

# CHAPTER ONE

## INTRODUCTION

This opening chapter contains a brief research background, research purposes, research questions and the methodology that will be used in this research.

### 1.1. Research Background and Purposes

In the fourth assessment of global warming, released February 2, 2007, the U.N.'s Intergovernmental Panel on Climate Change<sup>1</sup> (IPCC) used its strongest language yet in drawing a link between human activity and recent global warming, stating that human activity has been the driving force behind climate change over the last 50 years<sup>2</sup>. The documentary film-*An Inconvenient Truth*-presented by the former Vice President of the United States of America, Al Gore, (directed by Davis Guggenheim and premiered in 2006), also indicated that the fact of global warming is not in question and that its consequences for the world we live in will be disastrous if left unchecked. In another 2004 Hollywood apocalyptic science-fiction movie, "*The Day After Tomorrow*", the possible catastrophic effects of global warming was depicted through high-end special effects. Although some plots elements in the fiction movie were not accepted by scientists, it did make people take the problem of global warming more seriously.

On December 10, 2007 in Oslo, Norway, Al Gore and the IPCC were awarded the 2007 Nobel Peace Prize "for their efforts to build up and disseminate greater knowledge about man-made climate change and to lay the foundations for the measures that are needed to counteract such change". Green (house) issues dominated last year's Nobel Peace Prize as it was revealed that the climate change problem was the greatest challenge humankind has ever faced and needed global attention to successfully address it, highlighted by Gore who said in his acceptance speech "It is time to make peace with the planet".

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<sup>1</sup> The IPCC is a scientific intergovernmental body set up by the World Meteorological Organization (WMO) and by the United Nations Environment Programme (UNEP) to provide the decision-makers and others interested in climate change with an objective source of information about climate change.

<sup>2</sup> See <http://www.ipcc.ch/>

According to the IPCC's assessment in 2007<sup>3</sup>, the global average air temperature near the Earth's surface rose  $0.74 \pm 0.18$  °C ( $1.3 \pm 0.32$  °F) during the past century; however, climate models referenced by the IPCC predict that global surface temperatures are likely to increase by 1.1 to 6.4 °C (2.0 to 11.5 °F) between 1990 and 2100. If we can't control the trend of global warming, it will have great impact on ecosystems and human life. For example:

1. Glacier retreats, ice shelf disruption such as the Larsen Ice Shelf<sup>4</sup>, sea level rises (possibly 110 to 770 mm by 2100), rainfall-pattern changes, agriculture repercussions, as well as the possible slowing of the thermohaline circulation, reductions in the ozone layer and increased intensity and frequency of extreme weather events, such as Hurricane Katrina in New Orleans, U.S. in 2005.

2. Changes in population distribution due to sea level rises (half the population living near coastal areas. in the near future will experience ocean level rises those areas).

3. Water scarcity, changes in agricultural yields, reduced summer streamflows, adverse health effects from warmer temperatures, and the spread of disease, such as malaria and dengue fever.

4. 18% to 35% of a sample of 1,103 animal and plant species will be extinct by 2050, based on future climate projections.

To carefully and seriously address global warming, one of the most pressing environmental problems in the new century, since 1990 scientists and experts have gathered together to discuss possible solutions. Efforts here have focused on the mitigation of greenhouse gases (GHG) that are causing climate change and on developing adaptative strategies to assist species, ecosystems, humans, regions and nations adjust to the effects of global warming. That's why the United Nations Framework Convention on Climate Change (UNFCCC) (Appendix I) was adopted in 1992 during the Earth Summit to stabilize GHG concentrations at a level that would prevent dangerous interference with the climate system. To further achieve this goal, the members of the UNFCCC reached an agreement (Kyoto Protocol) (Appendix II) in Kyoto, Japan in 1997 during the meeting of the third committee of

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<sup>3</sup> Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

<sup>4</sup> This is a long, fringing ice shelf in the northwest part of the Weddell Sea, extending along the east coast of Antarctic Peninsula from Cape Longing to the area just southward of Hearst Island.

the parties (COPs) to place legally binding limits on GHG emissions.

