

**GRASSROOTS ORGANIZATIONS
ADDRESSING CLIMATE CHANGE:
FRAMES ISSUES TO MOBILIZE CONSTITUENTS**

by

Hiromitsu Araki

A thesis submitted
in partial fulfillment of the requirements
for the degree of
Master of Science
(Natural Resources and Environment)
in the University of Michigan
Apr. 2007

Thesis Committee:
Professor Bunyan Bryant
Associate Professor Maria Carmen Lemos

ABSTRACT

Despite the call by environmental advocates for grassroots movements addressing global climate change, there has been little strategic guidance for grassroots organizations in how to mobilize their constituents. This study explores how grassroots environmental groups can effectively address the global climate change issue so as to encourage active individual participation.

This research found three types of strategic frames for grassroots organizations focusing on climate change: mainstream frames (MS) to reduce greenhouse gas emissions through mitigation policies, general climate justice frames (GCJ) to claim disproportionate impacts of climate change, and targeting polluter industry frames (TPI) to attribute climate change to hazardous facilities so as to support the anti-toxic environmental justice movement. The survey results indicate that these frames are not appealing enough to influence constituents' concerns, attributions, and dissatisfactions regarding climate effects. Although the respondents are more likely to be willing to participate in activities offered by organizational prognostic frames, this study finds no single determinant inducing willingness to participate; clearly other determinants than prognoses, such as experience of climate effects, can play a role as well. The inability to specify these other determinants is partly due to a limitation of this study, which is based on a limited number of grassroots organizations involved in climate change.

Climate change is an environmental issue which can be shared by mainstream and environmental justice organizations which have a history of confrontation. In order to develop and unite their efforts, this study offers three recommendations. First, climate justice organizations should ally with national mainstream organizations to address their lack of resources. Second, the movements should focus more on adaptation policies. Finally, grassroots organizations should educate people about climate change so that constituents can recognize the issue as a political problem.

ACKNOWLEDGEMENTS

Bunyan Bryant devoted much time and energy to advising this research. Bunyan's gentle but clear guidance lead this exploratory study with many difficulties to productive directions. For this, I am extremely grateful. Maria Carmen Lemos provided valuable views about the results and useful perspectives of climate policies making process. I really appreciate that. As I am not a native writer in English, writing this thesis required editing work to them. For this, I thank them so much.

The process of this research needs cooperation of many staff of grassroots environmental organizations. I also had great support and advice from many faculties, colleagues, and friends at the University of Michigan. My private English tutor, Eph Tunkle, also provided incredible editing work. Without their cooperation this study cannot be accomplished. I would like to thank them.

Finally, my parents and my brother encouraged and supported me to keep me going through this thesis. I am grateful for their supports.

TABLE OF CONTENTS

| | |
|--|-----|
| ACKNOWLEDGEMENTS | ii |
| LIST OF TABLES, FIGURES AND APPENDICES | vii |
| Chapter. I Introduction | 1 |
| Chapter. II Background and Preliminary Framework | 5 |
| Grassroots in Environmental Movement | 6 |
| The Evolution of Grassroots in the Environmental Movement | 6 |
| The Concept of Grassroots in the Environmental Movement | 10 |
| Grassroots Environmental Justice Groups | 10 |
| Grassroots National Organizations | 11 |
| Global Climate Change | 12 |
| Response to global climate change | 13 |
| The Concept of Justice in Global Climate Change | 16 |
| Participation in Movements | 18 |
| Participation | 18 |
| Incentives | 19 |
| Collective Action Frame | 20 |
| Organizational Backgrounds, Frames, and Selection of Actions | 21 |
| Individual Perceptions and Participation | 22 |
| Research Questions and Framework | 23 |
| Research Question A | 25 |
| Proposition 1 | 25 |
| Research Question B | 26 |
| Proposition 2 | 26 |
| Proposition 3 | 26 |
| Research Question C | 27 |
| Proposition 4 | 27 |
| Research Question D | 28 |
| Proposition 5 | 28 |
| Proposition 6 | 28 |
| Chapter. III Methodology | 30 |
| Constructs | 30 |
| Independent Variables | 30 |
| 1) Organizational background: | 30 |
| 2) Collective action frames | 32 |
| 3) Micro-structural relationships | 32 |
| 4) Individual perception | 32 |
| 5) Knowledge of global climate change | 34 |

| | |
|--|----|
| 6) Incentives to join the group | 34 |
| 7) Personal resources and demographic factors..... | 34 |
| Dependent Variables..... | 35 |
| 1) Willingness to Participation in activities | 35 |
| Methodological Rationales | 36 |
| Exploratory Research..... | 36 |
| Multiple Method | 36 |
| Convenience Sampling | 37 |
| Research Procedure | 38 |
| Interview | 38 |
| Document Analysis..... | 39 |
| Survey Research..... | 39 |
| Interview Procedures | 40 |
| Procedure of Survey Sampling | 41 |
| Survey Respondents..... | 42 |
| Chapter. IV Qualitative Research Results | 44 |
| Qualitative Data on Organizational Factors | 44 |
| 1. Backgrounds | 45 |
| 2. Activities related to global climate change..... | 47 |
| 3. Framing on global climate change..... | 49 |
| 4. Micro-structural opportunities | 54 |
| Classification | 55 |
| Chapter. V Survey Results | 58 |
| Organizational Frames and Individual Factors | 58 |
| Concerns about Global Climate Change and Other Environmental Issues | 59 |
| Knowledge on Global Climate Change | 59 |
| Concern about Climate Change Impacts..... | 60 |
| Experience of Climate Change Impacts..... | 60 |
| Attributions of Global Climate Change | 60 |
| Dissatisfaction regarding Global Climate Change..... | 61 |
| Incentives to Join the Organization..... | 61 |
| Activities and the Degree of Activeness..... | 61 |
| Interest in Activities Addressing Global Climate Change..... | 61 |
| Willingness to Participate in Activities..... | 62 |
| Belief in a Causal Relationship between Global Climate Change and Hurricanes..... | 62 |
| Demography | 62 |
| Correlations between Individual Factors | 63 |
| Motivation to Join an Organization and Activeness in the Organization | 63 |

| | |
|---|-----------|
| Concern about Climate Impacts and Willingness to Participation in Activities... | 64 |
| Attribution of Global Climate Change and Willingness to Participate in Activities..... | 64 |
| Dissatisfaction and Willingness to Participate..... | 65 |
| Individual Experience of Climate Impacts and Willingness to Participate | 66 |
| Belief in the Causal Relationship between Hurricanes and Global Climate Change and Willingness to Participate | 66 |
| Familiarity with Knowledge on Global Climate Change and Willingness to Participate | 67 |
| Chapter. VI Conclusion and Discussion | 68 |
| Organizational Background and Collective Action Frames | 70 |
| Mainstream Background and Frames | 70 |
| Frames, Perceptions, and Willingness to Participate | 73 |
| 1. Diagnostic Frames and Constituents' Perceptions..... | 73 |
| 2. Prognostic Frames and Willingness to Participate..... | 75 |
| 3. Constituents' Perception and Willingness to Participate | 77 |
| 4. Solidarity Incentives and Willingness to Participate | 79 |
| 5. Knowledge on Global Climate Change and Willingness to Participate | 80 |
| Evaluation of Frames..... | 81 |
| Implication for More Effective Frames | 84 |
| Climate justice organizations should focus more on adaptation policies. | 85 |
| Education would motivate people to be active. | 86 |
| Expand alliances with other organizations and address climate change cooperatively..... | 87 |
| Limitations..... | 87 |
| Area for Future Study | 89 |
| Alliance | 90 |
| Leadership development | 90 |
| Connection of Global Climate Change with Daily-life-based Experience..... | 91 |
| APPENDICES..... | 92 |
| Appendix A: Suevey Questionnaire in English | 92 |
| Appendix B: SurveyQuestionnaire in Spanish | 100 |
| Appendix C: The Guide Questions to Interview the Staff of Grassroots Environmental Organizations | 108 |
| Appendix D: Tables of Correlation between Organizational Frames and Individual Factors..... | 109 |
| Appendix E: Demographic Data..... | 120 |
| Appendix F: Tables of Correlations between Individual Factors | 126 |

BIBLIOGRAPHY..... 144

LIST OF TABLES, FIGURES AND APPENDICES

Figures

| | |
|--|----|
| Figure 2. 1: Concept of preliminary participation framework..... | 24 |
| Figure 3. 1: Chart of preliminary framework of movement participation..... | 31 |
| Figure 3. 2: Survey respondents and non-respondents..... | 43 |
| Figure 4. 1: Classification of Frames on Global Climate Change..... | 56 |
| Figure 6. 1: Framework of Movement Participation..... | 69 |

Tables

| | |
|--|----|
| Table 4. 1: Classification of Frames on Global Climate Change..... | 57 |
|--|----|

Appendices

| | |
|---|-----|
| Appendix A: Survey Questionnaire in English..... | 92 |
| Appendix B: Survey Questionnaire in Spanish..... | 100 |
| Appendix C: The Guide Questions to Interview the Staff of Grassroots Environmental Organizations..... | 108 |
| Appendix D: Tables of Correlation between Organizational Frames and Individual Factors..... | 109 |
| Table 5. 1: Degree of each environmental concern and the percentage of a great deal concern..... | 109 |
| Table 5. 2: Knowledge on global climate change..... | 110 |
| Table 5. 3: Concern about climate change impacts..... | 111 |
| Table 5. 4: Experience of climate change impacts..... | 112 |
| Table 5. 5: Attribution of global climate change..... | 113 |
| Table 5. 6: Dissatisfaction with global climate change..... | 114 |
| Table 5. 7: Motivation to join the environmental organizations..... | 115 |
| Table 5. 8: The Degree of activeness of respondents in their organizations..... | 116 |
| Table 5. 9: Activities in which respondents are interested..... | 117 |
| Table 5. 10: Activities in which respondents are willing to participate..... | 118 |
| Table 5. 11: The degree of belief in the causal relationships between climate change and Hurricane Katrina..... | 119 |
| Appendix E: Demographic Data..... | 120 |
| Figure 5. 1: Age distribution of samples..... | 120 |
| Figure 5. 2: Gender distribution..... | 121 |
| Figure 5. 3 : Income distribution..... | 122 |
| Figure 5. 4: Employment status..... | 123 |
| Figure 5. 5: Race distribution..... | 124 |
| Figure 5. 6: level of education..... | 125 |
| Appendix F: Tables of Correlations between Individual Factors..... | 126 |
| Table 5. 12: Incentives to join an organization and Activeness in the organization...126 | |
| Table 5. 13: Concerns about climate impacts and Interest in activities.....127 | |
| Table 5. 14: Concerns about climate impacts and Willingness to participate.....128 | |
| Table 5. 15: Attribution of climate change and Interest in activities.....129 | |
| Table 5. 16: Attribution of climate change and Willingness to participate.....130 | |

| | |
|--|-----|
| Table 5. 17: Dissatisfaction with issues regarding climate change and Interests in activities..... | 131 |
| Table 5. 18: Dissatisfaction with issues regarding climate change and Willingness to participate..... | 132 |
| Table 5. 19: Experience of climate impacts and Interest in activities..... | 133 |
| Table 5. 20: Experience of climate impacts and Willingness to participate..... | 134 |
| Table 5. 21: Belief in causal relationship between Hurricane Katrina and Willingness to participate..... | 135 |
| Table 5. 22 Knowledge related to global climate change and Willingness to participate..... | 136 |
| Table 5. 23: Knowledge related to global climate change and Concern about climate impacts..... | 137 |
| Table 5. 24: Knowledge related to global climate change and Attributions of climate change..... | 138 |

Chapter I

Introduction

The nonparticipation of the United States in the Kyoto Protocol revealed the limited influence of the current environmental movement on political decision-making. Despite being one of the most successful social movements in the twentieth century, it has not exerted enough influence on U.S. policy toward global climate change. Insistence on global climate change as a critical environmental problem has been rejected by Congress and the Bush Administration, both of whom remain skeptical about scientists' climate predictions (Morgan, Cantor et al. 2005). Apart from their skepticism, uncertainty remains the largest barrier in determining climate policies. Indeed, policy makers have difficulty making decisions given the uncertainties regarding climate change and its damage (Manne 1995; Webster 2002; Webster, Forest et al. 2003). Rather than waiting for the resolution of uncertainties, climate policy makers need to integrate the uncertainties into the decision process by defining the range of uncertainties and possible outcomes. Such a new decision-making process has been promoted through pro-environmental policy principles such as the precautionary principle, adaptive environmental management, and the principle of stewardship (Schneider and Kuntz-Duriseti 2002).

Environmental movements must overcome climate skepticism and promote new principles in establishing climate policies by mobilizing mass numbers of people to pressure politicians and policy makers rather than engaging in unending debates with

climate skeptics about scientific uncertainty. Friedman and McAdam (1992, p. 168)

wrote:

[I]n some cases it will suffice that those with power merely believe that there is a large constituency for a given course of action. The wider the adaptation of a particular collective identity, the more likely this myth can be sustained.

Accordingly, this study explores how grassroots environmental groups can effectively address the global climate change issue so as to encourage active individual participation.

Advocates for global climate change mitigation policy often mention the importance of grassroots efforts. For example, Sen. John Kerry (D-Mass) called for “a more militant grassroots approach to increase public awareness of climate change and other issues” in his speech criticizing the Bush administration’s climate policy (Stempeck 2005). Despite his call for grassroots approaches, current mainstream environmentalists have yet to address global climate change effectively. For example, Shellenberger and Nordhaus (2004, p. 6) wrote:

Modern environmentalism is no longer capable of dealing with the world’s most serious ecological crisis. Over the last 15 years environmental foundations and organizations have invested hundreds of millions of dollars into combating global warming. We have strikingly little to show for it.

Critics of mainstream environmentalism have pointed out many problems:

institutionalization of fundraising to maintain the large organizations, professionalization focusing on legislation and litigation while ignoring community people at the grassroots level, narrow definition of environmental issues concentrating on conservation, limited white middle class constituents, narrow alliances with other social movements, and turf battles within the environmental movement itself (Gottlieb 1993, Dowie 1995, Shellenburger and Nordhaus 2004).

While mainstream environmentalism is burdened with the problems mentioned above, grassroots environmentalism in the United States has grown under the slogan of environmental justice in recent decades. People of color and the disadvantaged who suffer from exposure to hazardous facilities have requested both the private and public sectors to improve the environmentally detestable conditions in which they must live. In turn, environmental justice advocates have begun to assert the critical importance of their views in finding the solutions for global climate change because they will be the first victims due to lack of resources and adaptability (Bullard 2000). The environmental justice movement is expanding its sphere of concern to the disproportionate impact of global climate change on people of color. Because of these differential impacts they have demanded *climate justice*. Nevertheless, grassroots climate concerns have only played a minor role in the policy-making process.

This study is important because despite the voluminous literature on participation in social movements, few scholars have examined the grassroots environmental movement in the context of global climate change. The goal of this study is to offer more effective strategies for grassroots environmental organizations to address global climate change.

This is a functional, largely exploratory study which applies a preliminary framework based on social movement theories to the grassroots environmental movement on climate change. It compares the framework with survey results to produce a theoretically optimal approach revealing the strengths and constraints of current environmental grassroots efforts in terms of climate change, furthermore suggesting better strategies for attracting popular support.

A major assumption of this research is that climate change is a critical environmental issue affecting all locales, and that people in democratic society need to address climate change so that public policy is implemented on the basis of people's will. However, collective action is difficult due to the complex, global nature of climate change. (Pendergraft 1998). Collective action frames highlighting problems and compelling people to actions are critical in this context (Benford and Snow 2000).

Although the mainstream environmental movement has succeeded in changing people's attitudes, it has failed to alter their behavior (Burns and LeMoyné 2001). Grassroots environmental organizations should now play a critical role in raising awareness and motivating people to participate in actions addressing climate change.

Chapter II reviews three bodies of literature focusing on (1) grassroots environmental movements, (2) global climate change and climate justice, and (3) participation mechanisms. Here a preliminary framework is set forth to analyze the efforts of grassroots environmental organizations addressing climate change, tracking the major variables of organizational background, frames on climate change, individual perceptions, and people's willingness to participate in activities addressing climate change. In addition, Chapter II sets out research questions. Chapter III describes methodologies. Chapters IV and V analyze the qualitative and quantitative data following the framework outlined in Chapter II. Chapter VI discusses the research outcomes in Chapters IV and V and their implications of research questions. In addition, this chapter outlines shortcomings of this study and areas for future research.

Chapter II

Background and Preliminary Framework

This thesis primarily examines incentives to encourage people to participate in collective action addressing climate change. In social movement theory, collective action is defined as group behavior through which people pool their resources in organizations to achieve goals that cannot be realized by individual efforts (Knoke 1988). To succeed, social movement organizations should offer appealing frames and activities for their constituents and potential constituents. In this study, these organizations are grassroots environmental organizations, whose goal is to reduce greenhouse gas emission, mitigate its impacts, and promote adaptation to global climate change.

Participation in organizations is a central topic of theoretical analysis of social movements, including the environmental movement. However, few works on the intersection of grassroots environmental organizations and global climate change exist, even though grassroots organizations have drawn critical attention to themselves as actors in the environmental movement. Hence, this thesis primarily examines the efforts of grassroots organizations to address global climate change. Each section of Chapter II reviews a body of literature in building the preliminary framework. This chapter first defines grassroots in the context of the environmental movement and their role in addressing global climate change. It then examines social movement theories and other empirical research regarding movement participation in activities to address climate change. Finally, this chapter builds a preliminary framework of participation based on

these previous studies. It also generates research questions in order to understand the strengths and weakness of their efforts in addressing climate change.

Grassroots in Environmental Movement

The definition of *grassroots* is complex. Its dictionary definition is “the basic level of society or of an organization, especially as viewed from higher or more centralized positions of power”¹. In the environmental movement, however, grassroots means two different types of organizations: mainstream environmental organizations and environmental justice organizations. Although grassroots environmental organizations are primarily environmental justice oriented organizations in the United States, some mainstream organizations such as the Sierra Club and National Audubon Society claim to be grassroots organizations as well. This section examines the social evolution and concept of grassroots within the environmental movement. Defining the concept of grassroots is necessary to examine the framework of participation in activities to address global climate change at the grassroots level.

The Evolution of Grassroots in the Environmental Movement

Broadly speaking, there are two distinct views within the American environmental movement. One is traditional mainstream environmentalism; the other is the grassroots view represented in this study by the environmental justice movement.

The origin of the American environmental movement goes back to the late nineteenth century, when several environmental organizations were established. For example, the Sierra Club, an outdoor recreation and advocacy group, was founded in

¹ Merriam-Webster Online Dictionary (<http://www.m-w.com/>)

1892 by John Muir. The Club calls itself “America’s oldest and largest grassroots environmental organization,”² and is supported by grassroots conservationists in a number of state chapters, local groups and local activists.

The modern environmental movement started in the 1960s in the wake of Rachel Carson’s warnings of the dangers of synthetic pesticides such as DDT in her 1962 book *Silent Spring*. Carson’s book heightened public concern for the living environment. The Environmental Defense Fund (currently Environmental Defense), a science-oriented mainstream environmental organization, was founded in 1967. Environmental Defense added public concern about pollution problems to its mission and grew into a national environmental organization. The first Earth Day 1970 accelerated the trend of increased awareness of the impact of hazardous pollution on the environment. As the environmental movement attracted broader interest, this event clearly revealed the public concern of twenty million participants nationwide. Since the 1970s, national environmental organizations have attracted considerable membership support. In order to play a role at the national level, environmental organizations strongly rely on lobbying tactics, as well as litigation and scientific research. In order to support the staff needed for these tasks, these organizations need funding from passive supporters rather than active grassroots members. Such staff-led environmental organizations are distinct from grassroots.

In view of what was perceived as a hostile political environment during the Reagan administration, mainstream environmental movement leaders came together and created “the Group of Ten”³ becoming a symbol of mainstream environmentalism. These

² The Sierra Club Home Page (<http://www.sierraclub.org/>)

³ National Wildlife Federation, Izaak Walton League, National Audubon Society, Sierra Club, Wilderness Society, Natural Resource Defense Council, Environmental Defense Fund, Environmental Policy Center, Friends of the Earth, and the National Parks and Conservation Association.

organizations, however, continued to fight for turf and embraced scientific solutions to environmental degradation such as cost-benefit analysis, market-based incentives, and risk assessment (Gottlieb 1993).

In the 1980s, mainstream organizations enjoyed solid growth because of Reagan's anti-environmental policies. The introduction of direct-mail also contributed to the recruitment of constituents, helping Sierra Club membership increase from 113,000 in 1970 to 630,000 in 1990 (Bosso 2003).

Meanwhile, the anti-toxic environmental movement developed independently at the grassroots level. In 1980, a resident group in the chemically contaminated Love Canal in New York state, won relocation by negotiation with the federal government, a struggle which helped trigger the establishment of the Superfund Act. The movement against local hazardous problems has been led by grassroots activists, sloganized as NIMBY (not-in-my-backyard)-ism. In general, NIMBY was originally a negative term referring to local residents who attempted to keep unfavorable facilities from being sited in their backyard without understanding the needs of society as a whole (Wolsink 1994). In the environmental context, however, NIMBY is not necessarily a negative principle because it substantially benefits a local environment overloaded by hazardous wastes and emissions (Freudenburg and Steinsapir 1992). Many grassroots environmental activists often embrace this label.

The Warren County case in 1982 opened up a new dimension of the grassroots environmental movement, called environmental justice. In Warren County, North Carolina, 65 percent African-American, residents protested against using the local landfill to dispose of PCB-contaminated soil. Over five hundred people were arrested. The General Accounting Office (1983) and the Commission of Racial Justice of the United

Church of Christ (1987) showed that race to be a significant factor in predicting the location of hazardous waste facilities.

Although the grassroots environmental justice movement originated from NIMBY-ism and environmental racism, environmental justice activists have developed it into a social movement addressing varied social justice problems. The First National People of Color Environmental Leadership Summit in 1991, joined by a variety of social movement organizations (civil rights, community development, church and public health groups), adopted seventeen principles of environmental justice, which set a wide variety of social problems as targets for the environmental justice movement to address .⁴

The Environmental Protection Agency defined environmental justice as “[t]he fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA 1998 p. 7).

