people's attention on climate change was barely addressed in the SWEHC meetings. The findings confirm that public attention on climate change was not the primary facilitator for the adoption of the GGRMA.

9.3.2 The Gap and Its Possible Explanations

Media statistics perhaps provide useful insights in explaining the gap between climate awareness and policy impacts in the Taiwanese society. Google Trends shows that people's attention to the keyword "climate change" increased

[87] The Anti-Global Warming March in 2007 was a response to the call of International Day of Climate Change Protests organized by Global Climate Campaign on 8 December 2007. The Fridays for Future in Taiwan on 24 May 2019 was echoing the international climate strike called by the Fridays for Future movement.

dramatically between October 2006 and May 2007 (see figure 6.4). The rise in attention correlated mainly with Al Gore's *an Inconvenient Truth*, which was released in October 2006 in Taiwan. Jacobsen (2011, p.77) coined this observation "the Al Gore effect" -- the relationship between climate awareness campaigns and behavioral change. Jacobson argues that climate awareness campaigns had significant and positive impacts on people's behavior, but the effect was relatively short and did not persist for more than one year (Jacobsen, 2011). Echoing Jacobsen's argument, figure 6.4 shows that people's attention to climate change dropped significantly after May 2007. This means that the drastic increase of climate attention in Taiwan triggered by the international climate campaigns did not alter people's climate behavior substantially. Another increase in public awareness of global warming was when Typhoon Morakot battered Taiwan in 2009. There is no doubt that extreme events matter in the making of climate policy. Nevertheless, there is no sign that political groups or parties in Taiwan exploited people's attention to these events to promote their climate agendas or policy change.

The lack of political debates on climate measures and channels, such as public participation, to engage people in climate discussions are the main reasons for the gap between climate awareness and policy change. As the findings already show, climate change is a bipartisan topic and supported by nearly all political parties in Taiwan. The GGRMA is the joint effort of both DPP and KMT. This implies that there was no significant political polarization nor conflicts on climate mitigation measures that grabbed the media's interest and the public's attention. Climate-related issues seldom emerged as a social cleavage point in today's political landscape. The air pollution and nuclear debates, in contrast, fueled the political confrontation between the KMT and the DPP and were successful in facilitating policy changes. The KMT was able to take advantage of air pollution problems to demand phase-out from the phase-out. Concerning the channel for civil engagement, Chou (2013) argues that there was a lack of sufficient communication, transparency, and participation in climate policymaking between the Taiwanese government and its people. The designated experts and technocrats are often the ones that lead the agenda-settings and policymaking process. The findings of this research also reflect this structural characteristic, in which civil

society groups were seldom included in SWEHC meetings or public hearings or mentioned by policymakers.

In summary, the Awareness Hypothesis may not be able to explain Taiwan's voluntary climate actions sufficiently. Without sufficient linkages to the local level or political debates, climate awareness did not yield identifiable changes to the climate policymaking process. In comparison to the public attention on climate change, air pollution mustered a completely different degree of public mobilization and political competition between parties. The relevance of climate framings and the synergy between local and international events in Taiwan is, therefore, a critical area for further research.

9.4 Limitations and Future Research

This research has investigated the influence of international politics, economic factors, and societal dynamics to understand Taiwan's voluntary adoption of climate measures. Nevertheless, there are important areas that remain open for further research.

Other potential but less substantial factors may have contributed to Taiwan's climate policymaking. Considering the complexity of climate-related measures, the GGRMA could only illustrate the most important features of Taiwan's climate politics. Other climate-related laws, such as the Renewable Energy Act and Electricity Act, may provide alternative insights into the climate and energy policymaking processes. To construct a detailed and comprehensive understanding of Taiwan's climate politics, it would be useful to examine the formation of other relevant climate-related measures.

Second, specific measurements concerning how effective factors, including international recognition, foreign trade, and climate awareness, were in facilitating the making of the GGRMA, should be further investigated. This research was unable to determine precisely the "weight" of each explanation in the policymaking process. The findings presented here can only demonstrate how these factors contributed to Taiwan's adoption of voluntary climate actions. To estimate the magnitude of these factors, a comparison between different policy

fields, such as public health and waste management, could perhaps provide additional insights.

Third, Taiwan's strategical climate adoption faces specific constraints. This research does not address the concepts of *policy transfer* (Dolowitz & Marsh, 2002; Evans, 2017) in explaining the making of climate policy. This is due to the research focus is on *why* Taiwan decided to voluntarily adopt climate mitigation measures in 2015. Nevertheless, the transfer theory may provide more nuanced insights regarding the agents and degrees of transfer of climate measures to Taiwan and influences on Taiwan's climate policy. Future research should also consider how relationships between Taiwan and like-minded countries influenced its climate policy trajectory. Countries like the US and the EU members have been important allies in supporting Taiwan's participation in the international community. Their climate policies and practices may have transferred through political negotiations or partnerships on different issue areas. It might be useful to examine to what extent the ties with these governments shape Taiwan's climate policy trajectory and through what kind of channels.

Furthermore, while this research has uncovered the linkage between international trade and Taiwan's climate regulations, there are probably also other factors shaping Taiwan's climate change measures, considering that Taiwan is a crucial part of the global information technology supply chain. Many tech giants, including Apple and Google, rely heavily on Taiwanese manufactures, and vice versa. Do the energy policies of these tech giants have influences on Taiwan's climate-related policy? Google announced that it would reach 100% renewable energy for its global operations in 2017 (Google, 2020). To achieve this goal, the corporate giant stated that it would purchase 10-megawatt solar energy produced in southern Taiwan to power its data center in Changhua, which is located in central Taiwan. Google was the first corporate entity to purchase green energy in Taiwan following the Electricity Act amendments in January 2017. It is thus useful to investigate whether these tech giants have shaped Taiwan's renewable energy policy to achieve their climate objectives, especially when considering that keeping the tech giants on the island bring Taiwan enormous economic interests.

Finally, while providing specific details and insights into Taiwan's voluntary adoption of climate policy, the research faces a significant challenge of

generalizability. Considering Taiwan's political uniqueness, it would be difficult to find another sovereign state that is equally comparable to Taiwan or where voluntary adoption of international climate agreements is applicable. Nevertheless, the current NDCs in combating climate change remained insufficient to achieve the targets of the Paris Agreement. The international community should perhaps seek other alternative mechanisms and boost its climate commitment ambitions. The lessons from the Taiwanese case may illuminate pathways, including diplomatic and trade approaches, that are not included under the UN climate framework and agreements in facilitating state actors to take more significant climate actions.

9.5 Concluding Remarks

The global climate regime established under the UNFCCC considers party memberships and signatures to the international agreements as pre-conditions for governments to take climate actions. The findings presented in this research provide alternative explanations for climate compliance. By investigating drivers and motives, the findings shed light on this outlier case. The research mapped out a picture of political, economic, and societal dynamics that supported Taiwan's voluntary adoption of climate measures.

Taiwan's unique political circumstance provides a perfect testing ground to examine alternative mechanisms, such as the perceived trade provisions and diplomatic means or facilitating climate actions and commitments. The need for political survival and economic competitiveness became potent drivers pushing the Taiwanese government to comply with international climate standards. Instead of a profound realization of the need for protecting the earth's climate, Taiwan's adoption of climate legislation was a strategic adaptation based on careful political and economic calculations. Through exploring how drivers shaped the climate discussions in Taiwan, the findings in this research provide a blueprint for identifying the opportunities associated with the successful climate policy change, as well as the challenges that must still be conquered for Taiwan to strengthen its pledged climate trajectory. The contributions of this research seek

to advance both theoretical and empirical understanding of Taiwan's climate politics vis-à-vis its political status.

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Appendices

Appendix A: Greenhouse Gas Reduction and Management Act

Greenhouse Gas Reduction and Management Act

Announced Date: 2015.07.01

Full text in 34 articles promulgated by Presidential Order Hua-Tsung-Yi-Yi-Tzu No. 10400077011 on July 01, 2015.

Chapter 1 General Principles

Article 1

Climate change concerns have led to the passage of the Greenhouse Gas Reduction and Management Act, establishing strategies to reduce and manage greenhouse gas emissions, strengthen environmental justice, and the shared responsibility of environmental protection and national development.

Article 2

The Executive Yuan's Environmental Protection Administration is the central competent authority at the central government level, while municipal governments execute authority at the county or city level.