Such emission limitation is directly related to the economic activity of every country. Therefore, this issue results in debates and conflicts between developed and developing countries during the process of consensus formation. Those arguments are the main targets of deliberation for international political economies. That is also why implementation of the Kyoto Protocol was postponed until February 2005. If we want to know how those arguments were negotiated and how they finally reached consensus, it is essential to examine political and economic factors at the international level.

The interpenetrating nature of environmental problems, which cross national borders and generations, thus, requires some degree of cooperation and interdependence among governments to address the problems at hand by hand- “both nationally and internationally” (Anand 2004). Taiwan, with limited resources, depends on trade with foreign countries. And this trade play has played an important role in the history of Taiwan’s economic development . Taiwan’s development pattern has emphasized economic aspects and neglected environment conservation and protection. Before the 1980, freedom from pollution restrictions allowed Taiwan’s products to be internationally competitive, because Taiwan’s main trading partners-the United States, Japan, Canada, and many Western European countries-all had stricter environmental laws in effect. Therefore, Taiwan’s economic growth has been achieved at the price of environmental deterioration (Chi 1994). When environment protection and sustainable development became the main trend among international communities, Taiwan became conscious of the importance of sustainable development following Taiwan’s democratization process after the mid 1980s (Leng 2005).

Taiwan, with the natural environment of a subtropical island, is extremely vulnerable to the impacts of climate change. These impacts could include a rise in the sea level and lack of water resources, as well as adverse effects on primary industries, public health, and ecosystems. A rise in the sea level would result in flooding of coastal lands, coastal erosion, and the retreat of coastal frontages. With a continuing rise of the sea-level, there would be more and more coastal area land submerged and by 2100 there would be more than 10 million environment refugees from those coastal area<sup>5</sup>. The impacts on water resources could include an increase in the frequency and extent of droughts, lack of water resources as well as various

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<sup>5</sup> 台灣不願面對的真相(2007)。天下雜誌，第 369 期，第 101 頁。

impacts on the livelihood of people and on industrial development. The rise in temperature could also decrease livestock production as well as fish and shellfish populations. Climate change could also increase the frequency and intensity of typhoons and floods<sup>6</sup>. All of these possible serious impacts could threaten Taiwan's survival, so the government should have no choice but to cooperate with international society to address this global problem. Although Taiwan has been blocked from participating in major international environment organizations for political reasons, being a member of the global village, Taiwan has no excuse to exclude herself from contributing to global environment protect efforts. Therefore, to achieve sustainable development and share obligations toward global environment protection, finding a compromise between economic policy and environment protection policy (especial sustainable development policy) has become an important issue in the domestic policy-making process.

The purposes of this research are as follows:

- (1) To explore the political and economic factors influencing Taiwan's environmental policy.
- (2) To analyze the reasons that Taiwan decided to voluntarily comply with the Convention as a non- Party of the UNFCCC.
- (3) To examine Taiwan's practice on the global warming issue (with special emphasis on GHG mitigation policy) including organization, legislation and policy aspects to see if Taiwan's implementation follows the international development trend (such as the UNFCCC and Kyoto Protocol).
- (4) Finally, policy recommendations will be drawn from the results to help build a sound implementation framework.

## **1.2. Research Questions**

Environmental issues are highly related to the political system and economic policy. Thus this research wants to understand environment issue using a political economy approach. Why does environment degradation continue to be a serious problem despite recent trends towards rising environmental consciousness and carrying out environmental protection works

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<sup>6</sup> Refer to "Mitigating Climate Change-what Taiwan is doing" from <http://sd.erl.itri.org.tw/fccc/> (accessed on May 10th of 2008)

have been done urgently? In the case of climate change, most people in the world know that global warming will result in a catastrophe if nothing is done to address it. The fact is that countries with different political and economic backgrounds have different considerations in the negotiation process. That is why the signing of the Kyoto Protocol was postponed until 1997 and only put into effect in 2002. Although Taiwan is not in the Party of the UNFCCC, political and economic considerations would also be encountered by Taiwan when deciding to voluntarily comply with the Convention. Even if Taiwan declares voluntary compliance with the Convention, how will Taiwan implement it? This research plans to analyze, in light of Taiwan's special political and economy situation, whether institution building measures (including organization and regulation) and policies adopted by the government meet the obligations prescribed in the Convention or are at least orientated toward sustainable development.