Since the 1980s, the grassroots environmental movement has grown dramatically (Taylor 1992). Nevertheless, national mainstream environmental organizations have little commitment to the anti-toxic grassroots movement, which Lowry (1998) attributes to the institutionalization of national organizations, which are expected to exert influence on federal environmental policies for the benefit of their nationwide constituents. In order to ensure the voluntary donations and membership dues on which the national organizations rely, they need to set universal agendas and achieve results at the federal policy level rather than the local level. Meanwhile, such institutionalized mainstream organizations expect members to be financial contributors rather than participants. Indeed, most mainstream members’ participation is limited to paying dues and signing petitions

⁴ Principles of Environmental Justice (<http://www.ejnet.org/ej/principles.html>)

(Shutkin 2000). In addition, mainstream constituents are basically white males with an interest in wilderness conservation (Dowie 1995). In order to secure their fundraising, the mainstream organizations need to meet their constituents' concerns. Hence, the organization does not have a rationale for making a deep commitment to the grassroots environmental justice movement. Not surprisingly, since grassroots leaders often criticize mainstream organizations for compromising positions they take with government and industries, the gulf between them has widened.

The Concept of Grassroots in the Environmental Movement

While environmental justice organizations claim to be grassroots organizations, some national mainstream organizations call themselves grassroots organizations as well, complicating the definition of grassroots in the environmental movement. Batiwala (2002) explores the definition of grassroots. Grassroots originally meant “the basic building block of society—small rural communities or urban neighbors where the common man (or woman) lived” (p. 396). Currently, however, grassroots in social movements is differently defined depending on contexts. For example, the social justice oriented movement stresses people and communities of color, the poor, and the working class, while the more affluent white middle class movement has led grassroots to nature conservation.

Grassroots Environmental Justice Groups

Freudenburg and Steinsapir (1992) identify American grassroots environmental organizations with generally small environmental justice groups consisting of people affected by health hazards. They list their characteristics as follows:

1. Belief in participatory democracy
2. Mistrust of public officials and scientific expertise
3. Emphasis on public health
4. Skepticism of economic growth

These characteristics clearly contrast with the characteristics of national mainstream organizations listed below:

1. Reliance on professional staff and passive participation
2. Stress on lobbying through public officials and pursuit of technological solutions
3. Strong interest in wilderness conservation
4. Emphasis on sustainable economic development

Another important characteristic of environmental justice organizations is the use of community organizing tactics, which allow them to be community-based with horizontal organizational structures. In contrast, institutionalized mainstream organizations with hierarchical structure focus on advocacy and service instead of community organizing (Gottlieb 1993; McCarthy 2004). In addition, grassroots environmentalism is characterized by locality. Although environmental justice organizations can be established at the national level such as the Citizens Clearinghouse for Hazardous Waste (currently the Center for Health, Environment, and Justice), their purpose is to support local communities, a mission which is thus consistently grassroots-based.

Grassroots National Organizations

Some national mainstream organizations such as the Sierra Club have local chapters with considerable influence in policy arenas (Mitchell, Mertig et al. 1992). Their

purpose is to offer opportunities for recreation and activism at the local and state level⁵. Unlike environmental justice organizations, national mainstream organizations address environmental problems primarily at the national policy level rather than at the local community level. Therefore, their local chapters led by active members occasionally confront the internal staff working at the national level within the organizations (Dowie 1995).

Kempton, Holland et al. (2001) defines grassroots as groups that are spontaneously formed by individuals with a particular concern. Since the ad hoc nature of this definition is not applicable to local chapters of mainstream environmental organizations, the authors do not include local chapters in grassroots. However, many environmental justice organizations that have helped communities for a long time are not ad hoc groups, either.

Local chapters of national organizations can be grassroots organizations as well as environmental justice groups. In conclusion, this study defines both types of local organizations, national mainstream chapters and environmental justice groups, as grassroots. This study examines their mechanisms of participation.

Global Climate Change

Global climate change promises to be the major environmental problem of the 21st century. Between 1990 and 2100, the average global surface temperature is estimated to increase from 1.4 to 5.8°C, with subsequent precipitation change, more extreme weather events, and sea level rise (IPCC 2001). This section first looks back over

⁵ Sierra Club Chapters (http://www.sierraclub.org/my_chapter/choose_chapter.asp)

efforts to deal with global climate change, especially with respect to grassroots environmental organizations. It then examines the concept of climate justice.

Response to global climate change

Global climate change began to get people's attention in the late 1980s. In 1988, the United Nations Environmental Program (UNEP) and the World Meteorological Organization (WMO) established the Intergovernmental Panel on Climate Change (IPCC), which reviews the scientific knowledge on global climate change. Since 1992, the United Nations Framework Convention on Climate Change (UNFCCC) has been signed by 189 parties and nine observer states⁶, the IPCC Second Assessment Report in 1995 found that strong political remedies against climate change are necessary. The world finally reached agreement on the reduction of greenhouse gases at the UNFCCC Conference of Parties Third Session (COP3) in Kyoto, Japan 1997. The Kyoto Protocol set the target of greenhouse gas reduction to at least 5% below the 1990 level between 2008 and 2012 among industrialized nations, including those with economies in transition such as former Soviet block nations. The Clinton administration also agreed to reduce greenhouse gas by 7% under the flexible mechanism of emission trading, joint implementation, and the clean development mechanism (CDM).

Nevertheless, the Clinton administration did not propose ratification of the Kyoto Protocol to Congress because the Senate had already passed the Byrd-Hagel resolution, which opposed the treaty on climate change because it would harm the American economy. The Byrd-Hagel resolution was passed by 95 to 0. The following Bush administration finally announced its withdrawal from the Kyoto Protocol in 2001. Non-

⁶ UNFCCC website (http://unfccc.int/parties_and_observers/parties/items/2352.php)

participation of the United States, which contributes a quarter of world carbon dioxide emissions, undermines the validity of the international efforts to reduce greenhouse gases. Scholars attribute the non-participation to the counter-environmental movement (Levy and Egan 1998; McCright and Dunlap 2000). Conservative movements strategically generate a public atmosphere of non-problematicity on climate change through publications, advertisements, and arguments of conservative science experts and the mobilization of grassroots opposing greenhouse gases regulations by claiming risk to economy and job security. In addition, the 1994 Republican takeover of Congress allowed conservatives to gain the access to the policy-making process (McCright and Dunlap 2003). Indeed, such skepticism is much stronger in the U.S. than in Germany, which has positively reduced greenhouse gases (Trumbo 1996; Weingart, Engels et al 2000).

While mainstream environmental organizations contribute considerably to the progress of intergovernmental negotiations through lobbying, informal meetings, and interplay with the media (Betsill and Corell 2001; Carpenter 2001), their efforts have not exerted enough influence on U.S. domestic climate change policy. The Senate defeated the Climate Stewardship Act 2003, called the McCain-Lieberman Bill, and an amendment to the Energy Bill of 2005, which would reduce greenhouse gas emissions through a carbon trading system. In order to break the impasse over climate policy, environmental movements need to strengthen their grassroots efforts to overcome the counter-environmental movement and regain political access to Congress.

Mainstream organizations started grassroots efforts for global climate change policies. For instance, the Sierra Club announced a grassroots public education campaign

on global climate change to mobilize voters at the grassroots level⁷. They have also countered the conservatives' economic risk claims by stressing that transition from fossil fuels to clean energy would yield new jobs and economic benefits⁸.

Grassroots environmental justice organizations have protested disproportionate impacts of environmental hazards on people of color and defined climate change as the same type of injustice. They insist that climate change is more likely to severely impact people of color and the poor in both developed and developing countries and call for climate justice (Summit National Office 2002). This view arises from the vulnerability issue reported by IPCC (1995, 2001), which pointed out that the vulnerability of human health and socioeconomic systems inversely relates to wealth, infrastructure, technological knowledge, and equity. In November 2000, activists of grassroots environmental justice groups convened the Climate Justice Summit in The Hague, Netherlands, where the UNFCCC Conference of Parties 6th Session (COP6) was held, in order to show their concern regarding the unjust impact of climate change (Bullard 2000). In January 2002, twenty-eight grassroots organizations including environmental justice, religious, and indigenous groups established Environmental Justice and Climate Change Initiative (EJCC). The Second National People of Color Environmental Leadership Summit 2002 also selected climate justice as a discussion topic. The resource paper of the Summit (Miller and Sisco 2002) offers ten climate justice principles including protecting people who are vulnerable to climate change, securing their participation in climate policy making, and sharing the burden of transition to a renewable energy economy. Five

⁷ The Sierra Club Foundation website "Bringing Home Global Warming: Sierra Club's Global Warming Grassroots Campaign and Action Plan"
(<http://www.sierraclub.org/foundation/programs/globalwarming.asp>)

⁸ The Apollo Alliance. New Energy for States: Energy-Saving Policies for Governors and Legislators
(http://www.apolloalliance.org/state_and_local/statepolicy_report.cfm)

days after the summit, transnational grassroots organizations held the Climate Justice Forum in Delhi, India, hosting the UNFCCC COP8. Over 1500 activists from across India and twenty other countries adopted the “Delhi Climate Justice Declaration,” which opposes market-based mechanisms and technological solutions⁹.

The Concept of Justice in Global Climate Change

Justice and equity are key concepts for climate policies. Although climate change is attributed more to carbon dioxide emission of industrialized nations, it would more severely affect developing nations in the South and areas vulnerable to climate change in the North. Since the impacts on an area are not proportionate to its responsibility, climate policies need to take into account the distribution of climate impacts (Tol and Downing et al. 2004). In addition, there are a wide variety of justice and equity issues regarding climate change: influence on decision making (Tol and Downing et al. 2004), historical responsibility for emissions, the burden of emission reduction, distribution of adaptive capacity, and threats to non-human species (Adger 2001).

The impact of climate change on communities and regions depends on their differential level of vulnerability, which in turn is determined by their sensitivity and adaptability to climate change. Since disadvantaged people are less equipped to cope with environmental change and have already been stressed by other environmental and socioeconomic factors, they are more likely to experience greater impacts (Kasperson and Kasperson 2001). EJCC¹⁰ stated:

⁹ India Climate Justice Forum “Delhi Climate Justice Declaration”
(<http://www.indiaresource.org/issues/energycc/2003/delhicjdeclare.html>)

¹⁰ Leading Environmental Justice, Climate Justice, Religious and Policy Organizations Unite to Call For Action On Climate Change: Press Conference with Dr. Beverly Wright, Co-Chair of the Environmental Justice Climate Change Initiative (January 28, 2002, New York City)
http://www.dscej.org/news_and_events.htm

[P]eople of color, indigenous peoples, and workers who bear a disproportionate health, social, and economic burden of a society addicted to a fossil fuel economy. As such, they are the first victims of government inaction, corporate abuse, and negligent public policy.

The environmental justice movement has always tried to expand their sphere of concern, originally aiming to extend local environmental problems to a larger scale so as to mobilize more resources from a broader range of potential sources, including national organizations (Čapek 1993). Not surprisingly, the environmental justice agenda included global climate change. Evolving into climate justice, the environmental justice movement allied itself with transnational grassroots groups setting the target for globalization-related issues (Agarwal, Narain et al. 2002; Batiwala 2002; Pettit 2004). However, climate justice is treated differently in environmental justice and anti-globalization movement organizations¹¹. On the one hand, American environmental justice organizations have translated climate justice into domestic inequity issues by insisting that an increase in ozone exposures with higher temperature raises the risk of asthma, from which mortality among African Americans is 2.5 times higher than for whites (Gelobter, Hoerner et al. 2006); although African Americans are less responsible for greenhouse gases emission, they are disproportionately burdened by the effects of climate change (Elliot, Winslow et al. 2004). On the other hand, anti-globalization groups identify global climate change as one of several unjust relations between the North and the South. For example, debts in developing countries and free trade have undermined development efforts there. Climate justice in transnational groups focuses on unjust relations between the North and South (Pettit 2004). Differences between the

¹¹ Some of groups prefer the term “globalization for people” as opposed to globalization for corporations rather than anti-globalization that might inaccurately depict the situation. For example, the National Union of Public and General Employees use globalization for people (http://www.nupge.ca/news_2001/news_no01/n08no01b.htm).

environmental justice and anti-globalization movements clearly arise in attitudes toward the Kyoto Protocol. While environmental justice organizations accepted the protocol as a viable step (Miller and Sisco 2002), anti-globalization groups opposed it because of its flexible mechanism included carbon trading, which allows multi-national industries and industrialized nations to continue unsustainable consumption¹².

Participation in Movements

The central goal of the environmental movement is to influence policy and to change the attitude and behavior of the population so that people can cope with environmental problems. To this end, they need to mobilize resources and organize an effective campaign for change. Among the resources, “Public support is one of the most important resources social movements mobilize in their efforts to overcome cultural inertia and the interests of powerful actors” (Stern, Dietz et al. 1999, 1). Previous research has developed varied models to explain participation in social movements (Klandermans 1984; Klandermans and Oegema 1987; Cohn, Barkan et al. 2003).

Participation

Participants in social movements are not homogeneous. Social movements include both active members and nominal members. Between those extremes are several types of participants: donors who provide funding resources, members who provide voluntary labor, and less active members who participate in only facile activities such as writing letters to elected officials (Barkan 2004). Previous studies have characterized and typified participants. McCarthy and Zald (1977) divide them into potential beneficiaries

¹² India Climate Justice Forum “Delhi Climate Justice Declaration”
(<http://www.indiaresource.org/issues/energycc/2003/delhicjdeclare.html>)

who may become adherents due to their own interest in the movement's goals and conscience constituents who directly support the organization regardless of their interest. Kempton, Holland et al. (2001) distinguish between simply listed members and core members who regularly attend meetings.

These differential participations relate to various factors. Barkan, Cohn et al. (1995) examine the relationship between differential participation and individual and organizational factors to explain the roles of individual ideology, relationship with other participants, and organizational perception. In a study of local environmental organizations, Knoke (1988) links type of incentives and participation level. For instance, constituents motivated by social and recreational incentives are likely to attend meetings, group projects and other internal activities, while those motivated by hopes of influencing policy tend to participate in external activities such as lobbying.

Incentives

In the rational choice framework, motivation to participate in movements is determined by the balance between costs and benefits perceived by potential participants. Olson (1965) pointed out that self-interested individuals make little contribution to the collective good because of the free rider problem. Therefore, selective incentives such as career development opportunities and direct beneficial goods are important for people to participate in a collective action.

However, selective incentives alone are not able to explain some crucial factors determining participation (Muller and Opp 1986). Social movement scholars, therefore, propose a variety of collective incentives in shaping participation forms. Social movement theory assumes that participants are bonded together by a commonly-held

generalized belief (Stallings 1973). Ideological and normative incentives explain moral commitment to the movement, while micro-structural ties with friends in a movement organization provide a solidarity incentive for people to participate. (Jenkins 1983; Barkan, Cohn et al. 1995; Cohn, Barkan et al. 2003).

Collective Action Frame

The collective action frame is central means for social movement organizations to provide incentives to their constituents. The frames highlight and attach meanings to social problems in order to motivate people to participate in collective action. Social movement organizations should therefore strategically manipulate the frame to mobilize people effectively. Such strategic framings determine the effectiveness of the movement (McAdam 1996). In order to understand how grassroots organizations mobilize people effectively, this study examines the functions of collective action frames. Here follows a review of the wide variety of framing functions characterized by social movement scholars.

Collective action frames function through three steps of a process that Benford and Snow (2000) call core tasks. First, *diagnostic frames* highlight the problematic conditions and attribute them to a source. Second, *prognostic frames* propose solutions for the problem for the purpose of mobilizing constituents. Finally, *motivational frames* rationalize a collective action to encourage people to participate.

Collective action frames also use four types of frame alignment functions to link individuals and social movement organizations: *frame bridging* links ideologically congruent but structurally separate frames together; *frame amplification* invigorates certain existing values to involve or activate their constituents; *frame extension* links the

frames with the interests of potential adherents in order to expand the organizational adherents; *frame transformation* refers to change in an old understanding and generates a new frame (Snow, Rochford et al. 1986; Tarrow 1992; Benford and Snow 2000).

Collective action frames can also be classified according to functions. There are a wide variety of frames to explain how social movement organizations provide incentives to individual participants. For instance, collective identity frames connect individual identities to an organization to clarify their social locations and strengthen solidarity among individuals (Ferree 1992; Mueller 1992). Political opportunity, the accessibility to policy making process, can be framed to specify access to political power in order to help constituents understand political movement outcomes (Gamson and Meyer 1996). Furthermore, a master frame is necessary to develop a large movement. Repeated use of the master frame in various sectors and regions generates a larger scale of collective actions (Snow and Benford 1992). The environmental justice frame is recognized as a master frame (Capek 1993; Taylor 2000). This study examines framing functions regarding global climate change according to the theories outlined in this section.

Organizational Backgrounds, Frames, and Selection of Actions

Environmental organizations are as varied as the range of environmental concepts. Kitchell, Kempton et al. (2000) classifies environmental organizations into ten types: (1) radical groups characterized by direct action, (2) civic groups focusing on political action, (3) national groups advocated by staff at the national level, (4) lifestyle groups changing living practices, (5) environmental justice groups, (6) student groups, (7) conservation groups mainly consisting of hunters, (8) fishery groups, (9) wise use groups claiming the right to use resources and (10) scientist groups. Since different types of groups have

different aims, they take varied actions and strategies. Even among the same type of organizations, each has a different culture, ideology, belief, staff experience, and set of values. These organizational backgrounds help to create *organizational frames*, which are distinct organizational interpretations of an occurrence. The frames then influence a selection of a repertoire of action (Carmin and Balser 2002). The resource mobilization perspective considers organizational interests as a critical factor in selecting a specific political stance (Dreiling and Wolf 2001).

Individual Perceptions and Participation

Regarding the relationship between individual perception and participation, Klandermans and Goslinga (1996) point out that participation in collective action is determined by the degree of individual adherence to a collective action frame. They also claim that individual dispositions influence the formation of group beliefs through interaction with other members. This interaction determines the potential of mobilization and participation. Further, Kitchell, Kempton et al. (2000) suggest that group identity is formulated through individual participants' interaction rather than the joining of similarly-minded individuals in the same group.

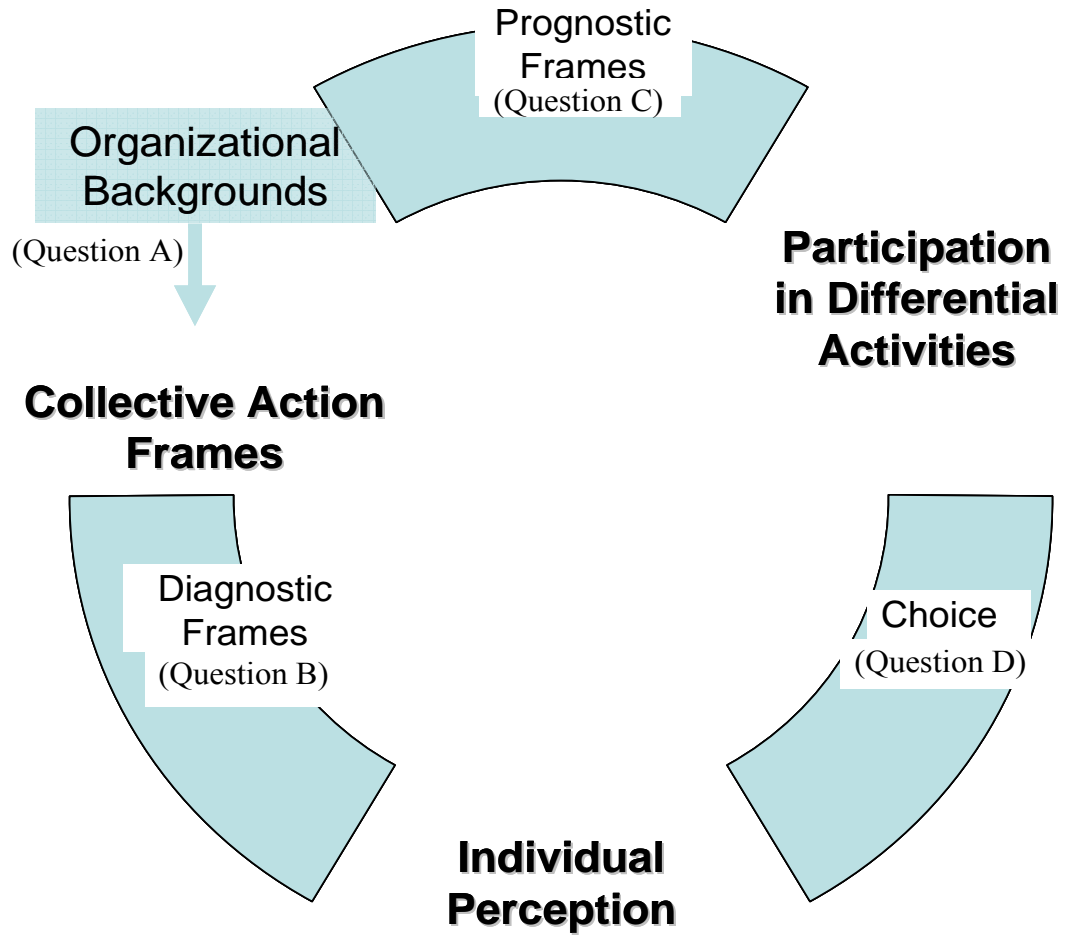
Public opinion scholars focus on the linkage between individual perceptions and behavior. Perception of climate change related risk, such as a decline in living standards, food shortages and tropical diseases also strongly influences the motivation of voluntary actions and voting to address issues of climate change (O'Connor, Bord et al. 1999). Since public concern for global climate change is quite high according to the polling data, citizens are expected to participate in actions. However, lack of knowledge may disturb the linkage between concerns and participation. Since some people confuse climate

change with ozone depletion, they cannot appropriately respond to climate change issues. Indeed, among people with a poor understanding of climate change, the level of concern relates less to their voluntary consumer action to reduce greenhouse gases, such as energy saving, than among knowledgeable people. (Kempton 1993; Bord, Fisher et al. 1997; O'Connor, Bord et al. 1999; Bord, O'Connor et al. 2000).