Article 3

This glossary of terms are to be interpreted with the following meanings:

1. Greenhouse Gas (GHG) refers to the following substances: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3) , and others designated by the central competent authority.
2. Climate change adaptation means responses to actual or expected climate stimuli and their effects, which moderate harm or exploit beneficial opportunities. Adaptation may include "preventive and/or responsive actions," "private and/or public actions" and "autonomous and/or programmatic" adaptations.
3. GHG emission source (Emission Source) means any unit or process that directly or indirectly releases GHG into the atmosphere.
4. Global-warming potential (GWP) measures how much heat a GHG traps in the atmosphere. It compares the amount of heat trapped by the gas when compared to a similar mass of carbon dioxide. GWP is calculated over a specific time interval, commonly 20, 100, or 500 years. GWP is expressed as a factor of carbon dioxide (whose GWP is standardized to 1).
5. Greenhouse Gas Emissions are the sum of different GHG emissions and their corresponding GWPs, which shall be described by CO_2 equivalent (CO_2e).
6. Entity means a legal person, non-corporate representative or manager, institution, or others who have Emission Sources designated by the central competent authority.
7. Carbon sink means any process or mechanism which removes a GHG from the atmosphere such as trees, forests, soils, oceans, stratum, facilities, or other sites.
8. Net quantity of the carbon sink means the net quantity of GHG removed from the atmosphere. This quantity can include GHG removed from the Emission Source or atmosphere due to sequestration.

9. Mitigation means any intervention to reduce the sources or enhance GHG sinks
10. "Low-carbon green growth" means green economic development that boosts greening of existing industries, energy conservation, carbon emission reduction, developing green energy, and R&D into low-carbon energy technologies.
11. Emission Intensity is the average emission rate of GHG per equipment/product/other specified unit from a source, which is described by CO_2e.
12. Offset means the use of reduction credits to compensate for or deduct emissions made elsewhere by an entity.
13. GHG Early Action Project (Early Action) refers to an offset project proposed by the owner, user or supervisor of the Emission Sources before enactment of the Act in compliance with the emission intensity designated by the central competent authority.
14. Validation means the review of a GHG Offset Project to ensure the project design document complies with regulations under this Act.
15. GHG Offset Project refers to a project created to earn reduction credits. The project design document shall be validated by the verification body and approved by the central competent authority. Documents must indicate all the facilities, raw materials, items and activities directly associated with the emission reduction or sink enhancement.
16. GHG emission performance standard (EPS) is a benchmark set by the central competent authority in conjunction with the central industry competent authority according to the facilities, products or input/output units of the specific sectors or Emission Sources.
17. Cap means the total permitted amount of emissions for a certain period of time under the cap-and-trade scheme.
18. Allowance trading means to exchange emission allowances domestically or internationally in compliance with the designated cap under the cap-and-trade scheme.
19. Emission allowance means the allowance distributed by designated authorities from government allocation, auction, sale, Early Action, GHG Offset Project, EPS or allowance trading under the cap-and-trade scheme. One unit of emission allowance equals to one metric ton of CO_2e.
20. Periodic regulatory goal means a goal of GHG emission for a certain period of time based on national GHG reduction action plan.
21. Verification is an independent assessment by interview, document review, data analysis, inspection or test to determine the validity and reliability of the GHG inventory and emission reduction (and sink) by the verification body.
22. Accounting is a process to collect, calculate and analyze emissions or sinks.
23. Registration means reporting emissions, sinks, allocations, reductions, auctions, sales or transactions of CO_2e to the national registry (Registry) designated by the central competent authority.
24. Allocated emission allowance (allowance) is an emission allowance issued to an Emission Source for a specific period of time by the central competent authority in conjunction with the central industry competent authorities.
25. Sold allowance (sale) is an emission allowance sold to an Emission Source at a fixed price from the central competent authority.
26. Holding account is an account created by the central competent authority to track an

Emission Source's emissions, and transactions of allocations, auctions, sales or reduction credits.

27. Carbon leakage means implementation of cap-and-trade scheme may result in relocation of energy-intensive production in less-constrained regions.

28. "Best Available Technology" (BAT) is a commercial technology that provides the greatest reduction in GHG emissions after taking into consideration energy, economic, and environmental impacts.

Article 4

Long-term national GHG emission reduction goal shall be to reduce GHG emissions to no more than 50% of 2005 GHG emission by 2050.

The goal pursuant to the foregoing Paragraph shall be timely adjusted by the central competent authority, in consultation with the central industry competent authorities, by taking into consideration the United Nations Framework Convention on Climate Change (UNFCCC), its agreements and or related international conventions decisions, together with domestic circumstances, subject to the Executive Yuan's approval; and in line with the required periodical review.

Article 5

The national government shall ensure the sustainable utilization of the nation's resources, maintain balanced energy supply and demand, mitigate and respond to the impacts of climate change, and place balanced emphasis on environmental protection, economic development, and social justice.

All levels of government shall encourage technological innovation, research and development, enhance financial mechanisms, spur economic momentum, encourage competition, promote low-carbon green growth, create employment opportunities, and boost national competitiveness.

In order to respond to the impact of climate change, the government shall uphold the following legal and policy principles:

1. To ensure the nation's energy security, the government shall draft mid-to long-term strategies for gradually reducing dependence on fossil fuels with a mid-to long-term aim of renewable energy policies, and the gradual realization of a nuclear-free homeland.
2. In line with the "user charge" principle of environmental justice, the free allowances allocation method will be gradually replaced by allowances sold at a fixed price.
3. To respond to the impact of climate change, under the principle of equality and social welfare promotion, the government should implement tax mechanisms on imported fossil fuels based on carbon dioxide equivalent.
4. The government should actively help traditional industries achieve energy conservation and carbon reduction or transition, develop green technology and green industry, create new employment opportunities and green economies, and promote a low-carbon, green growth plan for the nation's infrastructure.
5. In order to lessen environmental pollution and GHG emissions, the government should promote resource use efficiency, energy use efficiency, and resource recycling.

Article 6

GHG management programs and plans shall comply with the following principles:

1. National reduction targets and schedule shall seek to realize the common but differentiated responsibilities specified in UNFCCC, while also furthering the sustainable development of the nation's environment, economy, and society.
2. The determination of sector-based periodic regulatory goals shall take cost effectiveness into consideration, and strive to achieve GHG reductions at the lowest possible cost.
3. The government shall actively adopt preventive measures, seek to forecast, avoid, or reduce the causes of climate change, and mitigate the adverse effects of climate change.
4. The government shall actively strengthen international cooperation, and strive to maintain the international competitiveness of domestic industries.

Article 7

The competent authorities and industry competent authorities may mandate qualified organizations to conduct investigation, verification, consultation, training, and research regarding climate change adaptation and GHG mitigation.

Chapter 2 Authority and Responsibility of Government Agencies

Article 8

The Executive Yuan shall invite relevant central government agencies, non-governmental organizations, experts and scholars to determine and review the division, integration, implementation and compilation of the work of GHG reduction and climate change adaptation.

Relevant central government agencies shall promote GHG reduction and climate change adaptation through the following actions:

1. Development of renewable energy and energy technology.
2. Improvement of energy efficiency and energy conservation.
3. Reduction in GHG emissions by industrial sectors.
4. Transportation management, development of mass transit systems, and reduction in GHG emissions by other transportation sectors.
5. Implementation of low carbon energy transportation.
6. Reduction and management of GHG emissions from buildings.
7. Waste recycling and reuse.
8. Forest resource management, biodiversity conservation, and strengthening of forests' carbon sequestration.
9. Reduction and management of GHG emission from agriculture and guarantee of food security.
10. Green finance and GHG reduction incentive mechanisms.
11. Assessment of impact of GHG reduction on the economy as a whole and planning of response measures.
12. Establishment of GHG cap-and-trade scheme including allocation, auction, allowance sale, trade, and facilitation of international emission reduction cooperation mechanism.
13. Research, development and implementation of GHG reduction technologies.
14. Study of international GHG conventions and laws and participation in international

conferences.

15. Development and implementation of matters connected with climate change adaptation.
16. Education and advocacy of climate change adaptation and GHG reduction.
17. Other climate change adaptation and GHG reduction matters.

Article 9

In order to implement the nation's GHG reduction policy, the central competent authority shall develop a National Climate Change Action Guideline ("Action Guideline") and GHG Reduction Action Plan ("Action Plan") reflecting the nation's economy, energy supplies, environment, current international situation, and the assignment of responsibilities mentioned in Paragraph 1 of the previous Article, and shall implement the Action Guideline and Action Plan in consultation with the central industry competent authorities after requesting approval from the Executive Yuan.

The Action Guideline pursuant to the foregoing paragraph shall be reviewed once every five years; the Action Plan shall include periodic regulatory goals, implementation timetables, implementation strategies, expected benefits and an evaluation mechanism.

The central industry competent authorities charged with the nation's energy, manufacturing, transportation, residential and commercial, and agriculture sectors shall determine GHG Emission Control Action Programs for the sectors under its supervision on the basis of the Action Plan pursuant to the foregoing paragraph; the Action Programs shall include GHG emissions target, timetables, and economic incentive measures.

Article 10

The central industry competent authorities shall regularly review and revise the Action Programs on the basis of changes in the industry and energy supply and demand and deliver an annual report on the implementation of GHG emissions target and shall propose improvement plans if failing to meet emission targets.