### **1.3. Methodology and Procedures**

This research combines research with literature analysis and in-depth interviews. By surveying relevant international and domestic literature, including journals, books, and articles, as well as environmental studies, this research will organize relevant data from political-economy angle in international and domestic environmental development. In particular it will focus on the debates about whether environment protection should take precedence over economic development in the process of national development or whether a approach meeting the needs of both is best. For the case study, the author conducted interview from the 6<sup>th</sup> to 14<sup>th</sup> of May 2008 in Taipei to collect information on governmental practices (for interview questions refer to Appendix III). The interview subjects (showed in Table 1.1) included officers responsible for the relevant GHG reduction policy at the Environmental Protection Agency (EPA) and Ministry of Economic Affairs (MOEA), one researcher at the energy and environmental resources lab at Industrial Technology Research Institute (ITRI), commissioned by the EPA to plan and practically implement measures in response to the UNFCCC. In addition, the author also interviewed Professor Shih, Wen-Chen, who is an expert in international environmental law and interested in the climate change issues. Now, she is also the Committee member of the National Council for Sustainable Development (NCSD).

Table 1.1: Interview Subjects

Name	Post and Title	Service	Interview date	Designation
Ms. Chou	Senior Specialist	Greenhouse Gas Reduction Office, EPA	9, May 2008	EPA01
Mr. Huang	Technical Specialist	Department of Air Quality Protection and Noise Control, EPA	14, May 2008	EPA02
Mr. Hu	Researcher	Energy and Environment Research Laboratories, ITRI,	8, May 2008	ITRI01
Mr. Zhung	Specialist	Bureau of Energy, MOEA	6, May 2008	MOEA01
Mr. Chen	Section Chief	Bureau of Industry, MOEA	14, May 2008	MOEA02
Professor Shih	Committee member of the NCSD	Professor of the NCCU	9, May 2008	NCSD01