Research Questions and Framework

With the growing recognition of global climate change as a critical environmental issue, the importance of grassroots efforts has increased because the American federal government has not established strong climate policies to cope with its seriousness. Nevertheless, such grassroots efforts are as ambiguous as the definition of grassroots. In particular, although environmental justice has declared climate justice to be a major problem, environmental movement literature provides little practical guidance to involvement in the climate justice movement. This thesis therefore investigates the current situation in terms of participation in grassroots environmental organization efforts, synthesizing the literature reviewed in this chapter to generate a theoretical framework for examining how grassroots environmental organizations can motivate people to participate in their programs from both the organizations' and constituents' perspectives. In this model (Figure 2.1) three factors are used: (1) organizational backgrounds and collective action frames, (2) individual perceptions, and (3) differential activities in which constituents are willing to participate. The analysis of linkages among them is mainly conducted through comparison of their organizational backgrounds such as types of organizations and collective action frames.

Figure 2. 1: Concept of preliminary participation framework



Research Question A: What frames and activities do grassroots environmental organizations choose in order to address global climate change?

This question refers to the relationship between organizational background and collective action frames on global climate change discussed in the subsection “Organizational Backgrounds, Frames, and Selection of Actions (p. 21)”. Previous research shows that organizational backgrounds greatly influence formation of the frames and the choice of action strategies.

Proposition 1: Organizations with different organizational backgrounds select different frames and activities to address global climate change.

This proposition comes from literature profiled in the subsections “The Evolution of Grassroots in the Environmental Movement (p. 6)” and “Organizational Backgrounds, Frames, and Selection of Actions (p. 22)”. National mainstream organizations have preferred to solve environmental problems by lobbying for policy change since the rise of the modern environmental movement. Although local chapters of national organizations occasionally oppose headquarters, they have generally followed policies handed down from the national level. On the other hand, environmental justice organizations prefer direct action tactics due to their community-based structure and lack of political opportunities to access the policy making process. In addition, their shared values are closely related to social justice issues.

These organizational differences in such aspects as tactical preference and culture influence their frames that interpret the global climate change issues to their constituents. Hence, while the local chapter of mainstream organizations adopt politically oriented frames on climate change formed at the national level,

environmental justice organizations form direct action and social-justice-oriented frames on climate change at the local level. These differences between mainstream and environmental justice should yield differences in attributions, problem focus, and solutions.

Research Question B: How do organizations influence individual perceptions?

This question refers to the relationship between collective action frames and individual constituents discussed in the subsection “Individual Perceptions and Participation (p. 22), focusing on the linkage between the diagnostic function of the frames and individual perceptions and solidarity incentives.

Proposition 2: Collective action frames and individual perceptions reflect shared perspectives on climate change.

This proposition comes from the literature profiled in the subsection “Collective Action Frames (p. 20)”. In a framing process, a movement organization highlights a specific problem, using interpretative diagnostic frames in order to propel constituent participation. Through such a process, individual perceptions align with the organizations’ ideas, both of them eventually sharing consciousness and attribution of climate change.

Proposition 3: Solidarity incentives motivate constituents to participate in activities.

This proposition is also found in the subsection “Incentive (p. 19).” Solidarity incentives can be generated in face-to-face communication with other members and staff. Hence, lack of micro-structural incentives is a typical problem among national mainstream environmental organizations without local chapters that

heavily rely on direct-mail recruitment and staff based activities. In local grassroots organizations, however, face-to-face communications are active, so that the micro-structural relationship is well-constructed. In particular, environmental justice organizations work in communities where face-to-face relations are quite common.

Research Question C: How do organizational collective action frames influence activities in which constituents are willing to participate?

This question refers to the relationship between collective action frames and individual perceptions discussed in the subsection “Collective Action Frames (p. 20). Differences in frames and strategies yield different outcomes, measured by the degree of willingness to participate in activities.

Proposition 4: Organizational prognostic frames will influence the types of activities in which constituents are willing to participate.

This proposition comes from the subsection “Collective Action Frames (p. 20).” Since prognostic frames offer solutions to problems, they should significantly determine willingness to participate. Mainstream organization constituents pursuing political solutions for environmental problems are more likely to be willing to participate in political activities because the mainstream prognostic frames offer political solutions. On the other hand, since environmental justice organizations that have pursued more direct action tactics than political ones may offer direct actions through their prognostic frames, their constituents may be more likely to be willing to participate in direct campaign activities.

Research Question D: What individual perception encourages constituents to participate in activities?

This question refers to the relationship between individual perceptions and willingness to participate in differential activities discussed in the section “Participation (p. 18)”. The influence of individual perception on willingness to participate may compete with Proposition 4 in terms of the prognostic function of collective action frames offered by organizations.

Proposition 5: Constituents’ individual perception influenced by organizational frames determines activities in which they are willing to participate.

This proposition mainly comes from literature in the subsections “Collective Action Frames (p. 20)” and “Individual Perception and Participation (p. 22).” Since mainstream organizations attribute climate change to policy makers, their constituents also perceive climate change to be a political problem. Constituents who have the political perception would thus be willing to participate in political activities offered by a mainstream prognostic frame. On the other hand, since environmental justice organizations have organized communities and protested hazardous facilities affecting communities’ residents and constituents, they would be more motivated by risk concerns rather than by political recognition.

Proposition 6: Constituents who are more familiar with global climate change are more likely to be willing to participate in political activities.

This proposition comes from the literature profiled in the subsection “Individual Perceptions and Participation (p. 22).” Scholars assert that participation in political actions requires an accurate understanding of global climate change. Constituents of politically oriented mainstream organizations should therefore be familiar with

climate change because considerable knowledge is required to understand complex climate policies involving a shift to a renewable energy society. On the other hand, community-based environmental justice organizations will stress concerns about local climate change impacts rather than causes of climate change. Such local concerns may require less knowledge of climate change science on the part of their communities' residents.

Chapter III

Methodology

This chapter describes the constructs and methodology employed in this thesis. The study investigates the relationships among factors of organizational background, individual perception, and type of activities based on the preliminary model constructed in Chapter II. Those relationships are also comparatively examined in the context of different frame types. The first section lists constructs and explains their measurements.

Constructs

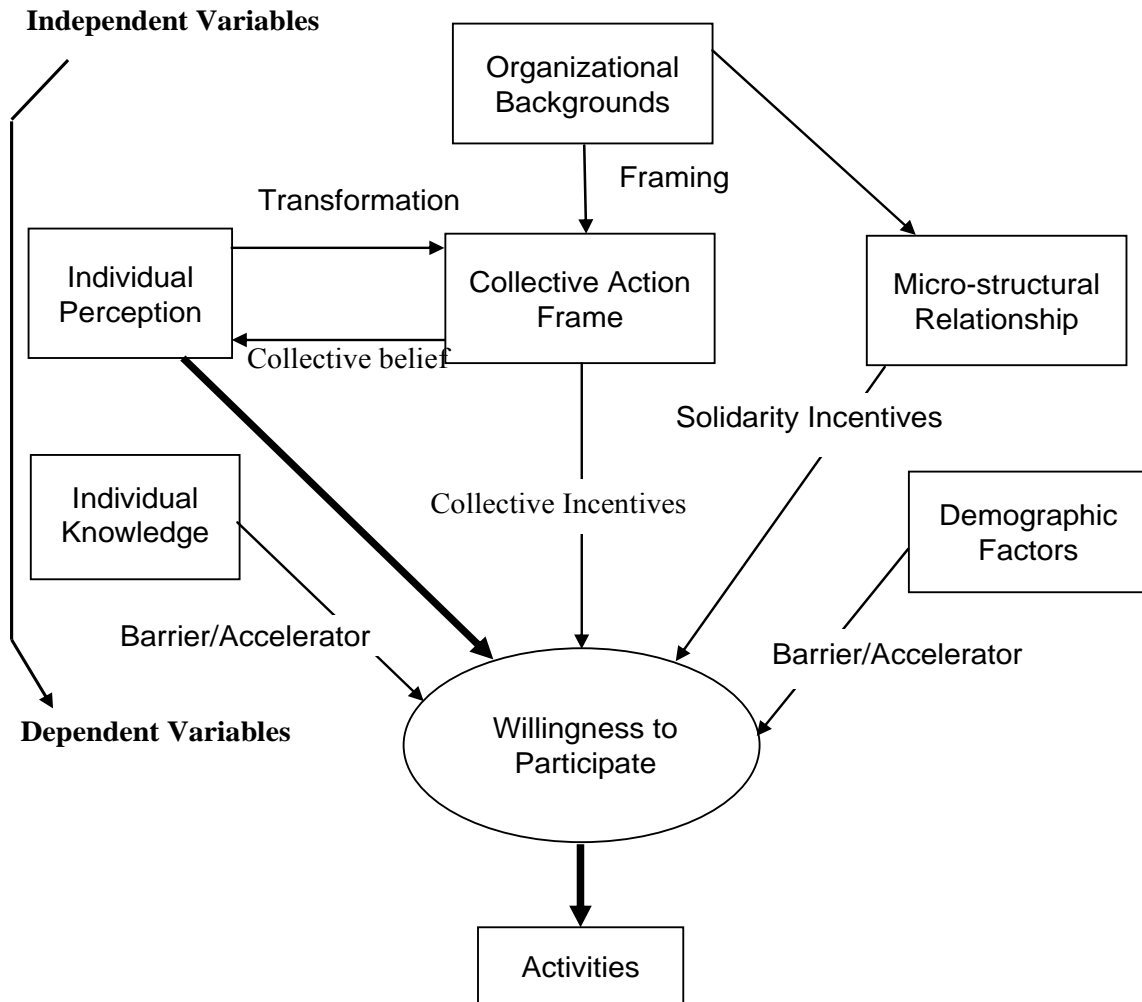
First, key constructs are identified in terms of the literature in Chapter II, and a preliminary framework established for movement (Figure 3.1). For clarity, the constructs are divided into independent and dependent variables.

Independent Variables

1) Organizational background:

Organizational background would influence participation through forming collective action frames, as described in Proposition 1 (p. 25). This data is qualitative; the background information includes history, mission, organizational structure, and demographic information, obtained using qualitative methods such as interviews, document analysis, and participant observation.

Figure 3. 1: Chart of preliminary framework of movement participation



2) Collective action frames

Collective action frames would shape collective incentives to induce participation in the movement as described in Proposition 2 (p. 26). The qualitative data were collected through staff interviews and document analysis. Since this study focuses on diagnostic and prognostic functions of the frames, the interviewer posed the following questions: How do they explain global climate change to their constituents?; What problem do they highlight?; What is the largest cause of global climate change?; How do they address the problem of climate change?; What can their constituents do in order to address climate change? The study also tries to elucidate the relationship between the frames and organizational backgrounds.

3) Micro-structural relationships

Micro-structural relationships, such as friendships with other members and staff, would generate solidarity incentives to participate in an organization as described in the Proposition 3 (p. 26). In order to examine the solidarity incentives, the study collects qualitative data on opportunities for nurturing friendships with other members through interviews and document analysis.

4) Individual perception

This data is quantitative. The survey (Appendix A and B) collects data on a wide variety of individual perceptions, consisting of six sub-constructs.

4-1) Concern about global climate change and other environmental problems

The first survey question gathers data on concern about climate change. To understand the extent of respondents' climate change concerns, they rate their level of concern not only about global climate change but also their level

of concern with twelve other environmental problems such as air pollution and natural habitat destruction. This was done using a five-point Likert scale (from “not at all” to “a great deal”) which allows identification of salient global climate change concerns among other environmental problems. The question refers to a Gallup Poll (Newport and Saad 2001).

4-2) Concerns about the effects of global climate change

The survey respondents rate their level of concern regarding six effects of climate change on a five-point scale. These effects were selected from articles related to global climate change so as to cover broader aspects of the problem.

4-3) Experiences about the global climate change impacts

The survey asks respondents to rate the extent to which they are affected by climate change in order to assess their experience of climate change impacts. They rate the contents of sub-construct (3-2) on a five-point scale (from “not at all” to “severely”).

4-4) Perceptions about causes and attributions of global climate change

The survey has respondents rank possible cause and attribution, covering six items so as to clarify their assessment. The research elaborates on these items in order to cover wider aspects of causes, from government and industries to individuals.

4-5) Dissatisfaction with global climate change

The survey collects data on respondents’ dissatisfaction with various dimensions of global climate change problems. The survey respondents rank

their dissatisfaction with five items that are possible contributors to climate change or its effects.

4-6) Beliefs in the relationship between catastrophic Hurricanes Katrina and Rita and global climate change

The survey respondents rate the strength of their beliefs regarding climate change as a cause of two devastating hurricanes on a five-point scale. Scientific research, including the IPCC Assessment Report, predicts an increase in extreme weather events due to global climate change.

5) Knowledge of global climate change

The survey respondents rate familiarity with facts about global climate change on a five-point scale. The items detail various facts and arguments regarding climate change such as causes, effects, and policies.

6) Incentives to join the group

The survey collects data on reasons why respondents join their groups to measure the strength of various types of incentives. Micro-structural solidarity is identified as well. The study assumes that persons recruited through micro-structural relationships such as families, friends, and neighbors are more likely to be influenced by solidarity incentives, as are those who expect to make new friends. In addition, qualitative analysis of organizational backgrounds helps to determine if organizations provide opportunities for solidarity.

7) Personal resources and demographic factors

The survey collects demographic data on each respondent: age, gender, income, employment status, race, and education level.

Dependent Variables

1) Willingness to Participation in activities

Public participation is the most critical factor for social movements. It is primarily determined by the degree to which organizations capture the interests of constituents as described in the section “Participation in Movements (p. 18).” This research therefore aims to assess constituents’ participation in activities in order to examine the effect of organizational framing strategies in mobilizing constituents to take actions to address climate change. Grassroots mobilization to address climate change, however, is still uncommon. This research thus examines willingness to participate in activities as dependent variables instead of as a direct assessment of participation because willingness to participate is highly correlated with behavioral participation (Ajzen and Fishbein 1974). To this end, the survey queries two questions about interest in differential activities and willingness to participate.

1-1) Interests in differential activities

The question on respondents’ interests asks for a ranking of seven activities addressing global climate change in which they would be willing to participate in. The items in the questions cover three types of collective actions: lobbying, campaigning, and educating people to understand what they can do. The targets of these activities are governments that can establish effective policies against climate change, industries emitting large amounts of greenhouse gases, and people themselves. Furthermore, purposes of lobbying fall into two types of climate policies: mitigation, which tries to reduce greenhouse gas emissions, and adaptation, which prepares for adverse effects of

climate change. The outcome would be more attitudinal than that of willingness to participate.

1-2) Willingness to participate in differential activities

In the questions about willingness to participate, they rate eleven items on a five-point scale. These items cover more detailed activities than those for the question about interests. Lobbying for adaptation policies falls into lobbying for hurricane preparation and that for coastal protection from a rise in sea level. Targets of campaign against fossil fuel combusting industries are also divided into refineries and power plants. Campaign for fuel efficient cars and lobbying for more research are also added to the items.

Methodological Rationales

Exploratory Research

This study is largely exploratory, aiming to elicit a wide variety of views using a loosely-structured method in order to design more detailed research (Pinsonneault and Kraemer 1993). To this end, wide varieties of constructs are adopted based on articles related not only to theoretical studies of social movements but also to empirical political science studies.

Multiple Method

This research employs a synthesis of qualitative and quantitative methods, a useful combination if a researcher intends to offset the disadvantage of each one (Klandermans, Staggenborg et al. 2002). Although a survey method elucidates individual attitudes, it does not work well in describing organizations (Klandermans and Smith

2002). Since this study needs to examine both individual and organizational factors, the multiple-method approach is better than any one single approach if we use to understand the movements in depth.

Convenience Sampling

This study employs a non-probabilistic convenience sampling, drawing on easily accessible respondents. Since this sampling method may be biased toward representativeness of the target population, the research would have difficulty drawing statistical inferences from the survey results. Non-probabilistic samples, however, can be rationalized in cases where target population is difficult to find, where the target population is specific and limitedly available, and where the research is an exploratory study (Kitchenham and Pfleeger 2002).

Identifying the population of interviewee organizations for this research is difficult because there appears to be no previous research on grassroots environmental justice organizations addressing global climate change. The study, therefore, selected interviewees from members of the Environmental Justice and Climate Change Initiative (EJCC), which may be the only network organization of environmental justice organizations addressing climate change issues. As only 27 organizations including religious, advocacy and labor groups are listed as EJCC members¹³, the number of environmental justice organizations addressing climate change is quite limited. Furthermore, the survey population was also difficult to identify because targeted organizations did not provide or even have member lists. The researcher therefore

¹³ The website of the Environmental Justice and Climate Change Initiative (<http://www.ejcc.org/affiliations.html>) listed 27 organizations. Of them, 11 organizations have names containing environment-related key words such as environment, environmental, eco, pollution, and toxics.

surveyed people attending meetings or distributed the survey to residents in communities for which the organizations work regardless of their membership status in targeted organizations. This research thus meets criteria justifying the use of convenience samples.

Research Procedure

This section describes the qualitative and quantitative research procedures used in this study. The study uses qualitative methods to collect data on organizational factors. Three constructs in the framework model set forth in Chapter II are analyzed based on interviews and document analysis: organizational backgrounds (Independent variable 1, p. 30), collective action frames (Independent variable 2, p. 32), and micro-structural relationships (Independent variable 3, p. 32). In addition, the study conducted a survey to collect data on individual constituents' perceptions in terms of concern, attribution and knowledge, as described in the subsection "Independent Variables 4-6 (pp. 32-34)" The survey also examines willingness to participate in differential activities described in the subsection "Dependent Variables (p. 35)."

Interview

To account for organizational factors, staff of relevant institutions were surveyed using a semi-structured interview method in which the interviewer flexibly asks questions following an interview guide (Appendix C). Semi-structured interviews are useful for loosely-organized social movement organizations (Blee and Taylor 2002). In addition, interviews were preceded by an investigation of documents regarding the interviewees' organizations in order to formulate more in-depth questions. The interviews were recorded with the interviewees' permission. Afterwards, the interviewer transcribed the

recorded interviews for analysis. Though the interviewer tried to meet interviewees face-to-face, in some cases it was necessary to pose the questions by phone or email.

Document Analysis

Document analysis was used not only to prepare for interviews but also for supplemental data on the organizations. Information on the organizations was obtained through a range of documents, including those on websites and reports published by relevant organizations. Form 990s¹⁴ submitted to the Internal Revenue Service by the organizations, were also used if available. The Guide Star database on charitable organizations provides information based on F-990, including revenues and expenditures, mission statements, information on chief executives and board members, program descriptions, and achievements.

Survey Research

This study also surveyed individual perceptions of constituents to examine the effect of organizational factors. The survey questionnaire “Environmental Grassroots Groups and Global Climate Change” (Appendix A) follows the theoretical preliminary framework model in Chapter II. Most questions were formulated for this study; some were drawn from past surveys. The questions request two kinds of measurement: rating or ranking. Since people prefer rating rather than ranking, rating questions tend to lead to more valid answers. On the other hand, ranking is time consuming and people are more likely to answer in the wrong way. In fact, 31 responses to Question 5 were invalid.

¹⁴ Form for tax exempt organizations. It shows information on finance of nonprofit sectors with more than \$25,000 in annual gross receipts. NCCS (the National Center for Charitable Statistics) retrieves these data. The Guide Star also provides them on their website (<http://www.guidestar.org/>).

Nevertheless, ranking questions often yield higher-quality data than ratings, particularly in terms of discriminant validity (Krosnick 1999).

Interview Procedures

This study first selected grassroots environmental organizations for staff interviews. The targeted organizations were selected from two types of grassroots organizations, local environmental justice organizations and a local chapter of a national mainstream organization, for the sake of comparison. However, since environmental justice organizations involved with global climate change are quite limited, this research selected interviewee organizations from members of the Environmental Justice and Climate Change Initiative (EJCC). The study emailed requests for interviews to EJCC grassroots environmental organizations, two of which agreed to participate in the study: Communities for a Better Environment (CBE), Northern California office, and the Deep South Center for Environmental Justice (DSCEJ) in Louisiana. The study also had the consent of Redefining Progress (RP), a host and fiscal sponsor of EJCC and Greenaction for Health and Environmental Justice (Greenaction), which works for climate justice with CBE in San Francisco, California. The Oregon-based Green House Network (GHN) also agreed to participate. GHN employs mainstream methods such as education and advocacy programs on renewable energy nationwide in order to address climate change at the grassroots level rather than using environmental justice strategies. Consent was also given by a local Michigan chapter of the national mainstream organization the Sierra Club, the Huron Valley Group (HVG).

In summary, interviews were conducted from July 2005 to July 2006 with staff from these six organizations: the director of EJCC of RP; the Northern California office

program director of CBE; the community organizer of the Greenaction; the executive director of GHN, the program manager for community outreach of DSCEJ, and the chair of HVG.

Procedure of Survey Sampling

The study also surveyed individual perceptions of constituents in the interviewees' organizations to assess the effect of organizational factors on the constituents. The survey was carried out from March 2006 to July 2006, the researcher basically distributing the questionnaires at meetings and at a rally. The responses were sent back by postal mail or collected immediately.

The researcher visited public program meetings of HVG on March 15th and April 19th. HVG has guidelines for outsider surveys, so that the researcher was allowed to distribute the survey questionnaires only to members who came to me voluntarily to participate in the survey. About forty to fifty people attended each meeting, and a total of fifty survey questionnaires were distributed with return envelopes.

The researcher conducted surveys in the San Francisco Bay area on April 12th with environmental justice organizations such as CBE and Greenaction, visiting a rally that targeted a Pacific Gas and Electricity (PG&E) power plant emitting harmful substances and greenhouse gases at Hunters Point, San Francisco. I distributed fifty surveys with return envelopes to the participants. Most of the 60 rally participants were activists from environmental justice organizations in the Bay area rather than residents of communities near the plant. The researcher also distributed a hundred-fifty surveys to residents of communities near Hunters Point power plant and near Richmond oil refineries, the site of CBE protests. The researcher took the surveys at churches,

apartment houses and a football ground. Since most people in this area are Spanish, the researcher had the survey questionnaires translated into Spanish (Appendix B). However, the response rate from these communities was low, as described in the following “Respondents” sub-section.