Implementation, revision, improvement plans and annual reports of Action Programs pursuant to the foregoing paragraph should be submitted to the Executive Yuan for approval.

Article 11

Regulatory goals will be set in stages on a five-year basis. The central competent authority shall invite scholars, experts, and non-governmental organizations, in conjunction with the central industry competent authorities, to form an advisory committee to set the regulations for the goals and regulatory approaches.

The central competent authority shall, in consultation with the central industry competent authorities, set for each stage’s regulatory goal pursuant to the foregoing regulations. Each stage’s regulatory goal shall be submitted to the Executive Yuan for approval after public hearings are held.

Apart from the regulatory goal for the first stage, the regulatory goals shall be set two years ahead of the beginning of each respective stage.

Article 12

After the regulatory goals for each stage have been approved, the central competent authority shall compile their status and report to the Executive Yuan annually.

Implementation of the regulatory goals shall take into account the following matters and make

necessary adjustments upon the Executive Yuan's approval:

1. Scientific knowledge concerning climate change and relevant technologies.
2. The state of economic and industrial development.
3. Fiscal and social conditions.
4. Energy policy.
5. UNFCCC and its agreements, or relevant decisions made under international conventions.

Article 13

The central industry competent authorities shall survey emission, compile relevant statistics, develop climate change adaptation strategies, and regularly submit survey, statistics, and adaptation results to the central competent authority annually.

The central competent authority shall assess climate change impact, compile national emissions statistics, and establish a national GHG emissions inventory; the central competent authority shall compile a national GHG report every three years for submission to the Executive Yuan whose approval will then pave the way for release to the general public.

Article 14

The industry competent authorities shall assist entities in the accounting of emission sources, verification, registration, reduction, and participation in domestic or international offset projects.

Article 15

Special municipality, county and city competent authorities shall develop GHG control implementation plans in accordance with the Action Plan approved by the Executive Yuan and the Action Program determined by the central industry competent authorities; such implementation plans shall be finalized after requesting the approval of the central competent authority in consultation with the central industry competent authorities.

Chapter 3 Emission Reduction Measures

Article 16

Emission Sources designated by the central competent authority shall conduct annual accounting and registration to their holding accounts in the Registry by the deadline. The GHG inventory and relevant information shall be verified by a verification body at least once every three years.

The verification body pursuant to the foregoing paragraph shall be internationally recognized or establish a domestic branch office. Before operating validation and or verification business in accordance with the Act, the verification body must apply and acquire accreditation certificate and permit by the central competent authority or its appointed accreditation body.

The regulations governing verification body permits include prerequisite application, review processes, granting, withdrawal, revocation, as well as prerequisite for dedicated personnel shall be specified by the central competent authority. The regulations governing appointed national accreditation body shall be specified by the central competent authority.

The regulations regarding accounting of GHG emissions, reporting elements, frequency, and verification process, emissions source account and other requirements of emission sources mentioned in foregoing paragraph, are determined by the central competent authority.

Article 17

The central competent authority may establish a GHG EPS to incentivize designated Emission Sources to reduce GHG emissions prior to the cap-and-trade scheme.

The EPS pursuant to the foregoing paragraph shall be determined and reviewed regularly by the central competent authority in conjunction with the central industry competent authorities, considering facilities, products or other raw materials, output, and consumptions of Emission Sources.

Article 18

The central competent authority shall implement the domestic cap-and-trade scheme by considering the UNFCCC and its agreements, or relevant international conventions decisions in response to international GHG reduction requirements.

After implementing accounting, verification and registration as well as establishing regulations of allocation, offset, auction, sale and allowance trading, the cap-and-trade scheme shall be implemented by the central competent authority in consultation with the central industrial competent authorities upon approval by the Executive Yuan.

Article 19

The central competent authority shall establish the GHG Management Fund (Fund) from the following sources:

1. Proceeds from allowances auctioned or sold pursuant to the foregoing Article;
2. Fees collected pursuant to Article 21;
3. Government grant via budget appropriation;
4. Revenues collected under fines and penalties prescribed in the Act;
5. Money received from persons, liable entities or organizations; and
6. Other incomes.

The Fund shall serve the following purpose only for GHG emissions reductions and adaptation to climate change:

1. Reduce GHG emissions;
2. Inspect emission sources;
3. Provide emission sources with assistance, subsidies and grants for voluntary efforts to reduce GHG emissions;
4. Administrative affairs of holding accounts establishment in the Registry, auctions, sales and allowance trading;
5. Employ staff to carry out administrative services;
6. Coordinate, plan and implement adaptation to climate change;
7. Educate, promote, and award grants;
8. Conduct international affairs;
9. Carry out research and analysis.

Special municipalities, counties and cities shall be subsidized for activities pursuant to the foregoing paragraph no less than 30 percent of the net proceeds collected from allowances auctioned or sold for a fixed price pursuant to Paragraph 1 minus the administrative costs and

fees incurred.

The ratios and distribution methods of subsidies pursuant to the foregoing paragraph shall be determined and reviewed regularly by the central competent authority, after consultation with municipalities or county (city) governments, considering population, geographical area, and relevant factors.

Pursuant to Paragraph 1, the central competent authority may establish a committee supervising the operation of the Fund in accordance with regulations specified by the Executive Yuan regarding revenues, expenditures, safeguard, and utilization.

Article 20

The central competent authority shall announce the designated Emission Sources which are included in the cap-and-trade scheme, apply aggregate cap limits of each compliance period, take into account factors including trade intensities of the various sectors, the costs affected by the cap-and-trade program to prevent carbon leakage which may compromise the international efforts to reduce GHG emissions and overall national competitiveness. The central competent authority shall allocate emission allowances to entities freely, through auctions, or for a fixed price.

The percentage of the emission allowances on sale shall be determined by regulatory goals in stages and gradually increased to 100%.

The percentage of sales pursuant to the foregoing paragraph may be adjusted by the tax mechanisms imposed on imported fossil fuels.

The central competent authority shall allocate emissions allowances to public utilities, excluding GHG emissions related to energy generation provided to emission sources for consumption as the indirect GHG emissions in CO_{2e}.

The central competent authority may reserve partial allowances, and may allocate for designate entities with specific scales of new entrants or modified Emission Sources which adopt the designated BAT.

The central competent authority shall retire the emission allowances returned from Emission Sources upon closure, permanent shutdown or dissolution, and the ownership of emission allowances shall not be transferred. In the case that Emission Sources cease operation, the central competent authority shall execute administrative discretion regarding the disposition, if necessary, retirement of emission allowances.

The central competent authority shall work in conjunction with the central industry competent authority to determine regulations regarding the allowance of the entity, the eligibility, approach and processes of allocation, the approaches of auction or sale, revocation and termination of emissions allowances; Pursuant to Paragraph 4, the reserve of emission allowances, specific scale of new or modified Emission Sources, the designated BAT, the process of ceasing and resuming operation of Emission Sources and the impact recognition of carbon leakage to the overall national competitiveness and other requirements.

Article 21

GHG emissions of an entity over a period of time specified by the central competent authority, along with emissions allowances procured, shall not exceed the amount of allowance available to meet the compliance obligation in the entity's account upon compliance deadline obligations determined by the central competent authority.

Before the deadline for compliance obligations determined by the central competent authority,

an entity may procure emissions allowances from the Early Action, Offset Project, EPS, carbon trading, or other approaches to register in its holding account to offset the amount of GHG emissions in excess of the emissions allowances for an entity. Prior to the deadline for surrender of compliance obligations, the remaining emissions allowances not used for offsetting the excess emissions cannot be traded before verification.

The procurement of reduction credits from the Offset Project and allowance trading pursuant to the foregoing paragraph shall give priority to domestic efforts.

The central competent authority, in consultation with the central industry competent authorities, shall make regulations of emissions credits procured from external GHG trading schemes by taking into consideration the United Nations Framework Convention on Climate Change (UNFCCC), its agreements and or related international conventions decisions, as well as factors that include but are not limited to, energy efficiency, domestic emissions allowances and the long-term national GHG emission target. For the purpose of meeting a compliance obligation to offset the excess emissions, an entity may surrender reduction credits procured from external GHG trading schemes recognized by the central competent authority by up to ten percent of the entity's total allowances.

The verification bodies which provide verification services related to international reduction credits shall be recognized by the associated mechanisms of UNFCCC or the central competent authority.

The regulations regarding administration of emission source accounts, and the registration and surrender of emissions allowances pursuant to Paragraph 1; regarding the eligibility, procedure, proceeds and other requirements specified pursuant to Paragraphs 2 and 4, are determined by the central competent authority, in consultation with the central financial authorities.

Article 22

GHG Offset Project operators may request the central competent authority to issue reduction credits representing emission reductions including carbon sinks verified by verification bodies.