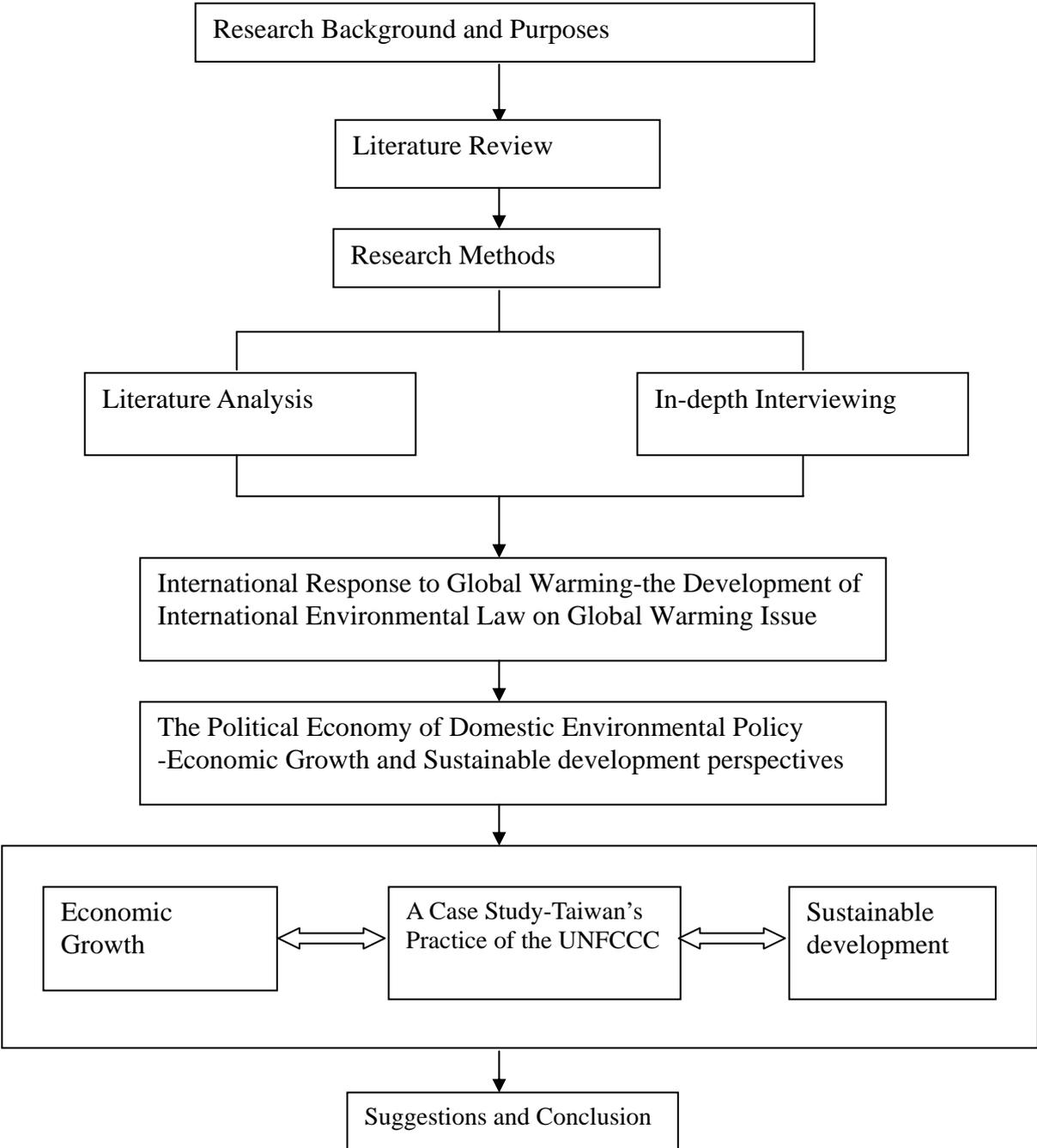
The research procedure is as follows (please also refer to flow chart in Figure 1.1):

First, this research will analyze the reasons and characteristics of environmental problems as well as the evolution of international environment discourse (chapter two). Then, this research will do the literature review (chapter three). For the case study, the development of the international environment law toward global warming will be introduced to clarify the international trend in dealing with the global warming problem (chapter four). Next, the author will analyze two aspects of Taiwan's environmental policy: domestic environmental policy and Taiwan's international environmental policy over the past fifty years to give background information about Taiwan's global warming policy (chapter five).

Then, this research examines Taiwan's practice of the UNFCCC as a case study (chapter six). This issue is particularly relevant to Taiwan because of its special geographic

characteristics. Therefore, the author will examine Taiwan’s GHG reduction policy from the aspects of organization, norms (such as the draft of Greenhouse Gas Reduction Act) and policies. This will be done through examining relevant literature and in-depth interviews with government officers and experts to figure out what Taiwan has done to combat the global warming problem.

Figure 1.1: Research Flow Chart



Finally, by comprehensively examining Taiwan's practices toward global warming, the author hopes that this research can offer suggestions enabling policy makers to balance the conflict between economic growth and sustainable development when planning Taiwan's future national development policy.

#### **1.4. Limitation of the Research**

This research has focused on analyzing the government's response toward global warming through examining central government organizations, regulations and policies. Although the private sectors such as transnational corporations, domestic industries or non-governmental organizations and local governments also play important roles in environmental policy-making process, their roles are not analyzed in this research due to space restraints. In addition, only quality methods will be used in policy research; empirical quantitative methods will not be used on related policy assessments. Strategies addressing global warming include mitigation GHG emission and adaptation measures on possible impact resulted from climate change. This research focuses more on the dimension of mitigating GHG. The integrated policy analysis combining these two parts remains for future study.