Finally, the researcher visited East New Orleans area on July 15th and distributed surveys at a DSCEJ event and at the community meeting of the Lake Bullard Home Owners Association. DSCEJ has been promoting its “A Safe Way Back Home” campaign in Lake Bullard with the aim of restoring communities whose backyards were chemically contaminated by flood water during Hurricanes Katrina and Rita. The Lake Bullard community is participating in this campaign. The researcher distributed ten surveys at the DSCEJ event and forty surveys at the Lake Bullard community meeting (about fifty attendees at each event), collecting responses as people were leaving.

In addition, the researcher conducted an online survey¹⁵ to constituents when neither meetings nor a specific community was available. Two organizations were asked question, Redefining Progress (RP) and the Greenhouse Network (GHN). Both were sent recruitment e-mails and were also asked to instruct their constituents and allied organizations to fill out the on-line survey.

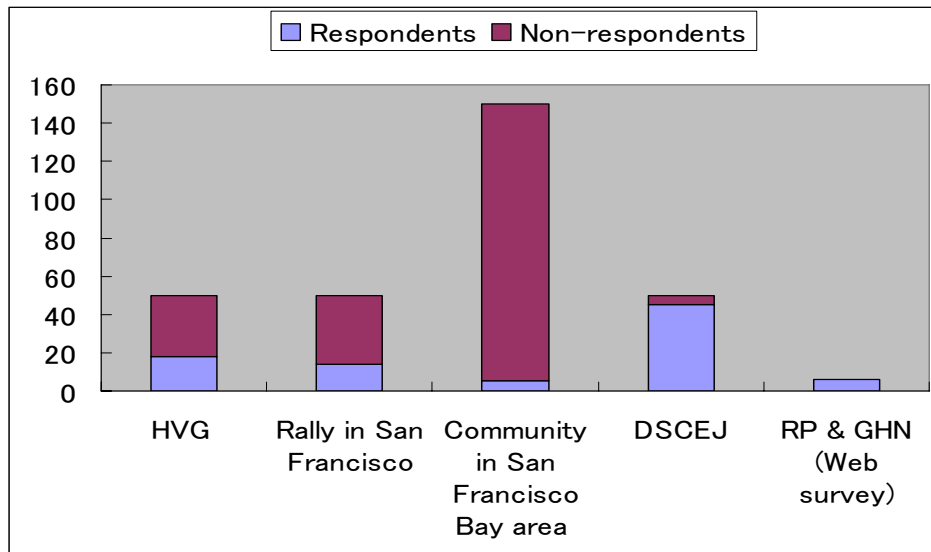
Survey Respondents

The study distributed a total of 300 surveys in three areas: Michigan, California, and Louisiana, of which 82 surveys were returned (27%). The web survey yielded six responses. In sum, the survey obtained total 88 responses. However, the response rate

¹⁵ The study used a commercial online survey site “Survey Monkey. Com” (<http://www.surveymonkey.com/>). The study create the web pages for the survey so that respondents can answer the questionnaires through the Internet.

varied a great deal (a standard deviation of 36 points) depending on collection option and type of constituents. Of the surveys collected by postal mail, the response rate of the HVG respondents was 36%; that of the environmental justice constituents in San Francisco Bay Area was 28%. However, even within the same collection option, there is a large gap in response rates between active rally participant and residents in communities (Figure 3.2). Indeed, only 3.3% of residents in the two communities in this area responded, possibly causing non-response bias. On the other hand, in the case of DSCEJ, the researcher distributed surveys in meetings and collected them then and there. Although such a collection method could obtain a high response rate, it placed a disproportionate weight on a specific community.

Figure 3. 2: Survey respondents and non-respondents



Chapter IV

Qualitative Research Results

This chapter presents the qualitative data on organizational background primarily collected by interviews. The study will combine these results with the survey data on individual constituent perceptions presented in Chapter V in order to analyze the mechanisms of movement participation, with reference to the preliminary framework modeled in Chapter II.

Qualitative Data on Organizational Factors

This qualitative data on the grassroots organizations presented here was gathered in staff interviews and supplemented by web documents, publications, and Form 990s. The interviewer posed four general questions about (1) organizational factors related to institutional background, (2) collective action frames on climate change (3) activities implemented to address climate change, and (4) opportunities for micro-structural relationships. The first question on organizational background covers demographic information, organizational history, mission, and orientation which influence issue framing and actions. The second question asks about activities offered by the organizations for constituents to participate in. The third question aims to reveal collective action frames regarding climate change. The fourth question examines opportunities for micro-structural relationships offered to constituents.

1. Backgrounds

The Huron Valley Group of the Sierra Club (HVG)

HVG consists of Sierra Club members living in the Huron River watershed, mainly in Washtenaw, Lenawee, and Monroe counties in Michigan. It is one of the fourteen local groups making up the Mackinac Chapter, which covers all of Michigan. HVG is the smallest unit of the Sierra Club, a national mainstream environmental organization. Although HVG has some autonomy, the group mostly follows the direction of the national organization. Its mission is exactly the same as that of the national Sierra Club¹⁶. In terms of autonomy, the group can take independent positions on local issues as long as they adhere to policies at the state and national levels.

Communities for a Better Environment (CBE)

CBE was founded in 1978 by people concerned about public health and pollution problems in the urban areas of California. Its mission is promotion of participatory democracy, the improvement of public health, and the opposition to economic profit as a priority. These correspond to the characteristics of grassroots environmental justice organizations listed by Freudenburg and Steinsapir (1992) and profiled in Chapter II. CBE employs relatively moderate environmental justice tactics, an “integrated program approach” in which three tactics, litigation, technology, and community organizing, are utilized in combination to effectively challenge polluting facilities. Their Northern California office works for people in

¹⁶ To explore, enjoy and protect the wild places of the Earth; to practice and promote the responsible use of the Earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

the community of Richmond, which is close to many large oil refineries. CBE is a member of EJCC.

The Greenaction for Health and Environmental Justice (Greenaction)

Greenaction was founded in 1997 by a former staff organizer of the international environmental organization Greenpeace in order to take over its environmental justice programs because Greenpeace had then decided to withdraw from the community organizing tactics of the environmental justice. Greenaction's mission helps communities in the U.S. and abroad by organizing, informing, and taking action for them. Greenaction adopts relatively radical non-violent direct action tactics in the same way as Greenpeace. As a community-based organization, the Greenaction expects communities to pursue their own initiatives rather than just follow its direction.

The Deep South Center for Environmental Justice (DSCEJ)

The DSCEJ, founded in 1992, has developed a collaborative relationship between communities and universities in the Gulf Coast area, including New Orleans, in order to promote two-way opportunities for research, education, and the right to environmental equality. To this end, DSCEJ holds a wide variety of workshops to inform people of communities about organizing skills and environmental policies. A major goal of the Center is to develop minority leadership on the front line to address environmental, social, and economic justice. Thus, DSCEJ plays a supporting role rather than engaging in direct action. DSCEJ's main focus recently has been on the destruction caused by Hurricane Katrina. DSCEJ is a member of EJCC and its director is EJCC Co-Chair.

Redefining Progress (RP)

RP was founded in 1994 as a non-partisan social, sustainable environmental justice organization, specializing in research on economics and public policy. It hosts EJCC, a coalition of twenty-eight organizations from a variety of backgrounds. RP acts as a facilitator for EJCC member organizations.

Green House Network (GHN)

GHN was founded in 1999 by a college professor who was concerned about the lack of grassroots pressure for adaptation of the Kyoto Protocol. GHN started in order to provide opportunities to those who were interested in addressing climate change but had no idea what to do. GHN provides training on climate change so as to foster grassroots leadership to advocate society's use of clean energy. Its training program is modeled after the Highlander Education and Research Center in Tennessee, where many famous civil rights activists were trained.

2. Activities related to global climate change

HVG

As a local group of the Sierra Club, HVG generally supports the organization's programs, for example, printing articles on climate change in its newsletter for national public education campaigns and encouraging members to contact elected officials through announcements at meetings, thus facilitating national lobbying efforts. HVG has also presented lectures on climate change at its meetings. Unlike the national Sierra Club, HVG has only limited opportunities to address global climate change due to their locality and restricted resources. As a result, HVG is less committed to the climate change issue than to urban sprawl, to

which the group gives priority. The HVG claims that it can indirectly contribute to mitigating climate change through conservation efforts such as replacement of ten thousand diseased ash trees being cut down that had been carbon sinks.

CBE

CBE claims that it addresses global climate change by challenging oil refineries to reduce their emissions, and expects that its major efforts against refineries will indirectly mitigate climate change as well as remedy public health problems. It, however, has few activities directly addressing climate change due to its limited capacity and resources. CBE thus works with other groups such as RP in order to address climate change. Using information provided by RP, CBE educates active core members in their environmental justice workshops about global climate change, CBE expecting that these trainees will in turn tell their families, friends, and neighbors about the issues covered.

Greenaction

As in CBE, Greenaction addresses climate change by challenging power plants. A community organizer claims that if the communities successfully shut down the power plants, they can mitigate not only local air pollution but also global climate change. One of their major goals is to shut down the Hunters Point power plant in San Francisco, which has been in operation for over seventy years. Due to civil protest and its decrepit nature, Pacific Gas and Energy has announced plans to shut the plant down, but has repeatedly postponed doing so. Greenaction keeps people in communities informed and holds rallies to protest against the power plant with other environmental justice organizations.

DSCEJ

Although DSCEJ accepts student interns from the EJCC leadership training program, it has no program of its own with which to mobilize community residents for global climate change activities. It should be noted that after Katrina's landfall, DSCEJ concentrated its efforts on helping victims put its lives back together.

RP

Although RP does not work directly for communities, it supports other EJCC organizations working in communities to address climate change. RP has published research reports on climate policy and climate justice, and offers an educational curriculum on climate change. In addition, RP offers lobbying opportunities for environmental justice organizations.

GHN

In order to train advocates for climate change, GHN holds workshops on climate policies, clean energy, public speaking, and community organizing. Its National Volunteer Speakers Network, consisting of over two hundred fifty trainees and other knowledgeable volunteer speakers, raises awareness of climate change at the grassroots level across the U.S. Furthermore, in 2006, GHN started its "Focus the Nation" program in order to create an educational initiative at colleges and universities.

3. Framing on global climate change

HVG

HVG offers a wide variety of collective action frames relating to politics, personal behavior and wildlife. First, their diagnostic frame attributes global climate

change to a political problem, particularly the Bush administration's fossil fuel-dependent energy policy. Their prognostic frame, then, offers a political solution based on pressuring elected officials through lobbying, letter writing, and voting.

The second diagnostic frame attributes climate change to a mass energy consumption society. In order to address the problem, the Chair states, "The members of HVG need to change personal behavior regarding things like car usage and energy consumption." Its prognostic frame therefore deals with this mass consumption issue by working to change public perception and behavior through education. To this end, HVG stresses the importance of participating in meetings and reading newsletters.

The third frame highlights effects of global climate change. The chair responded that the most serious problem related to climate change is "ecological changes that affect where and whether species live." Conversely, nature conservation such as ash tree replacement mitigates climate change. This diagnosis reflects the traditional preservationist principles of the Sierra Club and the interests of their typical constituents, outdoor enthusiasts.

CBE

CBE's diagnostic frames attribute climate change to carbon dioxide emissions from refineries, which their prognostic frame seeks to reduce. Since its major efforts also aim to reduce refineries' emissions affecting public health in disadvantaged communities, the climate change issue frame lends an additional rationale to its major efforts.

CBE also emphasizes the problem of oil dependency. As long as society consumes huge amounts of oil, refineries will be needed. The more people drive, the

greater the amount of carbon dioxide and other harmful gases are emitted unless great technological breakthroughs are achieved. These emissions and climate change directly and indirectly impact the disadvantaged. The prognostic frame for the oil dependency problem calls for a shift to a clean energy society.

These frames present a broader perspective to the core members, showing them that they help not only to mitigate local air pollution but also to address global problems. The program director remarked, “We work against refineries at the local level. However, in order to make a big impact, we have to connect the local impacts of refineries and individual car usage with global climate change affecting the world.”

CBE also expects the broader perspective to attract allied organizations and supporters. This process can be explained by the function of frame extension, whereby target issues are depicted more inclusively so as to link with the concerns of potential adherents (Snow, Rochford et al. 1986; Benford and Snow 2000; in reference to subsection “Collective Action Frame,” p. 20). This function supports alliances with social movement organizations (Davies 1999). Indeed, CBE’s networks with other grassroots environmental organizations are quite active and extensive. For instance, other group members of the network give speeches at CBE’s training workshops. This frame extension effect and dense networks bore fruit in 2001 when voters in San Francisco approved an advanced alternative energy plan which funded solar and wind energy development.

Greenaction

Greenaction, working in a community near the Hunters Point power plant, adopts similar frames to those of CBE. Their diagnostic frame attributes climate

change to harmful emissions including greenhouse gases from the power plant, and its prognosis frame aims to shut the power plant down so as to stop the emissions.

For people in the community without a science background, however, the scientific explanations on the causation of climate change are often hard to understand. The community organizer, therefore, stresses the effects of climate change rather than the causes in order to raise community awareness and concern. Greenaction tries to link climate change to many abnormal weather events: record-high rainfall in San Francisco, abnormal sea currents and cold weather. The community organizer said, “We connect climate change with even earthquake. That is, we talk about having more earthquakes (that are actually not related to climate change). A lot of people do not understand if we talk about climate science. It’s important to convince people that something is getting worse due to the power plant.” Regardless of whether misinformation or not, increasing individual risk perception on climate change can raise their concern about it (Bord, Fisher et al. 1997).

DSCEJ

The program manager for community outreach at DSCEJ told the interviewer that they have “never told community residents about global climate change.” DSCEJ has no frames on climate change by itself; it has only the climate justice principles of EJCC, which calls for protecting people in vulnerable communities from global climate change. The EJCC’s ten climate justice principles (Miller and Sisco 2002) comprehensively diagnose global climate change from a social justice perspective and therefore require just climate policies. They have diagnosed the following causes and problems: anthropogenic CO₂ concentration in

the atmosphere, disproportionate impacts on people of color and the disadvantaged in vulnerable communities, spatial inconsistency between attribution and damage of climate change, mass fossil fuel production and consumption, distrust of climate policy making and the carbon market, and responsibility to future generations.

In order to remedy these problems, they also advocate just climate policies for the U.S. federal government: (1) to cut CO₂ emissions; (2) build adaptive capacities in vulnerable communities, (3) avoid a disproportionate burden of transition to renewable energy, (4) ensure marginalized communities' participation in policy making, (5) frame global solutions, (6) take leadership regarding international climate change mitigation efforts, (7) stop exploring for fossil fuels, (8) establish reliable monitoring system of carbon markets, (9) adapt the precautionary principle, and (10) protect future generations. EJCC also stated environmental justice and other social justice groups were in solidarity in order to realize climate justice¹⁷. Although these principles are potential climate justice frames for mobilizing people, they are too general to be practical. Strategic elaboration of these frames may be necessary to make them practical.

RP

As a research organization, RP does not commit to community organizing, and therefore lacks its own organizational frames for mobilizing community residents to act collectively in addressing climate change. Like the DSCEJ, RP shares the climate change principles with other EJCC members. In addition, they theoretically support the climate justice principles through their research, for

¹⁷ Leading Environmental Justice, Climate Justice, Religious and Policy Organizations Unite to Call For Action On Climate Change: Press Conference with Dr. Beverly Wright, Co-Chair of the Environmental Justice Climate Change Initiative (January 28, 2002, New York, http://www.dscej.org/news_and_events.htm)

example, establishing how African-Americans will be disproportionately affected by global climate change.

GHN

The executive director insists, “Although our society should shift from fossil fuel to clean energy to stop climate change, U.S. policy makers lack the will to address this most important issue.” That is, the diagnostic frame identifies climate change as a largely political problem. Its prognostic frame, then, is to pressure the government to create a clean energy policy. Although GHN works to increase the awareness of climate change and clean energy through its programs, it does not offer concrete political remedies due to its capacity and resources; its mission is limited to informing and educating people.

4. Micro-structural opportunities

HVG

While national Sierra Club recruits members by direct-mail without micro-structural ties, a local chapter (Proposition 3, p. 26) HVG makes a point of offering opportunities to make friends and foster solidarity through meetings, outings, and volunteering.

CBE

CBE recruits people affected by pollution through church and door-to-door visits. Since some of their neighbors and family members have suffered from asthma and cancer, these people are strongly concerned about the link between pollution and health problems in their neighborhood. In addition, people invited to a CBE

campaign meeting may have an opportunity to foster solidarity with neighbors. CBE also provides meals to the participants.

Greenaction

The mission of Greenaction is to help communities through providing information, community organizing, and direct action. Community organizing may help people strengthen relationships among neighbors.

DSCEJ

DSCEJ offers workshops, meetings, and community events, all of which are good opportunities for fostering solidarity.

RP

Since RP does not directly commit to communities, it has no program fostering solidarity among people.

GHN

GHN's workshops offer good opportunities to network with people concerned about climate change. Indeed, the participants occasionally hold reunion meetings.

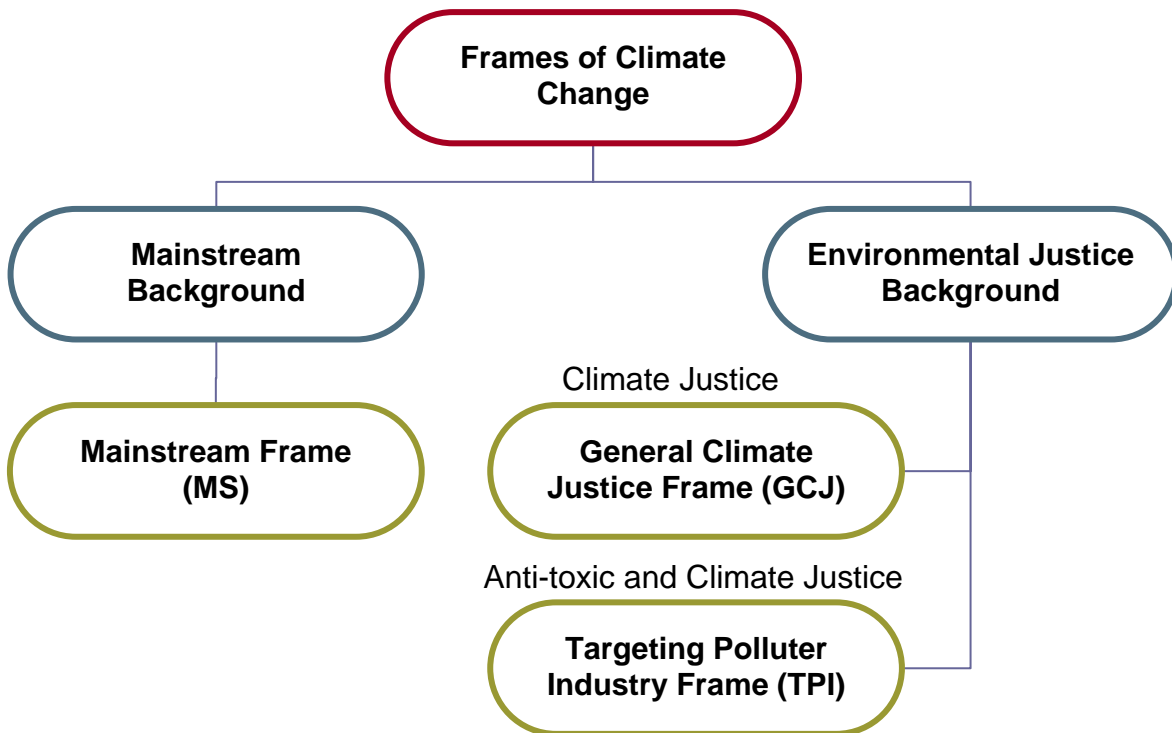
Classification

In sum, the study can distinguish organizations according to their background and collective action frames. Backgrounds of grassroots environmental organizations break down into two types, mainstream and environmental justice, both of which influence collective action frames that interpret the global climate change for constituents. Collective action frames on global climate change in this study fall into three types. While mainstream organizations use the mainstream frame (MS), environmental justice

organizations adopt the general climate justice frame (GCJ) advocating climate justice directly and the targeting polluter industry frame (TPI) addressing climate justice to support anti-toxic movements (Figure 4.1).

HVG and GHN primarily attribute climate change to political problems via politically-oriented MS frames. Environmental justice organizations of EJCC such as DSCEJ and RP adopt principles of GCJ frames to call on governments to protect vulnerable people from climate impacts. Finally, CBE and Greenaction use TPI frames to protest against industrial emissions affecting the public health of disadvantaged communities.

Figure 4. 1: Classification of Frames on Global Climate Change



Each frame focuses on different attribution of climate change and remedies of problems. Table 4.1 shows three types of frames and their diagnosis and prognosis.

Table 4. 1: Classification of Frames on Global Climate Change

A. Mainstream Frames (MS)

Diagnostic frames

1) Political problem

The primary frame diagnoses climate change as due to U.S. political reluctance to mitigate global climate change

2) Fossil fuel dependency

The secondary frame attributes climate change to mass fossil fuel consumption

3) Conservation frame

Another secondary frame that implies a linkage between climate change and trees, carbon sinks, conservation

Prognostic frames

1) Grassroots political pressure

This frame asks constituents to participate in grassroots political efforts to pressure politicians, such as by writing letters.

2) Self-education

Education can change public perception and behavior.

3) Positive feedbacks from conservation efforts

Tree conservation efforts help mitigate climate change because trees are carbon sinks.

B. General Climate Justice frame (GCJ)

Diagnostic frame

Disproportionate impacts

This frame highlights disproportionate impacts of climate change on vulnerable people including people of color and the disadvantaged in both developed and developing nations

Prognostic frame

Increase in capacities for adaptation to climate impacts

This frame requests that governments establish just climate policies such as building capacities of vulnerable communities.

C. Targeting Polluter Industry Frame (TPI)

Diagnostic Frames

Attribution to polluting facilities

This frame attributes climate change to local air polluters such as refineries and power plants.

Prognostic Frame

Positive feedback from protests against polluters

Positive feedback from challenging air polluting facilities reduces carbon emissions and helps to mitigate climate change.