The central competent authority shall register the issued reduction credits, along with eligibility conditions for use and expiry date, to the respondent holding accounts in the Registry for those who participate in the Early Action, the GHG Offset Projects, EPS and are not under the cap-and-trade scheme but with voluntary emission reductions.

The regulations regarding the Offset Project, Early Action, EPS, voluntary reduction action of emissions sources not covered under the cap-and-trade scheme and other requirements pursuant to Paragraphs 1 and 2, the central competent authority shall be in consultation with the central industry competent authorities to determine the criteria of reduction actions, prerequisites, process of application, review, and approval as well as the calculated methodology from emission reduction towards emission allowances, requirements of validation and verification, eligibility conditions and expiry date for reduction credits, and usage limit of reduction credits.

Article 23

The competent authorities or the industry competent authorities may direct officers, with credentials or proof of authorization presented, to conduct a site visit for the purposes of inspecting an Emission Source's facility operation or requesting relevant information. Emission Sources owners, operators or managers shall not evade this request.

Chapter 4. Education and Grants

Article 24.

All levels of government shall promote public awareness of climate change mitigation and GHG reduction among citizens, schools and industries, proactively assisting non- governmental organizations in the following manner:

1. Develop and promote education plans on climate change and its impact;
2. Provide the public with easy access to relevant information about climate change;
3. Engage industries and the public about relevant measures based on local conditions;
4. Train scientific, technological and managerial personnel;
5. Encourage research in combination with environmental education on climate change;
6. Promote energy saving and enhance energy efficiency;
7. Support low-carbon products by establishing a carbon-labeling plan;
8. Execute other actions officially announced by all levels of government.

Article 25

All levels of government, public education institutions and government-run enterprises shall promote energy saving and use energy-efficient products or services to reduce GHG emission.

Article 26

Electricity suppliers and distributors shall encourage energy conservation and energy efficiency amongst customers.

Article 27

The central competent authority and central industry competent authorities shall reward well-performing facilities, enterprises, schools, organizations or individuals with grants or subsidies.

Conditions, criteria and selection processes for such grants or subsidies shall be determined by the central competent authority or central industry competent authorities.

Chapter 5. Penalty Provisions

Article 28

When an entity fails to surrender designated amount of allowances within deadline and therefore violates Article 21, Paragraph 1, a monetary penalty of three times carbon market price per metric ton within a maximum of NT$1,500 per metric ton.

The central competent authority shall, in conjunction with the central industry competent authorities, set the aforementioned carbon market price and review regularly, taking into consideration domestic and international carbon market trading price.

Article 29

The owner, user, or manager of a covered Emission Source with inventory and registration obligation pursuant to Article 16, Paragraph 1, or with registration obligation pursuant to Article 21, Paragraph 2, shall be subject to a fine from NT$200,000 to NT$2,000,000 when the person provides information that the person knows to be false. In addition to the monetary penalty, the person shall make corrections within a prescribed period of time, and the amount of allowances equal to the registered false information shall be subtracted from the next

allocation. Failure to correct within the prescribed period of time will result in monetary penalty, fined each time an offense occurs. Under severe circumstances, a person may be charged with suspension of operation or business, and be constrained or prohibited from trading. The prescribed period of time as mentioned shall not exceed 90 days.
Article 30 The owner, user, or manager of an Emission Source who evades, impedes, or refuses investigation or information request from the competent authorities pursuant to Article 23 shall be subject to a fine from NT$200,000 to NT$2,000,000. The competent authorities may fine each time an offense occurs.
Article 31 Verification bodies in violation of Article 16, Paragraph 2 regarding qualification conditions, permit, and verification rules shall be subject to a fine from NT$100,000 to NT$1,000,000, and shall make corrections within a prescribed period of time. Failure to correct within the prescribed period of time will result in monetary penalty each time an offense occurs. The owner, user, or manager of an Emission Source in violation of Article 16, Paragraph 3, regarding inventory, registration content and registration time, shall be notified to make improvements within a prescribed period of time. Failure to improve within the prescribed period of time will result in a fine from NT$100,000 to NT$1,000,000. The person will then be notified again to make improvements within a prescribed period of time. Failure to improve within the prescribed period of time thereafter will result in monetary penalty each time an offense occurs. The prescribed period of time as mentioned in Article 31, Paragraphs 1 and 2 shall not exceed 90 days.
Article 32 Emission Source or entity in violation of Article 21, Paragraph 6 regarding qualified trading entity or applicable methods, or in violation of Article 23, Paragraph 3, regarding user condition or deadline, shall be subject to a fine from NT$100,000 to NT$1,000,000 and shall make corrections within a prescribed period of time. Failure to correct within the prescribed period of time will result in restriction or suspension of trading. The prescribed period of time shall not exceed 90 days.
Chapter 6. Supplementary Provisions
Article 33 The enforcement rules of this Act shall be determined by the central competent authority.
Article 34 This Act shall enter into effect on the date of promulgation.

Appendix B: Submission by Republic of China (Taiwan) Intended Nationally Determined Contribution

Submission by Republic of China (Taiwan) Intended Nationally Determined Contribution (核定本)

The Republic of China (Taiwan) supports the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC), to deliver a new strong and effective global climate change agreement in Paris in December 2015. In response to the *Lima Call for Climate Action*, Taiwan is committed to communicating its Intended Nationally Determined Contribution (INDC), following the common but differentiated responsibility under the national circumstance, for the objective in Article 2 of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

Emission Target

Taiwan will implement an economy-wide target, through domestic abatement effort to reduce its greenhouse gas emissions (214 $MtCO_2eq$) by 50% from the business-as-usual level (428 $MtCO_2eq$) by 2030.

Period	1 January 2021— 31 December 2030
Emission Target	• Greenhouse gas emission reduction by 50% from the business-as-usual level by 2030
Scope	• Economy-wide
Gases covered	• CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3
Sectors covered	• Energy; Industrial processes and product use; Agriculture; Land-use, Land-use change and forestry; Waste
Assumptions and Methodological Approaches	• 2006 IPCC Guidelines for National Greenhouse Gas Inventories • Global Warming Potential used in IPCC AR4
Credits from International Market Mechanisms	• The emissions reduction target is committed to the domestic measures mostly. Future reduction potential can benefit from being involved in the international market mechanism.

National Circumstances

Taiwan is located at the border of East and Southeast Asia; to the west lies the Taiwan Strait and to the east the Philippine Sea. The economy of Taiwan depends upon international trade; the energy demand has rapidly increased over the past 20 years following a rapid economic growth. However, as an island with an independent electricity grid without gas pipelines, Taiwan highly relies on imported energy, which makes up over 98% of its energy demand. Despite such a difficult situation, Taiwan still makes the greatest efforts toward the global 2℃ target on low-carbon development.

The Taiwan government began the proactive implementation of GHG emissions reduction in

1998; the Nationally Appropriate Mitigation Actions (NAMAs) was set to a reduction target by 2020 in accordance with the Copenhagen Accord. Accordingly, Taiwan actively promotes energy conservation and carbon reduction, e.g., transforming industrial structure, legislating energy saving related measures, accelerating renewable energy development, and utilizing the use of natural gas. As a result, the CO_2 intensity has significantly improved and under efficient control, with an annual decrease of 2.4% from 2000 to 2014. The total GHG emission in Taiwan (277.2 $MtCO_2eq$) has not exceeded the 2007 historical record to date.

Taiwan accounts for about 0.55% of the total global GHG emission in 2012 (according to 2015 World Resources Institute statistics) and about 0.8% of the total global CO_2 emission (according to 2014 International Energy Agency statistics). By gas type, fossil fuel combustion takes up the highest proportion (about 87.55%) in Taiwan's total GHG emission; by sector, the manufacturing and construction industries take up the highest proportion (about 43.25%) in Taiwan's total GHG emission. The Greenhouse Gases Reduction and Management Act, promulgated in 2015, covers the seven major greenhouse gases (Doha amendment to the Kyoto Protocol, 2012) for our ambitious reduction target.

Mitigation Contribution

Legal Basis

The Taiwan government promulgated the Greenhouse Gases Reduction and Management Act on July 1, 2015, to serve as the legal basis for climate change response. Being the first law in Taiwan to empower the government to formulate related regulations and share the common but differentiated responsibility with the global society, the Act not only has a clear emission reduction target of 50% 2005 level by 2050 but also implements carbon reduction through a five-year control cycle. The central competent authority will develop a "National Climate Change Action Guideline", "Greenhouse Gas Reduction Action Plan," and "Greenhouse Gas Emission Control Action Programs for the Sectors", reflecting Taiwan's economy, energy supplies, and environment, with consideration of current international situation. The central competent authority's "Greenhouse Gas Emissions Control Action Program" and local governments' "Emission Control Implementation Program" will be enforced together with the "Energy Management Act" and "Renewable Energy Development Act" for a progressive implementation to effectively manage greenhouse gases and increase energy efficiency.

INDC Working Group

The Executive Yuan has set up the INDC Working Group to coordinate all measures from the Environmental Protection Administration, Ministry of Science and Technology, National Development Council, Ministry of Economic Affairs, Ministry of the Interior, Ministry of Transportation and Communications, and Council of Agriculture to review the maximum potential of reduction measures and the energy provision policy by using multiple energy simulation scenarios based on the 2030 GHG reduction target, in preparation for timely announcement.

Sectoral Mitigation Measures

A. Energy

Taiwan is highly dependent on imported energy, which accounts for 98 percent of its energy supply and is easily influenced by the fluctuation of global energy supply. The choice of energy mix will have an impact on national energy security, economic and social development. To reduce energy consumption from the demand side, the government will introduce advanced energy

conservation measures regardless of their cost-effectiveness, in addition to the present feasible energy conservation technology measures. As for the supply side, the government has spared no effort to plan and formulate the following strategies to reduce the GHG emissions in the energy sector.

The electricity sector's development will move toward low-carbon operations. Given that the existing nuclear power plants will be gradually decommissioned according to schedule under the nuclear-free homeland policy, and considering the principles of ensuring a stable electricity supply, maintaining reasonable electricity prices and fulfilling international carbon emission reduction commitment, the government will raise the renewable energy development target to 17,250MW in 2030, increase the use of natural gas, replace old power plants with the best feasible technology, and promote infrastructure construction of smart grids to further enhance the power system stability and increase the efficiency of power supply and demand. In the refining sector, the strategy of energy conservation operation will be achieved through using low-carbon fuel and high energy-efficiency equipment and promoting energy integration and management. Existing refineries will replace their old facilities with the best feasible technology to enhance energy efficiency.

B. Industry

The CO_2 emission intensity of energy use of the industrial sector has been continuously declining. In the future, the industrial sector development will include promoting GHG emissions reduction and management tasks through the following measures: industrial structure adjustment, technical advice service of energy conservation and carbon reduction, integrated utilization of energy and resources in industrial zones, regulating energy efficiency standards, alternative fuels, heat recovery, and a renewal of facilities. The fluorinated greenhouse gas emissions in electronics industry have shown a significant decline since it started to introduce alternatives and installation of local scrubbers in 2005.

C. Residential Sector

In the residential sector, energy conservation and carbon reduction measures such as the Minimum Energy Performance Standards (MEPS), Energy Label, Green Building Regulations and Green Building Label will be promoted. The rates of energy use and the average energy consumption per capita have been declining. In the future, energy conservation and carbon reduction in the residential sector will focus on two main strategies:
(1) Encourage energy-saving designs of new buildings (the government will amend existing Green Building Regulations for energy-saving design improvement. In addition, the percentage weight of energy conservation in the assessment of green and smart building labels will likewise be gradually increased to encourage the development of innovative energy-saving construction processes and technologies); (2) Introduce more stringent energy performance standards for energy-saving appliances and increase the penetration rate of energy-efficient products. (The government will improve higher energy-efficiency standards for households and gas appliances, increase the penetration rate of energy-efficient products, encourage renewal of appliances, and introduce the Smart Energy Conservation Program to shape electricity consumption patterns of the public.) The use of smart meters, energy management systems, differential electricity pricing, and summertime energy conservation measures will be taken into account to facilitate strategies of energy conservation and carbon reduction in the residential sector.

D. Commerce

Electricity intensity in the service sector in Taiwan is 89.5 kWh/k$, lower than the global

average (104.4 kWh/k$). In the future, efforts in the service sector towards energy conservation and carbon reduction will focus on the implementation of energy conservation measures along with mandatory and comprehensive energy-saving and management regulations. The regulations will include the following: (1) Major service industries spearheading efforts to conserve energy and reduce carbon emissions: promote energy-saving regulations for 20 service industries, achieve one percent energy saving target on average annually for large energy users, and encourage voluntary energy conservation actions for enterprises in the service sector; (2) Provide consultation service for energy saving and carbon reduction: provide business districts, chain businesses, and logistics companies with complemental resources to their energy-saving and carbon reduction efforts, and to carry out energy audits on the service sector and provide technical assistance; (3) Promote the Smart Energy-Saving Program: the central and local governments jointly promote energy conservation actions through incentive subsidies and public participation to foster changes in the public's mindset and behavior.

E. Transportation

Energy use in the transportation sector includes gasoline for automobiles, diesel fuel, liquefied petroleum gas, aviation fuel, marine fuel, and electricity. Through the development of green transportation system, enhancement of transportation demand management, and energy efficiency improvement, the CO_2 emissions from the transportation sector has remained at a constant level since 2005. In the future, the measures will focus on the development of green transportation systems, which include the following: (1) increase the capacity and market share of public transportation systems through the use of convenient public transportation networks and the development of seamless interfaces between public transportation and major road networks; (2) improve transportation demand management through the transit-oriented development to gradually reduce the reliance on private vehicles;
(3) improve the energy efficiency of transportation systems by accelerating vehicle renewal and promoting the use of energy-efficient vehicles, such as encouraging the use of electric cars or motorcycles and imposing more stringent energy-efficiency standards for new vehicles.

F. Agriculture

While agricultural production provides food to the public and ensures food security, the GHG emission from energy consumption during agricultural production accounts for a mere one percent of Taiwan's total emission. Agricultural production value in Taiwan has continued to increase despite a decline in both energy consumption and energy intensity within the sector since 1990. This shows that energy efficiency within the agricultural sector has increased and is decoupled by economic development. In 2007, the sector started to use Voyage Data Recorder to keep track of the length of fishing operations, and as a result, fuel consumption by fishery has dropped significantly. Measures have been taken to assist agricultural electricity users to improve their energy-efficient facilities, livestock farming, and to instruct energy-saving equipment installation in fungus farms and fruit/vegetable freezing facilities. The government has been promoting an arboriculture plan that strengthens afforestation on hillside and rewards afforest on flat land such as marginal cropland of poor production. In addition, the government is also promoting the use of reasonable amount of fertilizers and organic farming to discourage farmers from overusing fertilizers and to lower GHG emissions.

G. Waste

The Taiwan government has promoted the "Zero-Waste Policy". Most of the waste was treated through waste incineration with comprehensive classification and recycling of wastes, and power generation. All of the domestic waste incinerations will gradually be transformed to regional biomass centers for comprehensive classification and zero waste, and resource recycling

in the future. Through the measures of landfill gas recycling generation, methane recycling from wastewater treatment, increasing the installation rate of household wastewater pipelines, the amount of GHG emissions of the waste sector is gradually reduced.

Adaptation Measures

To enhance national adaptation capabilities and reduce social vulnerability, Taiwan on June 25, 2012 proposed the Adaptation Strategy to Climate Change in Taiwan, focusing on the following eight major adaptation sectors: disasters, infrastructure, water resources, land use, coastal zones, energy supply and industry, agricultural production and biodiversity, and health. The aim is to investigate the impact on and challenges facing these sectors a result of climate change, put forward a set of comprehensive adaptation strategies, and implement measures to expedite actions and results.

Under the policy framework, relevant government agencies proposed action plans for the aforementioned eight major sectors, and on May 22, 2014 compiled the Action Plan for Adaptation to Climate Change in Taiwan (2013- 2017). The adaptation measures were thus transformed into concrete action plans, which include the establishment of a solid foundation for climate change adaptation and 64 priority action plans. Relevant government agencies are currently working to implement the action plans and at the same time carry out rolling assessment of the plans.

Vision and Ambitious Commitment

Taiwan is limited by its geographic condition with an independent electricity grid and high dependence on imported energy. Although the manufacturing industry has been increasing its energy efficiency to reduce GHG emissions, it still makes up a major proportion in the total industrial structure with high energy demand in order to maintain international competitiveness. With the non-nuclear homeland policy, it makes it a real challenge to reduce emissions. Even so, representing about 0.55% of the world's greenhouse gas emissions, Taiwan has been committed to the common but differentiated responsibility in Article 2 of the UNFCCC and contributed to our mitigation target.

This target is ambitious yet achievable. Achieving the target requires new integrated policies for all sectors with additional coordination and actions. Taiwan has a strong and direct action policy for our commitments, including the "Greenhouse Gas Reduction and Management Act", "Energy Management Act", and "Renewable Energy Development Act", supporting businesses to reduce emissions, maximizing renewable energy use, and improving economic growth. Meanwhile, Taiwan may use international mechanisms to achieve the target.

Toward this end, Taiwan has proactively, and in a pragmatic manner, proposed this ambitious target for short to medium-term carbon reduction contributing to the domestic reduction in GHG emissions. It is challenging for Taiwan to meet the targets that can satisfy both GHG emissions and economic growth. Taiwan is facing the unavoidable threat of climate change in all aspects from business to people's daily life. Through the cooperation between central and local governments, the public and private sectors, Taiwan will increase the capacity in its response to climate change and achieve the goal as a paradigm shift in pursuit of a sustainable low carbon society.