Chapter V

Survey Results

This chapter presents the results of the survey “Environmental Grassroots Groups and Global Climate Change.” It covers a wide range of individual factors such as knowledge, perceptions, and experience of global climate change and willingness to participate in activities addressing climate change. This chapter examines the determinant of willingness to participate in activities addressing climate change. First, the chapter examines the relationships between individual factors and organizational collective action frames. Next, the study checks correlations between individual factors in comparison against the predictions of the preliminary framework built in Chapter II.

Organizational Frames and Individual Factors

This section presents a comparative overview of the influence of collective action frames on individual factors based on the preliminary framework assumption that such an effect exists. This study divides frames of climate change into the mainstream (MS), general climate justice (GCJ), and targeting polluter industry (TPI) frames as described in Chapter IV. Survey data on individual factors are compared among respondents from these three groups, MS respondents consisting of HVG and GHN, GCJ respondents consisting of DSCEJ and RP, and TPI respondents consisting of environmental justice groups in San Francisco Bay area including CBE and Greenaction. Mean differences

among the three frames were obtained by F-test of one-way ANOVA. The results of this section are in tables in Appendix D.

Concerns about Global Climate Change and Other Environmental Issues

Respondents rank global climate change above all other environmental concerns (Table 5.1, Appendix D). In addition, respondents were twice as likely as Gallup poll respondents to consider climate change worthy of “a great deal” of concern. Such high concern about climate change in this study may be influenced by organizational and regional factors of the sampled organizations. First, since these organizations are committed to addressing climate change, their constituents should tend to be well-informed on the issue. Second, since environmental constituents are interested in environmental issues, their concern should be greater than that of average public opinion. Third, DSCEJ constituents in New Orleans area may reasonably be assumed to be highly concerned about climate change due to their hurricane experiences.

Knowledge on Global Climate Change

Overall, MS respondents are more familiar with global climate change issues than other groups in the study (Table 5.2, Appendix D). MS respondents are significantly more knowledgeable about greenhouse gases, policies to reduce them such as renewable energy, and U.S. non-participation in the international treaty to regulate greenhouse gas emissions. In addition, MS respondents ranked damage to wildlife habitat significantly higher.

Concern about Climate Change Impacts

Table 5.3 (Appendix D) shows the degree of concern about varied impacts of climate change. As stated, MS respondents show significantly higher concern for climate effects on wildlife, which may reflect their interest in conservation issues. On the other hand, GCJ respondents are significantly more concerned about impacts of hurricanes and heat waves than others, which may stem from their living in New Orleans.

Experience of Climate Change Impacts

Table 5.4 (Appendix D) shows the degree of actual experience of climate change impacts. GCJ respondents gave significantly higher ratings to all items but wildlife habitat. These respondents, living as they do in the hot New Orleans coastal area recently hit by Hurricane Katrina, may feel more vulnerable to natural disaster than the general population.

Attributions of Global Climate Change

Table 5.5 (Appendix D) shows the rank of attribution of climate change. The study asked respondents what they attribute the cause of climate change. In mean comparisons, MS respondents are more likely to attribute climate change to the federal government than did GCJ and TPI respondents. Both gave higher rankings of attribution to electric utilities and oil companies than did MS respondents. However, there is no significant mean difference among the three groups of respondents.

Dissatisfaction regarding Global Climate Change

Table 5.6 (Appendix D) shows the rankings of dissatisfaction with causes and impacts related to climate change. While MS respondents are more dissatisfied with reluctant policies and priority on industrial profit, GCJ respondents are more dissatisfied with industrial emissions. TPI respondents show more dissatisfaction with disproportionate impacts, though with no significant mean differences.

Incentives to Join the Organization

Table 5.7 (Appendix D) shows the degree of incentives for joining their organizations. MS respondents are significantly more likely to be motivated by interest in nature conservation and concern about environmental policies. For all respondents, friends, family members, and neighbors were most likely to induce participation.

Activities and the Degree of Activeness

This subsection examines what activities respondents currently participate and the extent to which they are active (Table 5.8, Appendix D). MS respondents are significantly more likely to donate money, advocate for the environmental and particularly climate change issues to their friends, families, and neighbors.

Interest in Activities Addressing Global Climate Change

Table 5.9 (Appendix D) shows interest rankings for activities addressing climate change. MS respondents are significantly more interested in lobbying for U.S. participation in the international treaty regulating greenhouse gases emission than respondents from either climate justice group. On the other hand, GCJ respondents are

more interested in lobbying for adaptation to intense disasters. TPI respondents are more interested in campaigning to pressure industries to reduce greenhouse gases emissions.

Willingness to Participate in Activities

This subsection shows the degree of willingness to participate in activities addressing climate change. GCJ respondents are significantly more willing to lobby for adaptation policies in order to prepare for intense hurricane and sea level rise than MS and TPI respondents (Table 5.10, Appendix D). On the other hand, MS respondents rate significantly higher their willingness to participate in campaigns for fuel efficient cars, lobbying for renewable energy and U.S. participation in the international treaty regulation of greenhouse gases emissions.

Belief in a Causal Relationship between Global Climate Change and Hurricanes

Table 5.11 (Appendix D) shows the extent to which respondents believe in a causal relationship between climate change and Hurricane Katrina and Rita. The study did not find significant mean difference among the three frame groups.

Demography

This subsection examines respondent demographics. Figure 5.1 through 5.6 in Appendix E shows these results. Race and education levels differ widely among MS, GCJ, and TPI respondents. While MS respondents are mostly Whites, environmental justice respondents are mostly African-Americans, Whites, and Hispanics (Figure 5.5). In terms of education level, while all MS respondents have Bachelor's and graduate degrees, climate justice respondents report a wide range of educational levels (Figure 5.6).

The income level of TPI respondents differed markedly from that of MS and GCJ respondents: 61% of TPI respondents earned less than \$35,000, in contrast with MS and GCJ respondents who earned 11% and 5% respectively and who live mostly in the middle class African-American residential area of Lake Bullard (Figure 5.3).

Correlations between Individual Factors

This section examines the correlation between motivation to join an organization and activeness in the organization. In addition it investigates relations between various individual factors (independent variables 4-7, p. 32-34) and willingness to participate in activities (dependent variables, p. 35). These are gauged by bivariate correlation of SPSS based on Pearson's correlation. These results are in Table 5.12 through 5.24 in Appendix F.

Motivation to Join an Organization and Activeness in the Organization

This subsection examines the role of collective and solidarity incentives when people join environmental movements. Collective incentives motivate people to engage in various environmental activities in organizations in order to realize goals that cannot be achieved individually. Solidarity incentives of micro-structural relationships such as friendships and kinship may also lead people to participate in activities. While Question 7 in the questionnaire (Appendix A) asked about incentives to join an organization, Question 8 queried the extent to which the respondents engaged in various activities. Table 5.12 (Appendix F) shows correlations between the incentives and the activeness.

On the one hand, recruitment via micro-structural relationships and incentives to make new friends are correlated with activeness in meeting attendance and volunteer

activities. On the other hand, seeking opportunities to address environmental issues and interests is correlated with a wider variety of activities including political actions, advocacy, and self-education. However, recruitment by direct-mail and door-to-door visits, services provided by organizations, and incentives to learn about climate change have no correlation with active engagement in activities.

Concern about Climate Impacts and Willingness to Participation in Activities

Table 5.13 (Appendix F) shows the correlations between climate concerns about climate impacts and interest in participation. MS respondents' concerns about the effects of climate change on wildlife habitat are significantly correlated with interest in lobbying to protect wildlife. GCJ respondents' concern about the spread of tropical disease due to climate change is significantly correlated with an interest in campaigning to pressure industries for greenhouse gases reduction.

Table 5.14 (Appendix F) shows the correlations between concern about the effects of climate change and willingness to participate in activities addressing climate change. The concerns of GCJ and TPI respondents are widely correlated with their willingness, while MS respondents' concerns are not.

Attribution of Global Climate Change and Willingness to Participate in Activities

Table 5.15 (Appendix F) shows the correlations between attribution of climate change and interest in activities. The study found three correlations among MS respondents: attribution to federal government and lobbying for disaster preparation, attribution to electric utilities and campaigning against industries, and attribution to timber industries and lobbying for wildlife habitat. GCJ respondents' attribution to

government is correlated with campaigning against logging. No correlations were found among TPI respondents.

Table 5.16 (Appendix F) shows the correlation between attribution of climate change and willingness to participate in activities. Among GCJ and TPI respondents, attribution to the federal government is correlated with their willingness to participate in a wide variety of activities.

Dissatisfaction and Willingness to Participate

Table 5.17 (Appendix F) shows the correlation between dissatisfaction related to climate change and interest in activities. MS respondents dissatisfied with endangered wildlife are more likely to be interested in lobbying for wildlife. GCJ respondents' dissatisfaction with the disproportionate impacts of climate change on the disadvantaged is correlated with an interest in campaigning against industries to reduce greenhouse gas emissions. In addition, TPI respondents' dissatisfaction with pursuit of industrial profits is correlated with an interest in anti-logging campaigning.

Table 5.18 (Appendix) shows the correlation between dissatisfaction related to climate change and willingness to participate. The study found three correlations among MS respondents: dissatisfaction with reluctant policies and willingness to participate in individual education, dissatisfaction with industries and willingness to participate in campaigns against tree logging, and dissatisfaction with the pursuit of profit and willingness to participate in lobbying to prepare for rising sea levels.

Individual Experience of Climate Impacts and Willingness to Participate

Question 4 of the survey asked to what extent respondents have been affected by climate change. Table 5.19 (Appendix F) shows the correlation between such experience and interest in activities. Among MS respondents, experience of hurricane impacts significantly correlates with an interest in lobbying for U.S. participation in the international treaty on reduction of greenhouse gases.

Table 5.20 (Appendix F) presents individual experiences of climate impacts and willingness to participate in activities. GCJ respondents, their experiences are significantly correlated with multiple activities. However, the experience of hurricane damage is specifically correlated to lobbying for more flood control and preparation to sea level rise.

Belief in the Causal Relationship between Hurricanes and Global Climate Change and Willingness to Participate

This subsection examines the influence of the belief in a causal relationship between climate change and Hurricanes Katrina and Rita on willingness to participate in activities addressing climate change (Table 5.21, Appendix F). MS respondents who believe that climate change caused the devastating hurricanes are more likely to want to participate in campaigns against refineries. GCJ respondents' belief is correlated with participation in most listed activities. TPI respondents' belief is correlated with participation in lobbying for flood control and coastal protection, campaigning for fuel efficient cars, and campaigning against tree logging. Overall, this belief is the strongest motivator to participate in activities among environmental justice respondents.

Knowledge on Global Climate Change and Willingness to Participate

Table 5.22 (Appendix F) shows correlations between knowledge of climate change and willingness to participate in activities addressing climate change. MS respondents who are familiar with the effects of greenhouse gases are more likely to be willing to participate in lobbying for renewable energy. In addition, knowledge of tree logging, rising sea level, and renewable energy raised willingness to participate in education programs. On the other hand, among GCJ and TPI respondents, knowledge of climate change is correlated with willingness to participate in a wide variety of activities.

Table 5.23 (Appendix F) presents correlations between knowledge of and concern about climate impacts. These correlations pattern similarly to the correlation in Table 5.22, which shows the relationship between knowledge and willingness to participate. That is, among GCJ and TPI respondents, knowledge of climate change correlates with multiple concerns. On the other hand, among MS respondents, knowledge of climate change correlates with attribution of climate change to the federal government (Table 5.24, Appendix F).

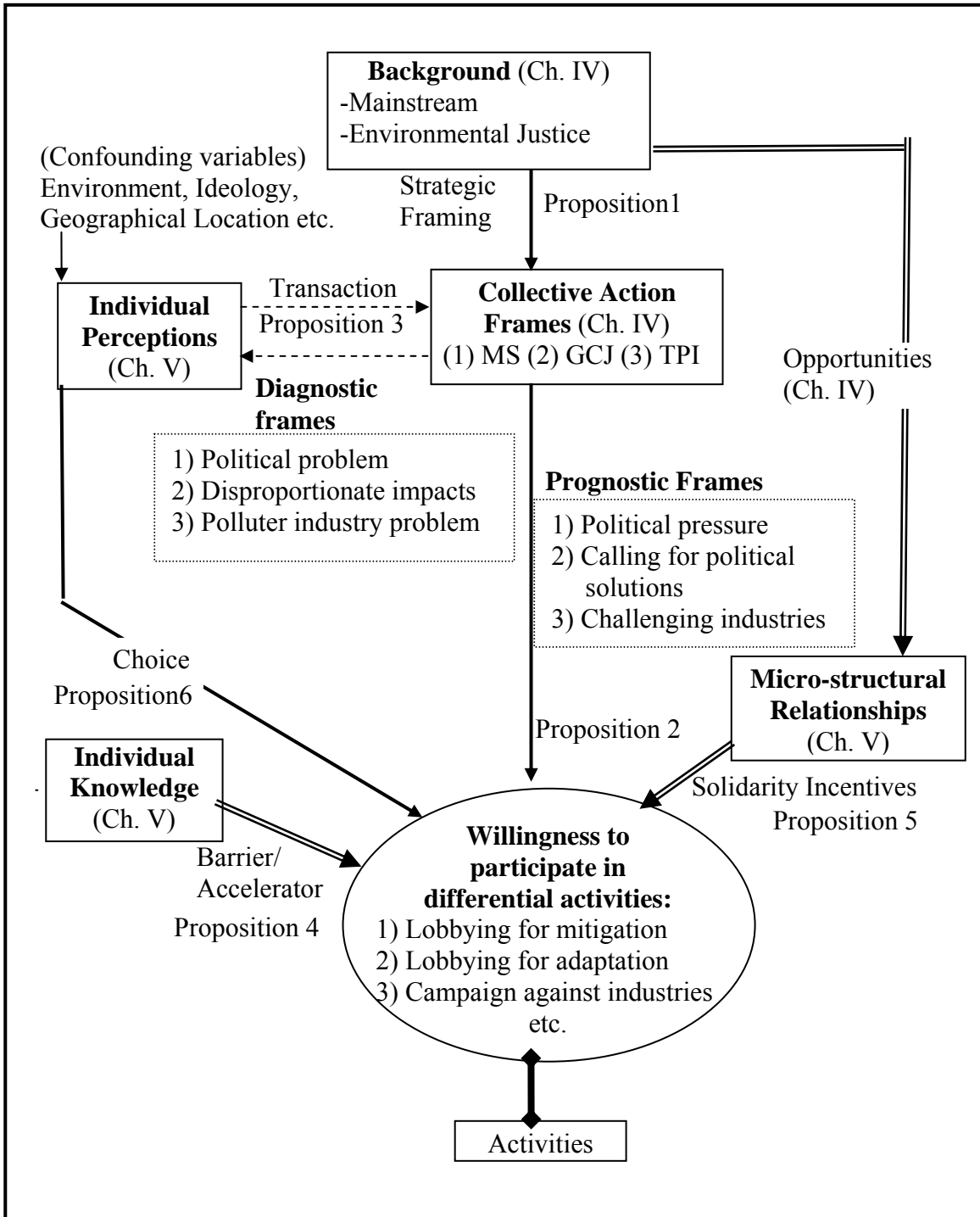
Chapter VI

Conclusion and Discussion

Lobbying tactics of mainstream environmental organizations have had little influence on climate policies due to skepticism about climate change and the job security issue raised by the conservative counter-environmental movement and fossil fuel-related industries, as well as due to lack of political opportunities in a Republican-dominated Congress (Trumbo 1996; McCright and Dunlap 2000, 2003; Weingart, Engels et al 2000; Levy and Rothenberg 2002). The grassroots movement is expected to play a critical role in countering conservative grassroots efforts and in restoring political opportunities. This study assumes that an effective grassroots movement must attract wide-based popular support for mobilization. In order to clarify grassroots strategies, this study outlines a theoretical framework of citizen participation for addressing climate change based on social movement theories, particularly collective action framing. As summarized in Figure 6.1, the framework consists of three major factors: collective action frames determined by organizational backgrounds; individual constituents' perceptions such as concerns, attributions, and dissatisfaction regarding global climate change; and willingness to participate in activities addressing climate change. Both prognostic frames and individual perceptions are primary determinants of willingness to participate.

This chapter first examines the linkage between organizational backgrounds and collective action frames. The second section investigates relationships among three major factors: collective action frames, individual perceptions, and willingness to participate in

Figure 6. 1: Framework of Movement Participation



activities. The third section evaluates other important factors including solidarity incentives and knowledge of climate change. Finally, the study proposes strategies for grassroots environmental organizations to more effectively address global climate change.

Organizational Background and Collective Action Frames

The interview data supports Proposition 1, which posits that different backgrounds of grassroots organizations generate different frames and activities in order to addressing climate change. In the preliminary framework, organizational background is the critical determinant of collective action frames. Both mainstream and environmental justice organizations use their major frames in accordance with their organizational type and tactics. In other words, both types of organizations intend to employ frames by which organizations strategically set the frame in order to mobilize constituents effectively. Both of them are, however, subjected to structural constrains that prevent them from being fully committed to addressing climate change. This section examines the function of collective action frames, particularly diagnostic and prognostic function.

Mainstream Background and Frames

As a unit within the Sierra club hierarchy, the Huron Valley Group of the Sierra Club (HVG) must pursue policies consistent with political strategies of its headquarters. Its diagnostic frame thus targets politicians who are reluctant to pursue climate policies. To handle this political problem, HVG tries to generate political pressure at the grassroots level, encouraging its members to write letters to elected officials. These local frames follow the national club's diagnostic and prognostic frames.

These politically-oriented frames ride on national organization's political strengths and accessibility to politicians in order to realize their insistence in policies. Since national organizations have far greater political opportunities than grassroots organizations, their prognostic frames must appeal to those seeking political solutions to climate change. On the other hand, such political opportunities based on professionalized lobbying tactics would marginalize grassroots efforts as described in the section "Grassroots in Environmental Movement," (p. 6).

Furthermore, the diagnostic frame attributing climate change to political problems would require political perceptions of their constituents (cf. "Individual Perception and Participation" Chapter II). Such top-down style framing may not mobilize people at the grassroots level because of the disconnection between the diagnostic frame and the grassroots interests of constituents active in local chapters with interests in local natural habitat conservation. This frame may thus not appeal to grassroots constituents.

Environmental Justice Background and Frames

The frames of environmental justice organizations on global climate change are quite ambiguous. Environmental justice (EJ) organizations are supposed to share the General Climate Justice (GCJ) frame which highlights inequalities in climate change effects, as expressed in the Environmental Justice and Climate Change Initiative (EJCC) statement and the ten principles of climate justice. However, their wide range of issues and solutions may hinder their ability to mobilize people. In addition, they offer their constituents few real opportunities to address climate change.

Two EJ organizations in the San Francisco Bay area, Community for a Better Environment (CBE) and the Greenaction for Health and Environmental Justice

(Greenaction), use a specified climate justice frame in which they attribute climate change to refineries and power plants. Having already challenged producers to reduce harmful emissions in order to protect public health in the disadvantaged communities near the facilities, the organizations claim that their major efforts can contribute to mitigation of climate change. Although they offer opportunities to challenge polluter facilities, they offer few specific activities to address climate change. They instead rely upon climate rhetoric for legitimacy in the movement. This targeting polluter facilities (TPI) frame may be effective for external relationships with other organizations and potential adherents rather than internal relationships with their constituents, as in the case of the San Francisco Energy Plan (Framing on global climate change, CBE, pp. 51-52).

Both types of environmental justice organizations offer only limited opportunities to address climate change due to lack of resources and organizational capacity. Environmental justice organization staff interviewed in this study, have few specific plans to address climate change. There are several reasons why they do not plan to address climate change. First, due to lack of capacity and limited staff, they cannot afford to consider climate justice. Second, although climate change is an important environmental justice problem, it may not rank as an urgent problem for environmental justice organizations dealing with current health-related problems. Third, the GCJ frame demands policies that solve problems related to climate change, as does the MS frame, whereas political opportunities of single grassroots organizations are too few to address climate change politically.

Coalitions may be one solution to deal with their difficulties. However, although most of the environmental organization interviewees are members of EJCC, a coalition for climate justice, they still have resource problems and have yet to directly commit to

climate change issues. It currently seems quite difficult for EJ organizations to address climate justice. The final section (p. 87) presents some implications of this situation.

Frames, Perceptions, and Willingness to Participate

As set out in Chapter IV, this study divides collective action frames regarding global climate change into three types: (1) Mainstream (MS) (2) General climate justice (GCJ) and (3) Targeting polluter industry (TPI). This section comparatively evaluates the collective action frames of these grassroots environmental organizations in terms of function, the criterion for evaluation being the extent to which the frames influence individual perception and willingness to participate in activities. For comparison, the influence of individual perception on willingness to participate is examined as well. In sum, this section investigates five factors: (1) the relation between frames and individual perceptions; (2) the relation between frames and willingness to participate; (3) the relation between individual perception and willingness to participate; (4) the relation between solidarity incentives and willingness to participate; and (5) the relation between knowledge of climate change and willingness to participate. Because the sample of this survey is not randomized, however, these relationships can be influenced by their environment, ideology, and social and geographical location. The discussion needs to take these confounding variables into account.

1. Diagnostic Frames and Constituents' Perceptions

Proposition 2 (p. 26) assumes that the diagnostic frame influences constituents' individual perceptions. As a result, concerns about impacts, attributions, and dissatisfaction should reflect interpretations of diagnostic frames.

This survey posed seventeen in questions regarding concerns about impacts, attributions and dissatisfactions. Among these questions, there are only three significant mean differences in concerns about climate impacts (Table 5.3, Appendix D) and no significant difference in attributions and dissatisfactions (Table 5.5 and Table 5.6, Appendix D), suggesting that in terms of this study, diagnostic frames exert little influence on individual perceptions, whether concerns, attributions or dissatisfactions. These three perceptions may, however, be influenced by other factors than diagnostic frames.

Interview results show that the MS diagnostic frame is politically oriented. If MS respondents are influenced by this frame, they should be more likely to attribute climate change to the federal government. This function, however, is not supported by the survey data (Table 5.5, Appendix D), suggesting that the MS diagnostic frame determined by their headquarters may not exert enough influence on individual perceptions among their grassroots constituents . Instead, the survey data (Table 5.3, Appendix D) show that MS respondents are significantly more concerned about climate impact on wildlife habitat. Most MS respondents, who are HVG members and with a high ecological concern, reflect their interests in conservation efforts. In addition, HVG generated a frame insisting on a linkage between climate change and trees as carbon sinks at the local level (Table 4.1 on p. 57). This suggests that MS frames reflecting grassroots interests may work more effectively than top-down style frames.