Appendix C: United Nations General Assembly Resolution 2758

1976th Plenary Meeting, 25th October 1971, A/RES/2758(XXVI)

2751 (XXVI). Admission of Bhutan to membership in the United Nations

The General Assembly,

Having received the recommendation of the Security Council of 10 February 1971 that Bhutan should be admitted to membership in the United Nations,[1]

Having considered the application for membership of Bhutan,[2]

Decides to admit Bhutan to membership in the United Nations.

1934th plenary meeting,
21 September 1971.

2752 (XXVI). Admission of Bahrain to membership in the United Nations

The General Assembly,

Having received the recommendation of the Security Council of 18 August 1971 that Bahrain should be admitted to membership in the United Nations,[3]

Having considered the application for membership of Bahrain,[4]

Decides to admit Bahrain to membership in the United Nations.

1934th plenary meeting,
21 September 1971.

2753 (XXVI). Admission of Qatar to membership in the United Nations

The General Assembly,

Having received the recommendation of the Security Council of 15 September 1971 that Qatar should be admitted to membership in the United Nations,[5]

Having considered the application for membership of Qatar,[6]

Decides to admit Qatar to membership in the United Nations.

1934th plenary meeting,
21 September 1971.

2754 (XXVI). Admission of Oman to membership in the United Nations

The General Assembly,

Having received the recommendation of the Security Council of 30 September 1971 that Oman should be admitted to membership in the United Nations,[7]

Having considered the application for membership of Oman,[8]

Decides to admit Oman to membership in the United Nations.

1957th plenary meeting,
7 October 1971.

2758 (XXVI). Restoration of the lawful rights of the People's Republic of China in the United Nations

The General Assembly,

Recalling the principles of the Charter of the United Nations,

Considering that the restoration of the lawful rights of the People's Republic of China is essential both for the protection of the Charter of the United Nations and for the cause that the United Nations must serve under the Charter,

Recognizing that the representatives of the Government of the People's Republic of China are the only lawful representatives of China to the United Nations and that the People's Republic of China is one of the five permanent members of the Security Council,

Decides to restore all its rights to the People's Republic of China and to recognize the representatives of its Government as the only legitimate representatives of China to the United Nations, and to expel forthwith the representatives of Chiang Kai-shek from the place which they unlawfully occupy at the United Nations and in all the organizations related to it.

1976th plenary meeting,
25 October 1971.

2763 (XXVI). Report of the International Atomic Energy Agency

The General Assembly,

Having received the report of the International Atomic Energy Agency to the General Assembly for the year 1970/1971,[9]

Aware that the statement of the Director-General of the International Atomic Energy Agency of 8 November 1971[10] brings up to date major developments since the report was published,

1. *Takes note* of the report of the International Atomic Energy Agency;

2. *Appreciates* the constructive role that the International Atomic Energy Agency is playing in the peaceful application of nuclear energy for the welfare of Member States;

3. *Commends* the work being undertaken by the International Atomic Energy Agency to meet its safeguards responsibilities;

4. *Further commends* the co-operation of the International Atomic Energy Agency with the United Nations in organizing the Fourth International Con-

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[1] *Official Records of the General Assembly, Twenty-sixth Session, Annexes,* agenda item 25, document A/8278.

[2] A/8275. For the printed text of this document, see *Official Records of the Security Council, Twenty-fifth Year, Supplement for October, November and December 1970,* document S/10050.

[3] *Official Records of the General Assembly, Twenty-sixth Session, Annexes,* agenda item 25, document A/8359.

[4] A/8358. For the printed text of this document, see *Official Records of the Security Council, Twenty-sixth Year, Supplement for July, August and September 1971,* document S/10291.

[5] *Official Records of the General Assembly, Twenty-sixth Session, Annexes,* agenda item 25, document A/8381.

[6] A/8373. For the printed text of this document, see *Official Records of the Security Council, Twenty-sixth Year, Supplement for July, August and September 1971,* document S/10306.

[7] *Official Records of the General Assembly, Twenty-sixth Session, Annexes,* agenda item 25, document A/8449.

[8] A/8320. For the printed text of this document, see *Official Records of the Security Council, Twenty-sixth Year, Supplement for April, May and June 1971,* document S/10216.

[9] International Atomic Energy Agency, *Annual Report, 1 July 1970-30 June 1971* (Vienna, July 1971); transmitted to the members of the General Assembly by a note of the Secretary-General (A/8384).

[10] See *Official Records of the General Assembly, Twenty-sixth Session, Plenary Meetings,* 1979th meeting, paras. 15-45.

Appendix D: Decisions of the Standing Committee on Trade in Rhinoceros Horn and Tiger Specimens (excerpt)The CITES 30 Standing Committee, Brussels (Belgium), 6-8 September 1993

No. 774 Geneva, 15 October 1993

CONCERNING:

Decisions of the Standing Committee on
Trade in Rhinoceros Horn and Tiger Specimens

At its 30th meeting, held in Brussels, Belgium, from 6 to 8 September, the Standing Committee again discussed the trade-related problems of conservation of rhinoceros species (Rhinocerotidae) and the tiger (Panthera tigris). The Committee reviewed the progress that had been made in response to its previous decisions (see Notification to the Parties No. 738 of 20 April 1993), and the information that had become available since then. The Committee received a report from the Chairman of the IUCN/SSC Cat Specialist Group on the status of the tiger and threats to its future, and a report from the Secretariat including the results of the UNEP conference of rhinoceros range States, consumer States and donors, which took place in June 1993.

The Standing Committee made a series of decisions, which are attached to this Notification.

The Secretariat draws the attention of the Parties in particular to the decisions numbered 12 and 16, which affect all Parties.

Decisions of the Standing Committee on
Trade in Rhinoceros Horn and Tiger Specimens

Brussels (Belgium), 6-8 September 1993

The Standing Committee:

1. notes that, at recent meetings, it has received information on the plight of rhinoceros and tiger populations which, despite listing in CITES Appendix I, have been subject to considerable pressure from poaching, in particular to supply an illegal trade for use in oriental medicines, and has called for reports from the countries which represent the market for these wildlife products;

2. notes the progress that has been made by the authorities in consumer countries to strengthen domestic control of this illegal trade and to educate their communities about the risk which is placed on the survival of rhinoceroses and the tiger from continued demand for parts and derivatives for use in such medicines;

3. notes with approval that the Republic of Korea has, since the 29th meeting of the Standing Committee, acceded to CITES and sought to strengthen its domestic legislation and enforcement action in respect of smuggled rhinoceros products in particular;

4. notes the information received from the Secretariat regarding progress in Yemen, in particular regarding moves to strengthen the capability of the Environmental Protection Agency to enforce the ban on use of rhinoceros horn and regarding the decline in use of rhinoceros horn, but expresses concern that Yemen has not yet taken all necessary steps to accede to the Convention;

5. notes with some concern that the Standing Committee's request made at its 29th meeting, for information on the control of illegal trade in rhinoceros horn and tiger specimens drew an inadequate response from the People's

Republic of China;

6. reports concern that the measures taken by the People's Republic of China and the competent authorities in Taipei are not adequate to sufficiently control illegal trade in rhinoceros horn and tiger specimens and failed to comply with measures outlined in Resolution Conf. 6.10. Parties should consider implementing stricter domestic measures up to and including prohibition of trade in wildlife species now;

7. agrees that the minimum criteria to be met for the adequate implementation of protection measures before the end of November 1993 within the consumer countries are as follows:

a) identification and marking of stocks of rhinoceros horn;

b) consolidation of both rhinoceros horn and tiger bone stocks and their adequate control by the State;

c) adoption and implementation of adequate legislative measures; and

d) provision for adequate enforcement of the above measures;

8. agrees that a letter should be sent from the Chairman of the Standing Committee to the noted consumer countries, to impress upon them the gravity of the situation, advise them of the criteria set down by the Standing Committee to be met for the adequate implementation of protection measures, offer technical assistance on implementation and enforcement and seek their co-operation with the Parties to the Convention;

9. suggests that, within available resources, a technical delegation with a focus on implementation and enforcement be offered to interested consumer countries;

10. agrees that a high-level delegation should be sent to assess progress achieved by consumer countries, as soon as possible after the end of November 1993, and should report to the Standing Committee, which may make further recommendations as appropriate;

11. agrees that a letter should be sent from the Chairman of the Standing Committee to the Russian Federation urging improved implementation of domestic measures to prevent poaching of Siberian tiger and to shut off the illegal transborder movement of tiger specimens into south and east Asia;

12. urges that the draft Lusaka Agreement be refined with the assistance of UNEP and adopted by all African States to improve law enforcement against illegal trade in wild fauna and flora, and further urges other Parties to offer financial assistance with enforcement;

13. agrees that a letter should be sent from the Chairman of the Standing Committee to Zambia urging it to take effective measures with a view to ending the transborder poaching and illegal trade in rhinoceros horn;

14. notes that the UK has undertaken to pursue with the appropriate authorities in Hong Kong the concerns about illegal movement of rhinoceros horn and tiger specimens across its borders, in order to improve the effectiveness of enforcement;

15. agrees that a letter should be sent from the Chairman of the Standing Committee to Myanmar, Viet Nam and the Lao People's

Appendix E: Termination of the Pelly Amendment Certification of Taiwan

Federal Register Volume 62, Number 83 (Wednesday, April 30, 1997) Fish and Wildlife Service, Department of Interior (USA)

received within 30 days of the date of publication of this notice. Anyone requesting a hearing should give specific reasons why a hearing would be appropriate. The holding of such hearing is at the discretion of the Director.

Documents and other information submitted with these applications are available for review, subject to the requirements of the Privacy Act and Freedom of Information Act, by any party who submits a written request for a copy of such documents within 30 days of the date of publication of this notice at the above address.

Dated: April 25, 1997.

Karen Anderson,

Acting Chief, Branch of Permits, Office of Management Authority.

[FR Doc. 97–11192 Filed 4–29–97; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Notice of Availability, Restoration Plan and Environmental Assessment

AGENCY: Fish and Wildlife Service, Department of the Interior.

ACTION: Notice of availability.

SUMMARY: The U.S. Fish and Wildlife Service (Service), on behalf of the Department of the Interior and the State of New Hampshire, announces the release for public review of the draft Restoration Plan and Environmental Assessment (RP/EA) for the Coakley Landfill Superfund Site. The RP/EA describes the trustees' proposal to restore natural resources injured as a result of the release of hazardous substances from the Coakley Landfill.

DATES: Written comments must be submitted on or before May 30, 1997.

ADDRESSES: Requests for copies of the RP/EA may be made to: U.S. Fish and Wildlife Service, New England Field Office, 22 Bridge Street, Unit #1, Concord, New Hampshire 03301.

Written comments or materials regarding the RP/EA should be sent to the same address.

FOR FURTHER INFORMATION CONTACT: Molly B. Sperduto or Kenneth C. Carr, Environmental Contaminants Program, U.S. Fish and Wildlife Service, 22 Bridge Street, Unit #1, Concord, New Hampshire 03301.

Interested parties may also call (603) 225–1411 for further information.

SUPPLEMENTARY INFORMATION: The Coakley Landfill Superfund Site, located in Greenland and North Hampton, New Hampshire, was an active landfill from 1972 until 1985. Contaminants associated with municipal and industrial wastes disposed of at the Site include volatile organic compounds, lead, mercury, zinc, aluminum, and nickel. As a result of contaminant releases from the Site, approximately 40 acres of adjacent wetland habitat were damaged. These wetlands were impaired due to food web contamination or the reduction and/or loss of their biological diversity and productivity. In turn, injury to wetland-dependent wildlife, primarily migratory birds, occurred.

In 1995, the United States of America and the State of New Hampshire settled claims for natural resource damages associated with the Coakley Landfill Superfund Site under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The settlement proceeds will be used to compensate for injury, destruction, or loss of natural resources under trusteeship of the Department of the Interior and the State of New Hampshire. The RP/EA is being released in accordance with the Natural Resource Damage Assessment Regulations found at 15 CFR, part 990. It is intended to describe the trustees' proposals to restore natural resources injured as a result of releases of contaminants from the Site.

The RP/EA describes a number of habitat restoration and protection alternatives and discusses the environmental consequences of each. Restoration efforts which have the greatest potential to restore wetlands and the services those wetlands provide to wetland-dependant wildlife are preferred. Opportunities to restore degraded salt marsh habitats are proposed. The trustees believe that the proposed actions will not have significant impacts on the quality of the physical, biological, and cultural environment.

Interested members of the public are invited to review and comment on the RP/EA. Copies of the RP/EA are available for review at the U.S. Fish and Wildlife Service's New England Field Office in Concord, New Hampshire (22 Bridge Street, Unit #1, Concord, New Hampshire). Additionally, the RP/EA will be available for review at the North Hampton Public Library. Written comments will be considered and addressed in the final RP/EA at the conclusion of the restoration planning process.

Author: The primary author of this notice is Ms. Molly B. Sperduto, New England Field Office, U.S. Fish and Wildlife Service, 22 Bridge Street, Unit #1, Concord, New Hampshire 03301.

Authority: The authority for this action is the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (''CERCLA''), 42 U.S.C.

Dated: April 17, 1997.

Cathy Short,

Acting Regional Director, Region 5, U.S. Fish and Wildlife Service.

[FR Doc. 97–11151 Filed 4–29–97; 8:45 am]

BILLING CODE 4310–55–M

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Termination of the Pelly Amendment Certification of Taiwan

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice.

SUMMARY: The Secretary of the Interior has determined that the reasons for the certification of Taiwan, under the Pelly Amendment to the Fisherman's Protective Act, for actions undermining the effectiveness of an international program for endangered or threatened species, no longer prevail. Therefore, the certification of Taiwan has been terminated.

DATES: This notice is effective on April 30, 1997, and will be effective until further notice.

ADDRESSES: U.S. Fish and Wildlife Service, Office of Management Authority, 1849 C Street, N.W. (MS 430 ARLSQ), Washington, D.C. 20240.

FOR FURTHER INFORMATION CONTACT: Dr. Susan Lieberman, U.S. Fish and Wildlife Service, Office of Management Authority, 703–358–2095.

SUPPLEMENTARY INFORMATION: Under the Pelly Amendment to the Fisherman's Protective Act of 1978, the Secretary of Interior is responsible for determining if nationals of a foreign country, directly or indirectly, are engaging in trade or taking which diminishes the effectiveness of any international program for endangered or threatened species. If the Secretary so determines, the Secretary shall certify such fact to the President. On September 7, 1993, Secretary Bruce Babbitt certified to President Clinton that nationals of Taiwan were diminishing the effectiveness of the Convention on International Trade in Endangered Species (CITES) by trading in rhinoceros and tiger parts and products. He based his determination on the following: (1) The failure of Taiwan to end its participation in rhinoceros horn trade despite a June 1992 resolution of the

CITES Standing Committee calling upon Taiwan to end such trade or face the possibility of CITES calls for trade sanctions; (2) evidence contained in a 1992 petition from both the World Wildlife Fund and National Wildlife Federation asking Secretary Babbitt to certify Taiwan for its involvement in rhinoceros horn trade; (3) public comment received as a result of a Federal Register notice and public meeting in December 1992 and January 1993, respectively, providing evidence to support including trade in tiger bone in the contemplated Pelly certification; (4) a decision in March 1993 by the 29th Meeting of the CITES Standing Committee to censure the continued involvement of Taiwan and three consuming countries in the rhinoceros horn and tiger bone trades, and encouragement by the Standing Committee for CITES party countries to use appropriate stricter domestic measures against Taiwan and the three consuming countries; and finally (5) the failure of Taiwan to demonstrate to Secretary Babbitt at his request in June 1993 that Pelly certification was not warranted. After careful consideration of the facts, on April 11, 1994, President Clinton decided to impose trade sanctions generally prohibiting all wildlife imports from Taiwan. On August 2, 1994, President Clinton directed the Secretary of the Treasury, in consultation with the Secretary of the Interior, to prohibit the importation of fish or wildlife, as defined in 16 U.S.C. 3371 and 50 CFR 10.12, and their parts and products of Taiwan, to which the import declaration requirements in 50 CFR 14.61 would apply. On June 29, 1995, after the authorities on Taiwan had demonstrated sufficient improvement, the President revoked those sanctions.

After making a Pelly certification to the President, the Secretary is required to conduct periodic reviews to determine whether the reasons for the certification still prevail, and if they no longer prevail, the Secretary is required to terminate the certification. During the period since trade sanctions were revoked in June 1995, the authorities on Taiwan have: (1) passed amendments and regulations to the Taiwan Wildlife Conservation Law establishing more severe penalties for illegal trade in endangered species; (2) significantly improved wildlife smuggling interdiction efforts through enhanced law enforcement training, infrastructure, and forensic capabilities; and (3) decreased market availability on Taiwan of products containing rhinoceros and tiger parts. Given that the reasons for certification of Taiwan no longer prevail, the Secretary has terminated the certification of Taiwan under the Pelly Amendment to the Fisherman's Protective Act of 1967 (22 U.S.C. 1978).

Dated: December 23, 1996.