GCJ respondents are more likely to be concerned about hurricane and heat stroke (Table 5.3, Appendix D) than other frames respondents. Qualitative data also show that GCJ frames assert disproportionate harm on people of color and the disadvantaged. GCJ organizations, however, cannot influence individual perceptions because they do not

communicate their frames to their constituents (Framing on global climate change, DSCEJ on pp. 52-53). Furthermore, climate change may be perceived as too abstract and divorced from respondents' daily lives. Indeed, climate justice respondents are less familiar with disproportionate impacts on the disadvantaged (Table 5.2, Appendix D). They also must be influenced by climate conditions around New Orleans. This area, in which the respondents of the Deep South Center for Environmental Justice (DSCEJ) live, was seriously damaged by Hurricane Katrina is subject to the heat spells characteristic of the southern U.S.

TPI frames attribute climate change to industrial polluters. TPI respondents, therefore, should also attribute climate change to electric utilities and oil refineries based on the assumption of Proposition 2. However, the survey data show TPI respondents' attribution of climate change to power plants and refineries as not significantly different from others (Table 5.5, Appendix D), suggesting that the TPI diagnostic frame may exert only limited influence on individual perceptions.

2. Prognostic Frames and Willingness to Participate

Proposition 4 (p. 27) posits that organizational prognostic frames determine activities in which constituents are willing to participate. This section examines the relationship between prognostic frames and willingness to participate.

The interview results found that the MS prognostic frames offer political solutions for mitigation policies (Table 4.1 on p. 57), so that MS respondents are likely to be willing to participate in lobbying for mitigation policies. The survey data also show that MS respondents are more likely to be interested in and willing to participate in lobbying for U.S participation in the international treaty for reducing greenhouse gases (Table 5.9

and Table 5.10, Appendix D). In addition, MS respondents are more willing to participate in a campaign for fuel efficient cars than other respondents (Table 5.10), a relation in accordance with a Sierra Club¹⁸.

In the same way, TPI respondents are expected to participate in campaigns against fossil fuel combusting industries due to TPI frames' attribution of climate change to harmful industrial emissions. Indeed, TPI respondents are more likely to be interested in campaigning against companies emitting greenhouse gases (Table 5.9, Appendix D). Although their interest in campaigning is significantly higher than in other frames, their willingness to participate is not (Table 5.10, Appendix D), suggesting that TPI prognostic frames may work weakly. This is probably because TPI frame organizations, CBE and Greenaction do not address climate change directly.

GCJ respondents are also expected to be more willing to participate in lobbying for adaptation policies such as flood control and coastal area protection in order to protect vulnerable people from climate impacts. The survey data (Table 5.9 and 5.10, Appendix D) are consistent with this expectation. According to the data, the GCJ respondents are more likely to be interested in lobbying for disaster preparation and willing to participate in lobbying for flood control policy and coastal area protection from a rise in sea level. Although the GCJ frame lists the necessity to protect vulnerable people from disproportionate climate impacts, the influence of this frame should be limited due to lack of communication with the constituents. That is, unless GCJ organizations present their frames and activities to their constituents, GCJ respondents cannot respond to their frames. Their willingness to participate in activities for adaptation policies may come from other factors than framing. Next subsection examines such other factors.

¹⁸ Clean Car Campaign on the Sierra Club website (<http://www.sierraclub.org/globalwarming/cleancars/>)

3. Constituents' Perception and Willingness to Participate

Organizational diagnostic frames highlight problems and influence individual perceptions (Proposition 2, p. 26). Organizational prognostic frames offer solutions to problems highlighted by the diagnostic frames (Proposition 4, p. 27). As a result, individual perception influenced by diagnostic frames should select the same solution as a prognostic frames offered by (Proposition 5, p. 28). However, as discussed in the subsection "Diagnostic Frames and Constituents' Perceptions (p. 73)," the data do not sufficiently support these propositions in this study. Unless diagnostic frames exerting influence on individual perceptions include concern about impacts, attribution, dissatisfaction, and other individual perceptions¹⁹ may influence willingness to participate. This section examines the relationship between individual perceptions and willingness to participate.

In terms of climate justice respondents (both GCJ and TPI constituents), the survey data found concerns about climate impacts to be weakly correlated with specific activities for dispelling their concern about impacts (Table 5.13, Appendix F; described on p. 60). The survey found GCJ respondent concern about rising sea level is correlated with eight activities rather than one specific activity for protecting coastal areas. Attribution of climate change and dissatisfaction with climate change are also weakly correlated with willingness to participate (Table 5.14-17, Appendix F, described on pp. 60-61). Belief in a causal relationship between climate change and Hurricane Katrina are

¹⁹ This study examines six constructs of individual perceptions on global climate change: concern about global climate change and other environmental problems, concern about the impacts of climate change, experience of climate impacts, attribution, dissatisfaction, and belief in the causal relationship between Hurricane Katrina and climate change (described on p. 30). Among them concern about impacts, attribution, and dissatisfaction are influenced by framing.

also correlated with similar multiple activities (Table 5.20 in the appendix). This implies that concerns of GCJ and TPI respondents about climate impacts are unorganized because frames are not communicated to their constituents (pp. 44-46).

Although GCJ constituents are more likely to be willing to participate in lobbying for adaptation policies, their activities may be influenced by other factors than organizational frames because the survey data show that their concern about hurricane damage is not correlated with lobbying for flood control policies (Table 5.13, Appendix F; described on p. 75). Instead, GCJ respondents' experience of hurricane and flood disaster is specifically correlated with lobbying for adaptation policies (Table 5.19, Appendix F). Since GCJ constituents are rarely offered frames and activities by their organizations, their participatory activities may be determined by their own first-hand experiences.

On the other hand, the survey found no significant correlations between MS constituents and individual concerns about impacts and willingness to participate (Table 5.13, appendix). In terms of attributions and dissatisfaction, the survey data show only four significant correlations with willingness to participate: (1) attribution to car companies and lobbying to prepare for rising sea level (Table 5.15, Appendix F), (2) dissatisfaction with pursuits of industrial interests and lobbying for preparation for sea level rise, (3) dissatisfaction with industrial greenhouse gas emissions and campaign against tree logging, and (4) dissatisfaction with reluctant policies and self education (Table 5.17, Appendix F). These correlations are difficult to explain in terms of logically selecting a remedial activity based on a problem perception.

Individual perceptions of MS constituents seem less related to willingness to participate than to their prognostic frames. That is, HVG constituents may select an activity recommended by the Sierra Club independent of their individual perceptions.

This survey finds the correlation between respondents' perceptions and willingness to participate in activities to be quite weak. Even though GCJ and TPI respondents show some concern about climate impacts, the activities in which they are willing to participate appear unrelated to their concerns. If diagnostic frames help constituents to focus on an activity to cope with problems about which they are concerned, organizational framing strategy provide greater impetus to the environmental movement regarding global climate change. For instance, if GCJ collective action frames can respond to their constituents' experience of hurricane impacts, the frames would more effectively mobilize people within the movement.

4. Solidarity Incentives and Willingness to Participate

This section analyzes solidarity incentives of micro-structural relationships such as friendship, kinship, and neighborly bonds at the grassroots level. Proposition 3 presumes that solidarity incentives at the grassroots level motivate people to participate in activities.

The survey data support that solidarity incentives work only in terms of engagement in face-to-face activities such as attendance at meetings. The solidarity incentives, however, do not apply to participation in lobbying and advocacy activities, direct actions, or recruiting new members (Table 5.11, Appendix F, described on p. 62). Solidarity incentives may in fact be limited to activities to foster friendships.

MS organizations offer more opportunities to nurture friendships (Micro-structural opportunities, HVG on p. 54). The survey data, however, show that there are no significant differences in the influence of solidarity incentives between MS and climate justice respondents (Table 5.7, Appendix D). Environmental concerns are more likely to motivate MS constituents, probably because solidarity is a minor incentive for mainstream constituents compared to collective incentives. In addition, community-based environmental justice organizations have already obtained such micro-structural relationships within the communities.

5. Knowledge on Global Climate Change and Willingness to Participate

Proposition 6 posits that the more knowledge of global climate change respondents have, the more willing they are to participate in activities. This subsection examines the relationships between knowledge and willingness to participate, as well as determinants of willingness to participate.

Among GCJ and TPI constituents, knowledge of climate change is correlated with most of the activities listed in the survey questionnaire regarding willingness to participate. For climate justice constituents, knowledge may be critical in raising the willingness to participate. In addition, there are many correlations between knowledge and individual concerns about climate impacts, suggesting that knowledge of climate change relates to willingness to participate based on individual concerns about the harmful effects of climate change. Educational programs on climate impacts should have some efficacy for the climate justice movement.

However, GCJ respondents' knowledge is not correlated with lobbying for adaptation policies or campaigning against fossil fuel combusting industries. Although

GCJ respondents have no more knowledge about climate impacts than do MS and TPI respondents (Table 5.2, Appendix D), their willingness to participate in lobbying for adaptation policies is significantly higher (Table 5.10, Appendix D) suggesting that there are variables related to willingness to participate in lobbying for adaptation policies other than knowledge. For instance, as described in subsection “Constituents’ Perception and Willingness to Participate” (p. 77), experience of hurricane impacts influence participation in lobbying activities for adaptation policies among GCJ respondents. Of GCJ respondents, DSCEJ constituents in the New Orleans area may therefore demand adaptation policies due to their direct experiences of the damage caused by Hurricane Katrina, regardless of knowledge

Meanwhile, there are only three significant correlations, including that between knowledge of greenhouse gases and campaign for renewable energy, among MS respondents (Table 5.21, Appendix F). This is probably because MS respondents already know a great deal about climate change; indeed, MS respondents’ knowledge is generally higher than climate justice constituents (Table 5.2, Appendix D).

Proposition 6 presumes that knowledge of climate change raises willingness to participate to cope with issues of concern. The study only found MS respondents’ attribution of climate change to political problems to be correlated with multiple types of knowledge (Table 5.23, Appendix F), indicating that knowledge of climate change can increase political concerns. Public opinion literature profiled in the subsection “Individual Perceptions and Participation (p. 22)” suggests that knowledge is required for public concern to lead to appropriate political responses. Indeed, MS respondents are significantly willing to participate in political activities such as lobbying for renewable

energy and U.S. participation in the international greenhouse gases regulation treaty (Table 5.10, Appendix D).

Evaluation of Frames

This section discusses functions of collective action frames regarding global climate change as compared to propositions within the preliminary framework. Proposition 2 (p. 26) expects that diagnostic frames will influence individual perception. Proposition 4 also predicts that prognostic frames motivate constituents to be willing to participate in activities in order to cope with the problems highlighted by diagnostic frames.

In terms of diagnostic frames, the research data, however, do not support the assumption of Proposition 2. In terms of prognostic frames, the research results show that MS prognostic frames will function, but GCJ and TPI prognostic frames may not work well. The study therefore also considers individual factors not subject to diagnostic frames as possible determinants of willingness to participate. Experience of hurricane impacts is listed as an alternative determinant of willingness to participate for most of the GCJ respondents i.e., DSCEJ constituents in the New Orleans area.

Prognostic frames motivate MS respondents to participate in activities, whereas diagnostic frames do not exert significant influence on individual perceptions to determine participation. Their perceptions, therefore, may be disconnected from willingness to participate led by the prognostic frame. This gap may reflect the strengths and weaknesses of MS organizations. When constituents seek political solutions to climate change at the federal policy level, professional lobbying of national organizations would be quite useful. Since individual constituents alone at the grassroots level can take

only limited actions on the federal level, they may be well motivated to participate in collective actions offered by national organizations. However, the top-down nature of diagnostic frames created at the national level may be less appealing than the local diagnostic frame, as the strength of the grassroots roots movement depends on tangible local problems.

Since GCJ organizations do not communicate their frames to constituents, their frames may not function well either diagnostically or prognostically. The largest barrier is due to small organizational resources not being able to afford to expand their sphere of actual actions addressing climate change. Lack of organizational efforts addressing climate change may leave constituents' concerns unaddressed. As a result, although experiences of most GCJ respondents in the New Orleans area damaged by Hurricane Katrina are correlated with willingness to participate in lobbying for adapting hurricane impacts (Table 5.19, Appendix F), there is no significant correlation between their concern about hurricane impacts and their being willing to participate in lobbying for adaptation policies (Table 5.12 and 5.13, Appendix F).

TPI diagnostic and prognostic frames may exert limited influence on constituent perception and willingness to participate. TPI organizations in the San Francisco Bay area attribute climate change to power plants and refineries; the survey data of individual perceptions show that their respondents' attributions are not statistically significant (Table 5.5, Appendix D). This is probably because TPI organizations primarily intend to address the air pollution problem rather than climate change. Indeed, although the means differences are not statistically significant, TPI respondents give the lowest rank to dissatisfaction with greenhouse gases emissions by industries among the three frames, indicating that TPI diagnostic frames exert little effect on individual perceptions. TPI

prognostic frames assert that campaigns against refineries and power plants help mitigation of climate change. Although TPI respondents are more likely to be interested in campaigning against industries, their willingness to participate in such campaigns is not significantly high (Table 5.9 and 5.10, Appendix D). In addition, their attributions of climate change to refineries and electric utilities and dissatisfaction with industries emitting greenhouse gases are not correlated with willingness to participate in campaigning (Table 5.16 and 5.17, Appendix F).

Implication for More Effective Frames

Grassroots organizations have the advantage of motivating people to participate in activities where friendship and neighborhood ties among members create solidarity incentives. For more active participation in organizational actions, collective action frames are critical in motivating people. The previous section details gaps between the survey data of individual factors and predictions based on the preliminary framework regarding the participation process. These gaps may arise from malfunctions of the collective action frames described in the previous section “Evaluation of Frames.” In addition, this study should consider confounding factors originating from non-randomized convenience sampling (described on p.34). This section discusses means of filling the gaps between propositions and research data so that grassroots environmental organizations can develop more effective strategies in addressing global climate change.

Mainstreams should develop a diagnostic frame based on grassroots concerns.

MS diagnostic frames that focus on the problem of greenhouse gas emissions at the national level do not effectively influence individual constituents' perceptions. For greater efficacy, MS diagnostic frames should take account of their constituents' concerns. Since the data show that MS respondents are more likely to be concerned about conservation issues related to climate impacts, MS organizations should focus on not only national and international issues related to greenhouse gas emissions, but also on the local issue of tree conservation addressing climate change. If their diagnostic frames interpret climate change as problems of conservation, their frames will have greater appeal to their constituents at the grassroots level. Local chapters of national organizations such as HVG cannot afford to make a great commitment to the global climate change issue due to hierarchical restrictions and limited resources. However, if local chapters can act more freely, they may develop more locally-based and appealing diagnostic frames and activities.

Climate justice organizations should focus more on adaptation policies.

Although environmental justice organizations have stated climate justice initiatives, they actually provide their constituents with few opportunities to address climate change due to limited organizational capacity. In addition, they may not be interested in climate justice issues that seem less urgent in comparison with local health problems. However, the GCJ respondents, mostly DSCEJ constituents around New Orleans, demand adaptation policies to prepare for hurricane impacts (Table 5.10, Appendix F). Although the GCJ frame points out the disproportionate climate impact on vulnerable people with limited resources to adapt to climate change, this diagnostic frame may be too general to be practical in mobilizing constituent participation. GCJ frames,

thus, need to focus on a specific aspect of climate impacts such as hurricanes. As GCIJ respondents perceive that they have been affected by climate impacts, extreme weather due to climate change may become a key link between global climate change and daily life concerns of environmental justice constituents in local communities. This approach may expand the sphere of environmental organizational influence on climate change. To this end, environmental justice organizations with limited resources and capacities will need support from other organizations and foundations.

Prognostic frames focusing on adaptation policies seem more appealing to constituents affected by climate impacts. In addition, such prognostic frames can address an important aspect of climate change policies, which are largely divided into mitigation policies to reduce greenhouse gases and adaptation policies to prepare for climate impacts. Unless atmospheric CO₂ concentration is stabilized by a large reduction in emissions, climate change will occur. Adaptive abilities of federal policies are lacking, as revealed by Hurricane Katrina and despite the increasing likelihood of extreme weather events as climate change progresses. Adaptation policies are thus as important as mitigation policies. Nevertheless, adaptation policies have been largely ignored in current MS climate policy debates which focus primarily on mitigation policies stressing carbon caps and trading. TPI prognostic frames as well address only climate change mitigation. Climate justice organizations devoted to protect vulnerable people should advocate adaptation rather than mitigation, which would hold greater appeal for constituents.

Education would motivate people to be active.

Education on global climate change may help accelerate willingness to participate in activities. The study found that knowledge would lead more MS constituents to attribute climate change to political problems (Table 5.23, Appendix F; described on p. 80). Knowledge helps people understand the complicated linkage between causes and remedies of climate change.

For appropriate political responses in lobbying for adaptation policies, climate justice constituents need more knowledge through which to explain climate change to policy makers. The survey data show that climate justice constituents are generally less familiar with knowledge of climate change than MS constituents. Educating people on the causal relation of climate impacts and imparting knowledge of possible solutions may motivate constituents to participate in appropriate political actions.

Expand alliances with other organizations and address climate change cooperatively.

A renewable energy plan in San Francisco is one of few environmental justice organization achievements in mitigating climate change. Although national environmental organizations played a critical role in this process, environmental justice organizations contributed as well. TPI organizations attracted potential supporters of climate change and renewable energy by simply adding the climate justice frame to its primary efforts in challenging refineries. This frame extension strengthens relations with other organizations. This study, therefore, claims that environmental justice organizations with limited resources should consider allying themselves with national mainstream organizations even though they historically have profound disagreements over environmental concepts and strategies. Political skills and resources of national

organizations would help environmental justice organizations; the San Francisco case indicates that global climate change is an issue which mainstream and environmental justice organizations can address cooperatively.

Limitations

The main limitation of this study is that the interview and survey sample of grassroots environmental organizations is not randomized. As stated in the subsection “Convenience Sampling” (p. 37), this study first searched for grassroots organizations that were committed to climate justice. To this end, the study selected environmental justice organizations from EJCC. Although CBE and DSCEJ agreed to participate in this study, samples strongly reflect their regional factors due to non-randomized sampling and limited numbers.

In respect to TPI frames, the study added Greenaction allied with CBE to the subjects. In addition, the researcher distributed survey questionnaires to participants at a rally against power plants. Although the purpose of the rally was consistent with the TPI frame demanding a shutdown of power plants emitting harmful gases including greenhouse gases, respondents included members of other environmental justice organizations in the San Francisco Bay area. In addition, survey respondents were more skewed by non-response bias toward active members rather than ordinary community residents (described in “Survey Respondents” on p. 42).

In regard to GCJ frames, the DSCEJ sample around New Orleans is skewed toward residents of one community, Lake Bullard, which mostly consists of middle-class African-Americans. More importantly, since the New Orleans area was damaged by

Hurricane Katrina, individual perceptions may be influenced by hurricanes themselves rather than hurricanes as an aspect of climate change impacts.

In order to compare grassroots environmental justice organizations, the study selected a chapter of a national mainstream organization at the grassroots level. The study, however, chose only one group, HVG in Michigan, due to geographical convenience. As a result, the MS frames are also influenced by regional factors in Michigan.

In sum, the survey results may be influenced by various factors caused by non-randomized sampling: emphasis on activists' values, and skews of locality, social class, and social position. Methodological constraints therefore restrict the generalizability of framing function outcomes.

Another limitation is the identity of environmental justice constituents. This study was designed to cover organizational influence on individual constituents. However, environmental justice organizations are more loosely organized than a national mainstream chapter. As a result, community environmental justice constituents have little sense of identification with environmental justice organizations. This is a large barrier to survey constituents in communities.

Area for Future Study

Although this study has surveyed the state of grassroots efforts to address climate change among specific environmental organizations from the perspective of framing theory, it has failed to evaluate their efforts sufficiently. There are several reasons why the study could not accomplish the desired end. First, mainstream organizations have not sufficiently developed their grassroots strategies to address climate change, so that MS frames so far do not reflect grassroots constituent concerns. Second, since the number of

grassroots environmental justice organizations addressing climate change is quite limited, the study suffered from sampling problems. Third, responses of environmental justice organizations to climate change are quite late compared to national mainstream organizations due to their limited resources. Since development of climate justice frames, including GSJ and TPI frames are quite late compared to MS frames, the study could only examine the development of their grassroots efforts rather than their accomplishments. TPI frames are actually a means to address hazardous emission problems rather than climate change itself. GCJ frames, which directly address climate change, are just principles rather than practical collective action frames. Indeed, GCJ organizations offered no activities to address climate change.

To aid grassroots environmental movements in addressing climate change, research should investigate how their growth can best be fostered. This section offers several areas for future study that would help development of grassroots movements addressing climate change.

Alliance

First, environmental justice organizations cannot afford to address climate change due to lack of resources. Alliances with other organizations are generally effective in expanding resources. TPI organizations successfully enhanced their capacities through the efforts of the San Francisco renewable energy plan. As described in the section “The Evolution of Grassroots in the Environmental Movement” (p. 6), while national mainstream environmental organizations with conservation interests were little involved in anti-toxic environmental justice movements, environmental justice organizations have had antipathy for national organizations with conservation interests. However, since the

climate change issue can be a shared cause, environmental justice organizations can feasibly ally with mainstream organizations. The climate change issues are a great opportunity for both types of organizations to extend their frames. On this basis, alliance with transnational climate justice organizations with a shared concern for climate justice may be also worthy of investigation.

Leadership development

Second, since climate change has complex causes and a wide variety of solutions, knowledge of causal linkages and elaborate framing strategies are required to select strategies to address climate change. For environmental justice organizations with limited resources, leaders in climate change issues may be important in winning a commitment to climate justice. Indeed, EJCC holds a training program “Climate Justice Co-op” to develop a new leadership in climate justice.

Connection of Global Climate Change with Daily-life-based Experience

Third, since climate change is an international and intergenerational issue, it is generally separated from people’s daily lives. In order to recruit grassroots participants into the climate change movement, environmental organizations should connect climate change with daily experiences. Based on the example of the DSCEJ in the New Orleans area where Hurricane Katrina struck, the study found that extreme weather such as intensive hurricanes may turn individual perceptions toward global climate change. In order to mobilize people to address climate change, the linkage between extreme weather events and individual perceptions should be examined more closely in order to generate practical climate justice frames and activities.

APPENDICES

Appendix A: Survey Questionnaire in English

Environmental Grassroots Groups and Global Climate Change

THE UNIVERSITY OF MICHIGAN
SCHOOL OF NATURAL RESOURCES
& ENVIRONMENT

Title: Environmental Grassroots Groups and Climate Change

Description of research and subject involvement: This survey was prepared by a graduate student in the University of Michigan's School of Natural Resources and Environment. Its purpose is to collect information on how environmental groups' constituencies develop increasing interest in climate change issues. The subjects of this survey are constituencies of grassroots environmental groups. The results of this survey will be used to evaluate programs addressing climate change.

Risks of and Benefits to participants in this research

This survey assumes no risk. It will take approximately twenty minutes to answer the eighteen questions. The survey results will help evaluate environmental group's program addressing global climate change, and should be useful as your group designs a program that better fulfills the goals of its participants. In addition, this survey will allow you to express your opinion on climate change. Moreover, a deeper understanding of effective programs addressing climate change will advance environmentalism and social science.

Confidential, Voluntary Nature of Participation:

This survey is confidential. No individual responses or personal information will be included with the survey results. Your participation in this survey is completely voluntary; you are not required to complete the survey or answer any questions against your will. If you have questions about this survey, please contact the researcher or faculty advisor.

The Researcher:

Hiromitsu Araki
The University of Michigan, School of Natural Resources and Environment
MS Candidate 2006
cell phone: 734-272-7472 email: hiroa@umich.edu

The Faculty Advisor:

Bunyan Bryant
The University of Michigan, School of Natural Resources and Environment
phone: 734-763-2470 email: bbryant@umich.edu
Should you have questions regarding your rights as a research participant, please contact the Institutional Review Board,

The Institutional Review Board:

540 E. Liberty Street, Suite 202, Ann Arbor, MI 48104-2210
phone: (734) 936-0933 email: irbhsbs@umich.edu

Name of your Organization: _____

For questions 1-4, 7-8, and 10-11, please check the appropriate boxes.

Question 1: To what extent are you personally concerned about the environmental problems listed below?

| | not at all | only a little | an average amount | more than average | a great deal |
|--|------------|---------------|-------------------|-------------------|--------------|
| Pollution of drinking water | | | | | |
| Pollution of rivers, lakes, and reservoirs | | | | | |
| Contamination of soil and water by toxic waste | | | | | |
| Contamination of soil and water by radioactivity from nuclear facilities | | | | | |
| Air pollution | | | | | |
| The loss of natural habitat for wildlife | | | | | |
| Damage to the Earth's ozone layer | | | | | |
| The loss of tropical rain forest | | | | | |
| Ocean and beach pollution | | | | | |
| Extinction of plant and animal species | | | | | |
| Urban sprawl and loss of open space | | | | | |
| Climate change, global warming | | | | | |
| Acid rain | | | | | |

Question 2: How familiar are you with the facts and arguments regarding the climate change (global warming) claims listed below?

| | not at all | only a little | an average amount | more than average | a great deal |
|--|------------|---------------|-------------------|-------------------|--------------|
| Human activities emitting greenhouse gases into the atmosphere cause climate change. | | | | | |
| Fossil fuel combustion emits the largest amount of the greenhouse gas carbon dioxide | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| Cutting forest/rainforest may increase greenhouse gas because trees fix and absorb carbon dioxide | | | | | |
| Climate change destroys wildlife habitat such as for polar bears | | | | | |
| Climate change melts ice in the polar regions and raises sea level. As a result, coastal areas may erode. | | | | | |
| Climate change may cause intensive hurricanes and flood | | | | | |
| Climate change may spread tropical infectious diseases such as malaria | | | | | |
| Climate change may increase heat strokes due to heat waves | | | | | |
| The U.S. has not participated in the international treaty to regulate greenhouse gases | | | | | |
| Development of renewable energy reduces greenhouse gas emissions | | | | | |
| Climate change may disproportionately affect people of color, the disadvantaged, developing nations and those on small islands | | | | | |

Question 3: To what extent are you **concerned about** the following effects of climate change (global warming)?

| | not at all | mildly | moderately | strongly | severely |
|--|------------|--------|------------|----------|----------|
| Drought and crop failure | | | | | |
| Wildlife habitat and ecological destruction | | | | | |
| Submerging lands and coastal erosion caused by a rise in sea level | | | | | |
| Increase in tropical infectious disease | | | | | |
| Hurricane and flood disaster | | | | | |
| Heat stroke | | | | | |

Question 4: To what extent are you **actually affected** by the problems caused by climate change (global warming)?

| | not at all | mildly | moderately | strongly | severely |
|--|------------|--------|------------|----------|----------|
| Drought and crop failure | | | | | |
| Wildlife habitat and ecological destruction | | | | | |
| Submerging lands/coastal erosion caused by a rise in sea level | | | | | |
| Increase in tropical infectious disease | | | | | |
| Hurricane and flood disaster | | | | | |
| Heat stroke | | | | | |

Question 5: Please rank the items listed below according to their contribution to climate change (global warming), from 1 for **the least** contributor to 6 for the greatest. No items can have the same ranking.

| | Rank |
|---|------|
| The federal government , which should pursue a more aggressive policy in addressing climate change | |
| Electric utilities emitting a large amount of greenhouse gas | |
| Oil and coal companies drilling and mining fossil fuels and emitting large amounts of greenhouse gas | |
| Car companies producing cars that consume a large amount of gas | |
| Timber industries cutting forests and rainforests | |
| Each individual who uses energy | |

Appendix A

Question 6: Please rank the items listed below according to the magnitude of your grievance and dissatisfaction regarding climate change (global warming), assigning **5** to the item with which you are **least** satisfied and 1 to the item most satisfied

| | Rank |
|---|------|
| Reluctant policy in mitigating climate change | |
| The large amount of greenhouse gas emission by industries | |
| The balance between environmental considerations and the pursuit of industrial interests in addressing climate change | |
| The role of climate change in endangering wild-life | |
| Disproportionate impact of climate change on people of color and the disadvantaged | |

Question 7: To what extent were you motivated to join environmental groups according to items listed below?

| | not at all | only a little | an average amount | more than average | a great deal |
|--|------------|---------------|-------------------|-------------------|--------------|
| Recruitment by friends, neighbors, and family members | | | | | |
| Recruitment through direct-mail | | | | | |
| Recruitment through door-to-door canvassing | | | | | |
| Interest in nature conservation | | | | | |
| Concern about environmental policies | | | | | |
| Concern about your living environment | | | | | |
| Concern about global climate change | | | | | |
| Services and goods provided by the group | | | | | |
| Intent to learn about environmental issues | | | | | |
| Intent to learn about climate change | | | | | |
| To make new friends in the group | | | | | |
| To have an opportunity to address environmental problems | | | | | |
| To have an opportunity to address climate change | | | | | |

Question 8: How active have you been in your group?

| | not at all | only a little | an average amount | more than average | a great deal | N/A |
|--|------------|---------------|-------------------|-------------------|--------------|-----|
| Regularly attend meetings or keep in contact with the staff of the group. | | | | | | |
| Pay membership dues, donate money, or buy goods for fund-raising | | | | | | |
| Engage in volunteer activities for the group. | | | | | | |
| Read the newsletters written by the group to educate myself. | | | | | | |
| Sign petitions, call, or write letters to elected officials on environmental issues. | | | | | | |
| Recruit new members. | | | | | | |
| Advocate for environmental issues to friends or community members. | | | | | | |
| Advocate for climate change issues to friends and community members. | | | | | | |
| Attend demonstrations and other direct actions. | | | | | | |

Question 9. Please rank the following items to address climate change according to your interest, from **1** for the item in which you are **least interested** to **7** for the item of most interest to you. No item can have the same ranking.

| | Rank |
|---|------|
| Lobbying for better preparation for intense disasters caused by climate change | |
| Campaigning to pressure companies emitting greenhouse gas to reduce fossil fuel consumption or shut their facilities down | |
| Lobbying to strengthen policy to protect wild life and ecology endangered by climate change | |
| Campaigning against logging of forests due to their carbon sink function | |
| Lobbying for policies to develop renewable energy and improve energy efficiency | |
| Educating yourself about climate change and what you can do | |
| Lobbying for participation in the international treaty to cap greenhouse gas emissions | |

Question 10. To what extent do you want to join the actions listed below to address climate change?

| | not at all | only a little | an average amount | more than average | a great deal |
|--|------------|---------------|-------------------|-------------------|--------------|
| Lobbying to strengthen flood control policy in order to prepare for intense hurricanes | | | | | |
| Lobbying to protect coastal areas from erosion and submergence in order to prepare for a rise in sea level | | | | | |
| Campaign against oil refineries and coal mines in order to reduce their greenhouse gases or shut the facilities down | | | | | |
| Campaign against fossil fuel usage by electric utilities | | | | | |
| Lobbying to conserve wildlife damaged by climate change | | | | | |
| Campaign to improve the fuel efficiency of cars | | | | | |
| Campaign against logging of forests and rain forests based on their carbon storage function | | | | | |
| Lobbying for the development of renewable energy | | | | | |
| Lobbying the US government to participate in the international treaty on climate change | | | | | |
| Lobbying for more research on climate change and development of technological solutions | | | | | |
| Educating individuals on climate change, renewable energy, and saving energy | | | | | |

Question 11. To what extent do you believe that the catastrophe of hurricane Katrina and Rita was caused by climate change?

| Not at all | Only a little | An average amount | more than average | A great deal |
|------------|---------------|-------------------|-------------------|--------------|
| | | | | |

Appendix A

- 99 -

For questions 13 to 18, please circle your answer.

Question 12. Which best describes your age group?

- a. 19 or younger
- b. 20-29
- c. 30-39
- d. 40-49
- e. 50-59
- f. 60 or older

Question 13. Your gender

- a. Male
- b. Female

Question 14. What is your employment status?

- a. Full-time worker
- b. Part-time worker
- c. Full-time homemaker
- d. College/university student
- e. Self-employed
- f. Retired
- g. Not employed

Question 15. Which best describes your household current annual income?

- a. Less than \$5,000
- b. \$5,000 to \$9,999
- c. \$10,000 to \$14,999
- d. \$15,000 to \$19,999
- e. \$20,000 to \$24,999
- f. \$25,000 to \$34,999
- g. \$35,000 to \$49,999
- h. \$50,000 to \$74,999
- i. \$75,000 to \$99,999
- j. \$100,000 to \$149,999
- k. \$150,000 or more

Question 16. How do you describe yourself?

- a. American Indian or Alaskan Native
- b. Asian, Asian American, or Pacific Islander
- c. Mexican American or Chicano
- d. Puerto Rican
- e. Latin American, South American, Central American, or other Hispanic
- f. Black or African American
- g. White
- h. Other

Question 17. What is the highest level of school that you have completed?

- a. 11th grade or less
- b. High school graduate/GED
- c. Some college, including an Associate's degree
- d. Bachelor's degree
- e. Beyond a Bachelors degree (some graduate work)

Appendix B: Survey Questionnaire in Spanish

Grupos de pueblos ambientales y cambios en el clima

THE UNIVERSITY OF MICHIGAN
SCHOOL OF NATURAL RESOURCES
& ENVIRONMENT

Descripción de la investigación y la implicación del tema:

Esta encuesta o cuestionario fue preparado por un estudiante del nivel de estudios graduados en la Universidad de Michigan de recursos naturales y del ambiente. El propósito del cuestionario es para acudir información sobre cómo los distritos electorales de los grupos ambientales se hacen mas interesados en los problemas del cambio en el clima. El tema de este cuestionario son los distritos electorales de los grupos ambientales de los pueblos. Los resultados de este cuestionario serán utilizados para evaluar los programas con respecto al cambio del clima.

Riesgos y ventajas a los participantes:

Este cuestionario no tiene ningún riesgo excepto su tiempo. El número de preguntas son 18 y tomará aproximadamente veinte minutos para contestarlas todas. Los resultados van a ser útiles para diseñar un programa más eficaz sobre el cambio del clima. Ésta puede ser su ventaja mas grande que puede obtener.

Privacidad de la participación: Este cuestionario es anónimo, y ningunas respuestas individuales e información personal serán identificadas con los resultados del examen. Su participación en este examen es totalmente voluntario. Ninguna persona es obligada a terminar el examen o a contestar a ningunas de las preguntas contra su voluntad.

El investigador:

Hiromitsu Araki

Universidad de Michigan

La escuela de los recursos naturales y del ambiente, candidato del 2006

teléfono celular: 734-272-7472

Correo electrónico: hiroa@umich.edu

Appendix B

- 101 -

En este cuestionario, su organización refiere a la comunidad para un ambiente mejor. Para las siguientes preguntas 1-4, 7-8, y 10-11, comprueba por favor las cajas apropiadas

Pregunta numero 1: ¿A qué medida o a cuanto se preocupa usted personalmente sobre los siguientes problemas ambientales enumerados ?

| | Absoluta mente nada | solame nte un poco | una cantidad media | más que promedio | fuerte mente |
|--|---------------------------|--------------------------|--------------------------|---------------------|-----------------|
| La contaminación del agua potable | | | | | |
| La contaminación de los ríos, lagos y depositos | | | | | |
| La contaminación del suelo y agua por la contaminación de la basura tóxica | | | | | |
| La contaminación del suelo y agua por radiactividad de las instalaciones nucleares | | | | | |
| La contaminación atmosférica o del aire | | | | | |
| La pérdida de hábitat natural a la vida salvaje | | | | | |
| La pérdida y el dano a la capa de ozono de la tierra | | | | | |
| La pérdida de las selvas o bosques tropicales | | | | | |
| La contaminación del océano y de la playa | | | | | |
| La extinción de especies de plantas y de animale | | | | | |
| La urbanización irregular y pérdida del espacio abiert | | | | | |
| El cambio del clima, calentamiento global | | | | | |
| La lluvia ácida | | | | | |

Pregunta numero 2: ¿De cuánto es enterado usted sobre los hechos y discusiones con respecto a las siguientes demandas enumeradas que dicen que han causado el cambio en el clima (calentamiento global) ?

| | Absoluta mente nada | solame nte un poco | una cantidad media | más que promedio | fuerte mente |
|---|---------------------------|--------------------------|--------------------------|---------------------|-----------------|
| Actividades humanas que emiten los gases del invernadero a la atmosfera que causan el cambio del clima. | | | | | |
| La combustión del combustible fósil emite la cantidad más grande del bióxido de carbono e | | | | | |

Appendix B

| | | | | | |
|---|--|--|--|--|--|
| Corte de arboles en selvas y bosques puede aumentar el gas del invernadero porque los árboles fijan y absorben el bióxido de carbono | | | | | |
| Destrucción del hábitat de vida salvaje por ejemplo para los osos polares | | | | | |
| Cambios en el clima que causen los derretimientos del hielo en las regiones polares y levanten el nivel del mar. Consecuentemente, las áreas costeras pueden erosionar. | | | | | |
| El cambio del clima puede causar huracanes intensivos e inundaciones | | | | | |
| El cambio del clima puede aumentar el contagio de enfermedades infecciosas tropicales tales como la malaria | | | | | |
| El cambio del clima puede aumentar los movimientos de calor debido a las olas de calor | | | | | |
| Los Estados Unidos no ha participado en el trato internacional para regular los gases del invernadero s | | | | | |
| El desarrollo de la energía reanudable reducen las emisiones de gas del invernadero | | | | | |
| Los cambios en el clima pueden afectar desproporcionadamente a la gente del color, a los países en desarrollo perjudicados, y a éstos en las islas pequeñas | | | | | |

Pregunta numero 3: ¿A qué medida o cuanto se preocupa usted sobre los efectos siguientes del cambio al clima (calentamiento global)?

| | Absoluta nada | solame nte un poco | una cantidad media | más que promedio | fuerte mente |
|---|------------------|--------------------------|--------------------------|---------------------|-----------------|
| La sequía y la falta de cosecha | | | | | |
| Habitat de la vida salvaje y la destrucción ecológica | | | | | |
| Submergencia de las tierras y la erosión costera causadas por una subida en nivel del mar | | | | | |
| Aumento de enfermedades e infecciones tropicales | | | | | |
| Disasters que dejan los huracanes y las inundaciones | | | | | |
| Movimientos de calor | | | | | |

Pregunta numero 4: ¿A qué medida o a cuanto es usted afectado realmente por los problemas causados por el cambio del clima (calentamiento global)?

| | Absolutamente nada | solamente un poco | una cantidad media | más que promedio | fuertemente |
|---|--------------------|-------------------|--------------------|------------------|-------------|
| La sequía y la falta de cosecha | | | | | |
| Habitat de la vida salvaje y la destrucción ecológica | | | | | |
| Submergencia de las tierras y la erosión costera causadas por una subida en nivel del mar | | | | | |
| Aumento de enfermedades e infecciones tropicales | | | | | |
| Disasters que dejan los huracanes y las inundaciones | | | | | |
| Movimientos de calor | | | | | |

Pregunta numero 5: Enumere o gradue por favor los artículos siguientes según su contribución al cambio del clima (calentamiento global), el 6 representa el contribuidor más grande, a 1 para el menos que contribuyó. Ningunos artículos pueden tener la misma graduación.

| | Enumere |
|---|---------|
| El gobierno federal, que debe perseguir una política más agresiva en la dirección del cambio del clima | |
| Las compañías de electricidad que emiten una cantidad grande de gas del invernadero | |
| Las compañías del aceite y del carbón que perforan y que minan los combustibles fósiles y que emiten a cantidades grandes del gas del invernadero | |
| Compañías de coches produciendo los coches que consumen una cantidad grande de gas | |
| Industrias de la madera que cortan bosques y selvas | |
| Cada individuo que utiliza energía | |

Pregunta numero 6: Enumere por favor los artículos siguientes según la magnitud de su agravio y descontento con respecto al cambio del clima (calentamiento global), asignando 5 al artículo con el cual usted está satisfecho lo menos posible y 1 al artículo en la cual usted esta completamente satisfecho.

| | Enumere |
|--|---------|
| La mayoría de la política renuente en cambio del clima de la atenuación | |
| La cantidad grande de emisión de gas del invernadero por industrias | |
| El equilibrio entre las consideraciones ambientales y la búsqueda de intereses industriales con respecto al cambio del clima | |
| El papel del cambio del clima que juega en poner en peligro la vida salvaje | |
| El impacto desproporcionado del cambio del clima en la gente del color y del perjudicado financieramente | |

Pregunta numero 7: ¿A qué medida fue usted motivado para ensamblar a su grupo según los siguientes artículos enumerados ?

| | Absolutamente nada | solamente un poco | una cantidad media | más que promedio | fuertemente |
|--|--------------------|-------------------|--------------------|------------------|-------------|
| El reclutamiento (o forma en que te formastes parte del grupo) por los amigos, los vecinos, y el reclutamiento por medio de los miembros de la familia | | | | | |
| Reclutamiento por correo directo | | | | | |
| Por solicitud de votos | | | | | |
| El reclutamiento a domicilio cuando venian de puerta a puerta grupos | | | | | |
| Por interes en la conservación de la naturaleza | | | | | |
| Por preocupacion sobre el cambio en el clima | | | | | |
| Por su preocupación del ambiente a donde vive | | | | | |
| Por servicios y mercancías proveeidas por el grupo | | | | | |
| Por el intento a aprender sobre los problemas ambientales | | | | | |
| Atentas aprender sobre el cambio del clima | | | | | |
| Para hacer nuevos amigos en el grupo | | | | | |
| Para tener una oportunidad de tratar problemas ambientales | | | | | |
| Para tener una oportunidad de tratar el cambio del clima | | | | | |

Pregunta numero 8: ¿Cuanto activo has sido usted en su grupo?

| | Absolutamente nada | solamente un poco | una cantidad media | más que promedio | fuertemente |
|---|--------------------|-------------------|--------------------|------------------|-------------|
| ¿Asistes regularmente a las reuniones o mantiene contacto con el personal del grupo? | | | | | |
| ¿Paga las deudas de miembro, has donado dinero, o has comprado mercancía para la movilización de fondos ? | | | | | |
| ¿Te involucras en las actividades voluntarias para el grupo? | | | | | |
| ¿Lees los boletines de noticias escritos por el grupo para educarse? | | | | | |
| ¿Firmas las peticiones, llamas, o escribes las cartas a los funcionarios elegidos en oficina sobre los problemas ambientales? | | | | | |
| ¿Reclute a nuevos miembros? | | | | | |
| ¿Habla por los problemas ambientales a los amigos o a los miembros de la Comunidad? | | | | | |
| ¿Habla por los problemas sobre el cambio del clima a los amigos y los miembros de la comunidad? | | | | | |
| ¿Atiende a demostraciones y a otras acciones directas? | | | | | |

Pregunta numero 9: Enumera o gradua por favor los puntos siguientes con respecto al cambio del clima según su interés, el numero 7 representa el artículo del cual usted está el más interesado a 1 para el artículo de menos interés a usted. Ningún artículo puede tener la misma graduación

| | Enumere |
|--|---------|
| Cabildear para una preparación mejor para los desastres intensos causados por el cambio del clima | |
| Hacer campaña para presionar a las compañías que emiten el gas del invernadero para reducir la consumición del combustible fósil o para cerrar sus instalaciones | |
| Cabildear para consolidar la política para proteger la vida salvaje y la ecología puestas en peligro por el cambio del clima | |
| Hacer campaña contra la registración de los bosques debido a su función de fregadero de carbón | |
| Cabildear para las políticas para desarrollar energía reanudable y para mejorar el rendimiento energético | |
| Educarse sobre el cambio del clima y de lo qué usted puede hacer | |
| El cabildeo para la participación en el trato internacional para capsular emisiones de gas del invernadero | |

Appendix B

Pregunta numero 10: ¿A qué medida o cuanto usted desea ensamblar las acciones siguientes enumeradas con respecto al cambio del clima ?

| | Absolutamente nada | solamente un poco | una cantidad media | más que promedio | fuertemente |
|--|--------------------|-------------------|--------------------|------------------|-------------|
| El cabildeo para consolidar la politica para controlar inundaciones para prepararse para los huracanes intensos | | | | | |
| Cabildear para proteger áreas costeras contra la erosión y submergencia para prepararse para una subida del nivel del mar | | | | | |
| La campaña contra refinерías de petróleo y minas de carbón para reducir sus gases del invernadero o cerrar las instalaciones | | | | | |
| Hacer campaña contra el uso del combustible fósil por las compañías de electricidad | | | | | |
| Cabildear para conservar la vida salvaje dañada por el cambio del clima | | | | | |
| Campana para mejorar la eficacia de combustible de los coches | | | | | |
| Campana contra la registraci3n de los bosques y de las selvas tropicales basados en su funci3n del almacenaje del carb3n | | | | | |
| Cabildear para el desarrollo de la energía reanudable | | | | | |
| Cabildear por el gobierno de los E.E.U.U. para participar en el tratado internacional sobre el cambio del clima | | | | | |
| Cabildear para más investigaci3n sobre el cambio del clima y el desarrollo de soluciones tecnologicas | | | | | |
| Educar a individuos sobre el cambio del clima, energía reanudable, y ahorrando energía | | | | | |

Pregunta numero 11: ¿A qué medida o a cuanto usted cree que la catástrofe del huracán Katrina y Rita fue causada por el cambio del clima?

| Absolutamente nada | solamente un poco | una cantidad media | más que promedio | fuertemente |
|--------------------|-------------------|--------------------|------------------|-------------|
| | | | | |

Appendix B

- 107 -

Para las siguientes preguntas del 13 al 18, circule su respuesta por favor.