Donald J. Barry,

Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 97–11092 Filed 4–29–97; 8:45 am]

BILLING CODE 4310–55–P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[WO–320–1990–24 1A; OMB Approval Number 1004–0025]

Information Collection Submitted to the Office of Management and Budget for Review Under the Paperwork Reduction Act

The Bureau of Land Management (BLM) has submitted the proposed collection of information listed below to the Office of Management and Budget (OMB) for approval under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.). On March 18, 1996, BLM published a notice in the Federal Register (61 FR 11059) requesting comments on this proposed collection. The comment period ended on May 17, 1996. BLM received one comment from the public in response to that notice. Copies of the proposed collection of information and related forms and explanatory material may be obtained by contacting the BLM Clearance Officer at the telephone number listed below.

OMB is required to respond to this request within 60 days but may respond after 30 days. Your comments and suggestions on the requirement should be made within 30 days directly to the Office of Management and Budget, Interior Department Desk Officer (1004–0025), Office of Information and Regulatory Affairs, Washington, D.C., 20503, telephone (202) 395–7340. Please provide a copy of your comments to the Bureau Clearance Officer (WO–630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Nature of Comments: We specifically request your comments on the following:

1. Whether the collection of information is necessary for the proper functioning of the Bureau of Land Management, including whether the information will have practical utility;

2. The accuracy of BLM's estimate of the burden of collecting the information, including the validity of the methodology and assumptions used;

3. The quality, utility and clarity of the information to be collected; and

4. How to minimize the burden of collecting the information on those who are to respond, including the use of appropriate automated electronic, mechanical, or other forms of information technology.

Title: Mineral Surveys, Mineral Patent Applications, Adverse Claims, Protests, and Contests (43 CFR 3860 and 3870).

OMB approval number: 11004–0025.

Abstract: The Bureau of Land Management is proposing to renew the approval of an information collection for existing rules at 43 CFR 3860 and 3870. These rules provide for the application process to request a mineral patent for mining claims and mill sites under the General Mining Law of 1872, *as amended*; provides for the land surveys of the requested mining claims or sites required prior to applying for a mineral patent; provides procedures set in statute for the resolution of adverse claims against the application by rival owners of mining claims and for protests of the public against irregular applications; and sets forth the final administrative framework for concluding the process.

Bureau Form Number: Form numbers 3860–2 and 3860–5.

Frequency: Once.

Description of Respondents: Respondents are individuals, partnerships, or corporations that own unpatented mining claims or mill sites located upon the public lands of the United States and who have determined that they are qualified under the rigorous terms and conditions of the General Mining Law of 1872, as amended, to obtain a mineral patent to the lands encompassed by their mining claims and/or mill sites.

Estimated completion time:

Mineral patent application—80 hours.

Request for a mineral survey—One hour.

Adverse claim—Two hours.

Protest—Two hours.

Contest—Two hours.

Annual Responses: 255.

Annual Burden Hours: 12,185.

Collection Clearance Officer: Carole Smith, (202) 452–0367.

Dated: April 14, 1997.

Carole Smith,

Information Collection Clearance Officer.

[FR Doc. 97–11142 Filed 4–29–97; 8:45 am]

BILLING CODE 4310–84–M

Appendix F: Greenhouse Gas Reduction Bill, 2006 (excerpt)

Agenda Related Document, Legislative Yuan, 0950927070100100 (26th September 2006)

立法院第 6 屆第 4 會期第 3 次會議議案關係文書

收文編號：0950004773

議案編號：0950927070100100

立法院議案關係文書 （中華民國41年9月起編號）中華民國95年10月4日印發

院總第 1711 號　政府提案第 10601 號

案由：行政院函請審議「溫室氣體減量法草案」案。

行政院函

受文者：立法院

發文日期：中華民國 95 年 9 月 26 日

發文字號：院臺環字第 0950091895 號

速別：最速件

密等及解密條件或保密期限：普通

附件：如說明三

主旨：函送「溫室氣體減量法」草案，請　查照審議。

說明：

一、本院環境保護署函以，為因應京都議定書生效，對外宣示我國願意善盡共同保護地球環境之責任，並使國內推動溫室氣體減量具有法源依據，爰擬具「溫室氣體減量法」草案，請核轉貴院審議。

二、經提本（95）年 9 月 20 日本院第 3007 次會議決議：「通過，送請立法院審議」。

三、檢送「溫室氣體減量法」草案（含總說明）1 份。

正本：立法院

副本：行政院環境保護署（含附件）

立法院第 6 屆第 4 會期第 3 次會議議案關係文書

溫室氣體減量法草案總說明

為減緩人類活動所排放之溫室氣體造成全球氣候變遷，聯合國於西元一九九二年通過「聯合國氣候變化綱要公約（UnitedNations Framework Convention on Climate Change, UNFCCC）」，對「人為溫室氣體」（anthropogenic greenhouse gases）排放做出全球性防制協議。嗣西元一九九七年公約第三次締約國會議中通過具有管制效力之「京都議定書」（Kyoto Protocol），明確規範三十八個工業國家及歐洲聯盟，應在西元二〇〇八年至西元二〇一二年間將其溫室氣體排放量降至西元一九九〇年排放水準平均再減百分之五．二，該議定書業已於西元二〇〇五年二月十六日生效。京都議定書所定溫室氣體排放減量目標固只針對簽署並批准的工業化國家始生效力，惟後京都時期（post -Kyoto）即西元二〇一二年之後，我國與其他新興工業國家可能成為下一波受規範對象，其規範之減量模式、目標與期程尚在討論階段，具有高度的不確定性。

基於我國特殊之國際地位，無法簽署聯合國氣候變化綱要公約與京都議定書，惟身為地球村之一員，仍願依據公約精神，承擔共同但差異的責任，以成本有效（cost effectiveness）及最低成本（the lowest cost）來防制氣候變遷，並追求永續發展，爰擬具「溫室氣體減量法」草案，共分六章，計二十八條，其要點如下：

一、溫室氣體減量涉及政府行政部門相關權責業務，行政院應邀集中央有關機關研擬及檢討有關溫室氣體減量之分工、整合、推動等事項。中央主管機關應擬訂溫室氣體減量方案，報請行政院核定後實施；中央目的事業主管機關應依溫室氣體減量方案訂定減量目標及行動計畫，並推動之。（草案第五條及第六條）

二、中央目的事業主管機關應進行排放量之調查及氣候變遷調適策略之研議；中央主管機關應進行氣候變遷衝擊評估、定期統計全國排放量，建立國家溫室氣體排放清冊。（草案第七條）

三、國家能源、產業、運輸及住商政策之中央目的事業主管機關應定期　檢討及調整其溫室氣體減量政策；目的事業主管機關應輔導事業進行排放源排放量之盤查、登錄、查證、自願減量及參與國際合作減量，並得獎勵或補助之。（草案第八條及第九條）

四、直轄市、縣（市）主管機關應配合推動溫室氣體減量政策方案及行動計畫，訂修溫室氣體減量執行計畫，並推動之。（草案第十條）

五、事業具有中央主管機關公告之排放源者，應每年進行排放量盤查及定期登錄經查驗機構完成查證之排放量；其溫室氣體年平均排放量，應符合溫室氣體效能標準。（草案第十一條及第十二條）

六、中央主管機關得依聯合國氣候變化綱要公約、議定書及相關會議之決議事項，於實施溫室氣體排放盤查、登錄、查證制度與建立排放量核配及交易制度後，分期公告實施溫室氣體總量管制，其實施方式為分階段訂定減量目標，並將應削減溫室氣體排放量分配中央目的事業主管

機關，由中央目的事業主管機關訂定削減計畫執行削減。（草案第十三條）

七、中央目的事業主管機關得分階段將其獲配之排放量，核配其公告排放源之所屬事業，並得保留部分排放量核配一定規模新設或變更排放源之事業，並要求一定規模新設或變更之事業應採用最佳可行技術。（草案第十四條）

八、經核配排放量之事業應採行減量措施或至中央主管機關指定之交易平台進行交易；其實際排放量不得超過核配量或排放額度；中央主管機關公告一定規模新設或變更之排放源，於溫室氣體總量管制實施後，其排放量超過中央目的事業主管機關核配量部分，應取得足供抵換之排放量。（草案第十五條）

九、為鼓勵事業主動執行溫室氣體減量，規定得於核配排放量前主動提出溫室氣體減量計畫、減量目標及期程，經查驗機構查證後，向中央主管機關申請認可其減量額度；經認可之減量額度，得作為溫室氣體總量管制排放量之抵換或交易。（草案第十六條）

十一、主管機關或目的事業主管機關得派員對排放源所屬事業之場所實施檢查或命其提供有關資料。（草案第十七條）

十二、各級政府機關應加強對學校、產業及國民有關溫室氣體減量之教育宣導；各級政府機關、公立學校及公營事業應宣導、推廣節約能源及使用低耗能或高能源效率產品或服務。（草案第十八條及第十九條）

十三、事業或查驗機構因違反本法所定義務應為之處罰。（草案第二十一條至第二十六條）