Pregunta numero 12: ¿Cual categoria describe lo más mejor posible su edad?

- a. 19 o más joven
- b. 20-29
- c. 30-39
- d. 40-49
- e. 50-59
- f. 60 o más mayor de edad

Pregunta numero 13: Sexo

- a. masculine
- b. femenina

Pregunta numero 14: ¿Cuál es su estado de empleo?

- a. Trabaja horas completas
- b. Trabaja parcialmente
- c. Tiendes la casa/ casero
- d. Estudiante en la universidad
- e. Trabajador independiente
- f. Retirado o jubilado
- g. No está empleado o no tiene empleo

Pregunta numero 15: ¿Cuál describe lo más mejor posible sus ganados o dinero recibido anual actual en su casa?

- a. Menos de \$5,000
- b. \$5,000 — \$9,999
- c. \$10,000 — \$14,999
- d. \$15,000 — \$19,999
- e. \$20,000 — \$24,999
- f. \$25,000 — \$34,999
- g. \$35,000 — \$49,999
- h. \$50,000 — \$74,999
- i. \$75,000 — \$99,999
- j. \$100,000 — \$149,999
- k. \$150.000 o más

Pregunta numero16: ¿Cómo se describe usted?

- a. Indio Americano o nativo de Alaska
- b. Asiático Americano o Isleno Pacifico
- c. Mexicano Americano o Chicano
- d. Puertorriqueno
- e. Suramericano, Centroamericano u otra clase de Hispano
- f. negro o africano
- g. blanco
- h. Otro

Pregunta numero 17: ¿Cuál es el nivel más alto de la escuela que usted ha terminado?

- a. el grado 11 o menos
- b. Graduado de la escuela secundaria/GED
- c. Alguna universidad, incluyendo una licenciatura del grado asociado
- d. Bachillerat
- e. Mas alla de un bachillerato (un poco de escuela graduada)

Appendix C: The Guide Questions to Interview the Staff of Grassroots Environmental Organizations

1) Demography and Background

- Background of the foundation
- History
- Mission

2) Activities related to global climate change

- What programs does your organization carry out in order to address global climate change?
- What is the goal of the programs?

3) Frames related to global climate change

- What are the diagnostic frames?
- How does your organization explain and diagnose global climate change to your constituents?
- What problems do your organization focus regarding global climate change?
- What are the prognostic frames?
- What can your organization do to solve the problems?

4) Motivation to participate in the group

- How does your organization encourage people to participate in activities?
- How does your organization recruit members?
- What does your organization do in order to foster friendships and relationships among your constituents?
- Does your organization offer any services other than collective activities?

Appendix D: Tables of Correlation between Organizational Frames and Individual Factors

Table 5. 1: Degree of each environmental concern and the percentage of a great deal concern

| Q1 | 5 point-scale rating | | | | | | "a great deal" of concern | | | | | |
|--------------------------------|----------------------|------|------|--------|------|------|---------------------------|-----|-----|---------------|-------------|-------------|
| | Total | | Mean | | | | 5 point-scale | | | 4 point-scale | | |
| | N | Mean | SD | MS | GCJ | TPI | total | MS | GCJ | TPI | Gallup 2001 | Gallup 2006 |
| Climate change | 85 | 4.51 | 0.84 | 4.86 | 4.36 | 4.50 | 67% | 86% | 60% | 67% | 33% | 36% |
| Pollution of rivers and lakes | 84 | 4.49 | 0.87 | 4.86* | 4.49 | 4.06 | 67% | 86% | 64% | 50% | 58% | 51% |
| Contamination by toxic waste | 84 | 4.48 | 0.77 | 4.62 | 4.45 | 4.35 | 63% | 71% | 63% | 53% | 58% | 52% |
| Pollution of drinking water | 86 | 4.35 | 0.99 | 4.57 | 4.29 | 4.22 | 63% | 76% | 62% | 50% | 64% | 54% |
| Damage to the ozone layer | 86 | 4.35 | 0.86 | 4.57 | 4.31 | 4.16 | 55% | 62% | 53% | 50% | 47% | 40% |
| Air pollution | 85 | 4.31 | 0.96 | 4.67 | 4.30 | 3.94 | 55% | 67% | 53% | 44% | 48% | 44% |
| The loss of natural habitat | 83 | 4.31 | 0.99 | 4.95** | 4.13 | 4.00 | 59% | 95% | 47% | 47% | 48% | n/a |
| The loss of rain forest | 84 | 4.29 | 0.97 | 4.52 | 4.20 | 4.23 | 57% | 62% | 51% | 50% | 44% | 40% |
| Species extinction | 84 | 4.27 | 0.91 | 4.55 | 4.22 | 4.11 | 54% | 60% | 50% | 56% | 43% | 34% |
| Ocean pollution | 84 | 4.23 | 0.9 | 4.33 | 4.23 | 4.11 | 50% | 52% | 51% | 44% | 43% | n/a |
| Urban sprawl | 86 | 4.17 | 1.03 | 4.76** | 3.98 | 3.94 | 52% | 86% | 60% | 50% | 35% | n/a |
| Contamination by radioactivity | 86 | 4.01 | 1.26 | 4.10 | 4.02 | 3.89 | 53% | 48% | 57% | 50% | 49% | n/a |
| Acid rain | 78 | 3.89 | 1.12 | 4.57** | 3.70 | 3.61 | 40% | 62% | 35% | 28% | 28% | 24% |

*. significant mean difference at 0.05 level; **. significant mean difference at 0.01 level; marked at only highest mean

Table5. 2: Knowledge on global climate change

| Q2 | MS | GCJ | TPI | total |
|--|--------|------|------|-------|
| greenhouse gases emissions cause climate change | 4.33* | 3.58 | 3.55 | 3.75 |
| fossil fuel combustion emits greenhouse gases including carbon dioxide | 4.00 | 3.53 | 3.51 | 3.63 |
| Trees absorb carbon dioxide | 4.05 | 3.74 | 3.66 | 3.77 |
| climate change impacts on wildlife habitat | 4.48* | 3.58 | 3.77 | 3.90 |
| climate change raises sea level | 4.38* | 3.53 | 3.88 | 3.93 |
| climate change causes intensive hurricane | 4.10 | 3.63 | 4.05 | 3.96 |
| climate change spreads tropical diseases | 3.43 | 3.47 | 3.51 | 3.48 |
| climate change increases heat stroke | 3.38 | 3.17 | 3.63 | 3.46 |
| US non-participation in the Kyoto protocol | 4.43** | 3.58 | 3.34 | 3.68 |
| Renewable energy reduces greenhouse gases | 4.33* | 3.74 | 3.37 | 3.70 |
| Climate change more impacts on vulnerable people | 4.24 | 3.68 | 3.65 | 3.81 |

five-point scale rating; *. significant mean difference at 0.05 level;

** . significant mean difference at 0.01 level; marked at only highest mean

Table 5. 3: Concern about climate change impacts

| Q3 | MS | GCJ | TPI | Total |
|--------------------------|-------|-------|------|-------|
| Drought and crop failure | 4.33 | 3.87 | 4.00 | 4.01 |
| Wildlife habitat | 4.67* | 4.00 | 4.05 | 4.17 |
| Sea level rise | 4.40 | 4.41 | 3.89 | 4.29 |
| Tropical disease | 3.90 | 4.20 | 3.84 | 4.05 |
| Hurricane and flood | 4.29 | 4.63* | 4.11 | 4.43 |
| Heat stroke | 3.60 | 4.15* | 3.47 | 3.87 |

five-point scale rating; *. significant mean difference at 0.05 level;

**. significant difference at 0.01 level; marked at only highest mean

Table 5. 4: Experience of climate change impacts

| Q4 | MS | GCJ | TPI | Total |
|--------------------------|------|--------|------|-------|
| Drought and crop failure | 2.67 | 3.34* | 2.53 | 3.00 |
| Wildlife habitat | 2.95 | 3.34 | 2.58 | 3.08 |
| Sea level rise | 2.24 | 4.09** | 2.42 | 3.27 |
| Tropical disease | 2.05 | 3.09* | 2.58 | 2.72 |
| Hurricane and flood | 2.43 | 4.62** | 2.95 | 3.72 |
| Heat stroke | 2.14 | 3.51** | 2.53 | 2.97 |

five-point scale rating; *. significant mean difference at 0.05 level; **. significant mean difference at 0.01 level; marked only at the highest mean

Table 5. 5: Attribution of global climate change

| Q5 | MS | GCJ | TPI | Total |
|------------------------|------|------|------|-------|
| Federal Government | 4.83 | 4.19 | 4.00 | 4.35 |
| Electric utilities | 3.06 | 3.15 | 3.54 | 3.21 |
| Oil and coal companies | 3.33 | 4.27 | 4.23 | 3.96 |
| Car companies | 3.94 | 3.50 | 3.85 | 3.72 |
| Timber industries | 2.39 | 3.27 | 2.46 | 2.81 |
| Each individuals | 3.44 | 2.65 | 2.85 | 2.95 |

1-6 ranking order; no significant difference

Appendix D

- 114 -

Table 5. 6: Dissatisfaction with global climate change

| Q6 | MS | GCJ | TPI | Total |
|--|------|------|------|-------|
| Reluctant policies | 4.18 | 3.69 | 3.85 | 3.88 |
| Emissions from industries | 3.29 | 3.69 | 3.08 | 3.43 |
| Balance between environment and industrial profits | 3.53 | 2.73 | 2.85 | 3.00 |
| Endangering wildlife | 2.12 | 2.42 | 2.15 | 2.27 |
| Disproportionate impact on vulnerable people | 1.88 | 2.46 | 2.77 | 2.36 |

1-5 ranking order; no significant difference

Table 5. 7: Motivation to join the environmental organizations

| Q7 | MS | GCJ | TPI | Total |
|--|--------|------|-------|-------|
| Recruitment by friends, family members, neighbors | 2.17 | 2.43 | 2.79 | 2.46 |
| Recruitment through direct-mail | 1.84 | 1.66 | 2.53* | 1.93 |
| Recruitment through door-to-door visits | 1.58 | 1.94 | 2.22 | 1.92 |
| Interest in nature conservation | 4.55** | 3.20 | 3.37 | 3.61 |
| Concern about environmental policies | 4.45* | 3.60 | 3.94 | 3.92 |
| Concern about living environment | 4.25 | 4.09 | 3.83 | 4.07 |
| Concern about climate change | 3.95 | 3.71 | 4.11 | 3.88 |
| Services provided by the organization | 2.65 | 2.83 | 2.42 | 2.68 |
| To learn about environmental issues | 3.80 | 3.34 | 3.47 | 3.50 |
| To learn about climate change | 3.00 | 3.26 | 3.47 | 3.25 |
| To make new friends | 2.70 | 2.29 | 2.63 | 2.49 |
| To have opportunities to address the environmental issues | 4.05 | 3.46 | 3.37 | 3.59 |
| To have opportunities to address the climate change issues | 3.63 | 3.29 | 3.47 | 3.42 |

5 point-scale rating; *. significant mean difference at 0.05 level;

** . significant mean difference at 0.01 level; marked only at the highest mean

Table 5. 8: The Degree of activeness of respondents in their organizations

| Q8 | MS | GCJ | TPI | Total |
|---|--------|------|------|-------|
| Attendance at meetings | 3.61 | 3.14 | 2.53 | 3.13 |
| Pay membership dues, donations | 3.89** | 2.56 | 2.93 | 3.01 |
| Engagement in volunteer activities | 3.16 | 2.61 | 3.00 | 2.84 |
| Reading newsletters | 3.90 | 3.21 | 3.25 | 3.41 |
| Signing petitions, writing letters to elected officials | 3.75 | 2.97 | 3.25 | 3.25 |
| Recruitment new members | 2.15 | 2.56 | 2.07 | 2.34 |
| Advocacy for the environmental issues to friends and neighbors | 3.80* | 2.86 | 3.00 | 3.15 |
| Advocacy for the climate change issues to friends and neighbors | 3.63* | 2.67 | 3.13 | 3.04 |
| Participation in direct actions | 2.45 | 2.39 | 3.13 | 2.57 |

5 point-scale rating ; *. significant mean difference at 0.05 level;

** . significant mean difference at 0.01 level; marked only at the highest mean

Appendix D

- 117 -

Table 5. 9: Activities in which respondents are interested

| Q9 | MS | GCJ | TPI | Total |
|--|-------|--------|--------|-------|
| Lobbying for disaster preparation | 2.37 | 4.96** | 3.50 | 3.72 |
| Campaign to pressure industries | 4.28 | 3.52 | 5.92** | 4.32 |
| Lobbying to protect wildlife | 3.89 | 4.52 | 4.00 | 4.19 |
| Campaign against logging | 3.16 | 3.22 | 3.00 | 3.15 |
| Lobbying for renewable energy | 5.58 | 4.30 | 4.67 | 4.83 |
| Educating individuals | 3.67 | 5.39* | 3.25 | 4.32 |
| Lobbying for participation in international treaty | 4.68* | 3.00 | 3.67 | 3.74 |

1-6 ranking order; *. significant mean difference at 0.05 level; **. significant mean difference at 0.01 level; marked only at the highest mean

Table 5. 10: Activities in which respondents are willing to participate

| Q10 | MS | GCJ | TPI | Total |
|---|--------|--------|------|-------|
| Lobbying for flood control policy and hurricane preparation | 2.53 | 3.74** | 3.11 | 3.28 |
| Lobbying to protect coastal area from a rise in sea level | 2.68 | 3.86** | 3.26 | 3.41 |
| Campaign against refineries to reduce greenhouse gases | 3.74 | 3.32 | 3.63 | 3.51 |
| Campaign against electric utilities to reduce fossil fuel consumption | 3.67 | 3.32 | 3.83 | 3.53 |
| Lobbying to protect wildlife from climate change | 4.00 | 3.61 | 3.44 | 3.67 |
| Campaign for fuel efficient car | 4.37* | 3.58 | 4.00 | 3.89 |
| Campaign against logging trees with carbon storage function | 3.84 | 3.27 | 3.72 | 3.53 |
| Lobbying for renewable energy | 4.47* | 3.65 | 3.83 | 3.91 |
| Lobbying for US participation in international treaty regulating greenhouse gases | 4.47** | 3.38 | 3.95 | 3.80 |
| Lobbying for more research and technology development | 4.16 | 3.45 | 3.53 | 3.64 |
| Educating individuals for energy conservation | 4.32 | 3.84 | 3.54 | 3.81 |

*. significant mean difference at 0.05 level; **. significant mean difference at 0.01 level; marked at only highest mean

Table 5. 11: The degree of belief in the causal relationships between climate change and Hurricane Katrina

| Q11 | MS | GCJ | TPI | Total |
|--|------|------|------|-------|
| Belief in causal relationship between climate change and Katrina | 4.15 | 4.07 | 4.26 | 4.13 |
| no significant mean difference | | | | |

Appendix E: Demographic Data

Figure 5.1: Age distribution of samples

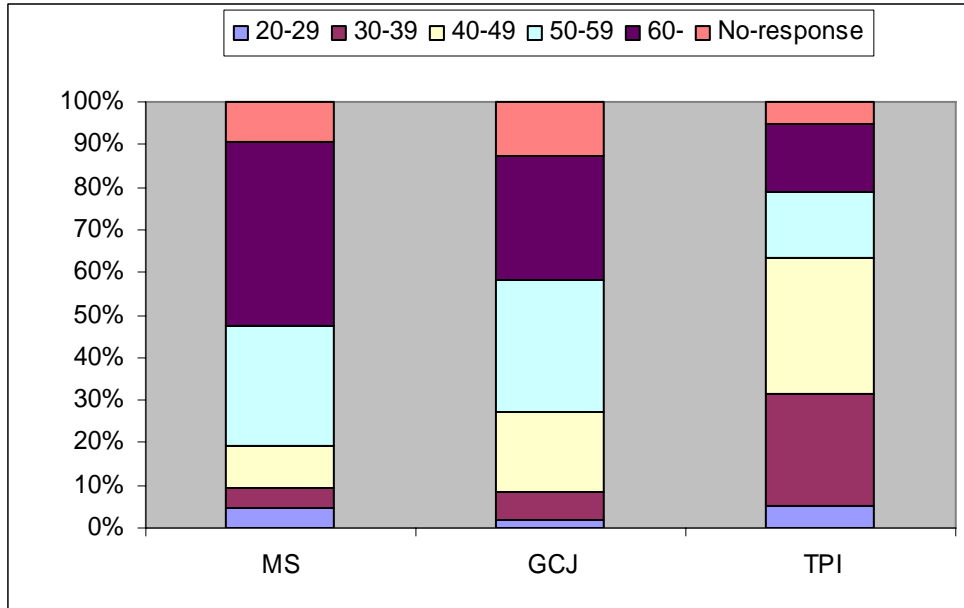


Figure5. 2: Gender distribution

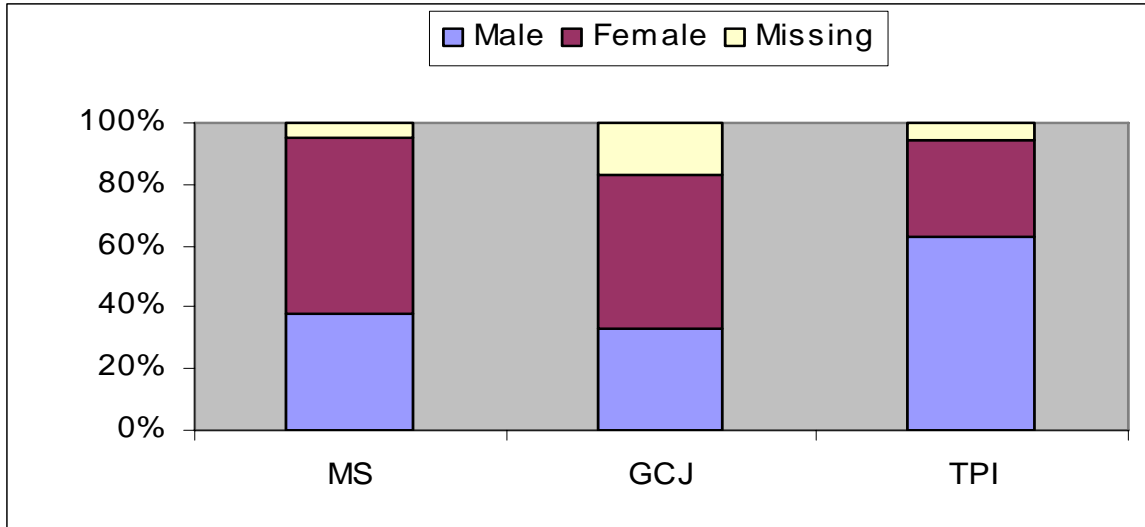


Figure 5.3 : Income distribution

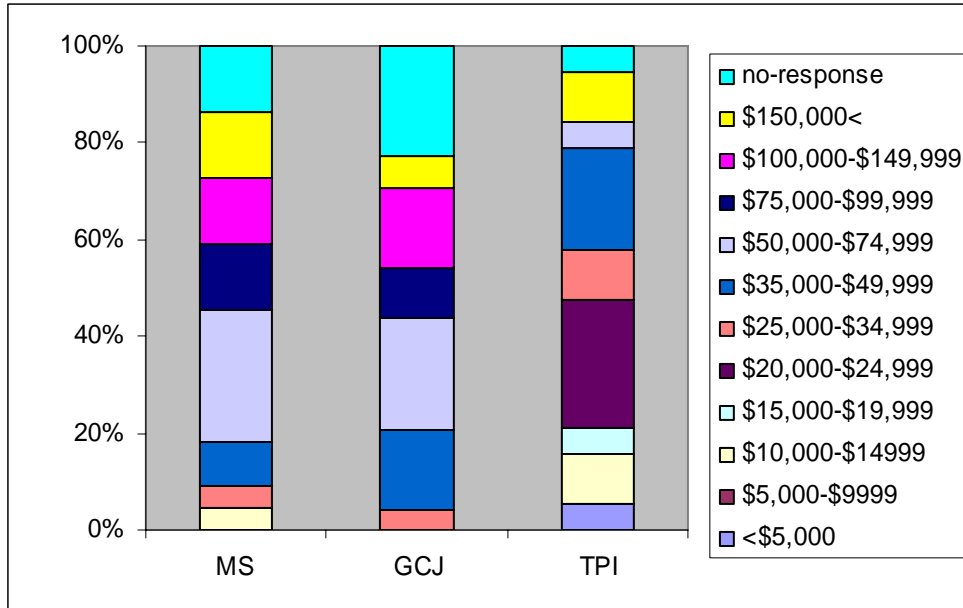


Figure 5. 4: Employment status

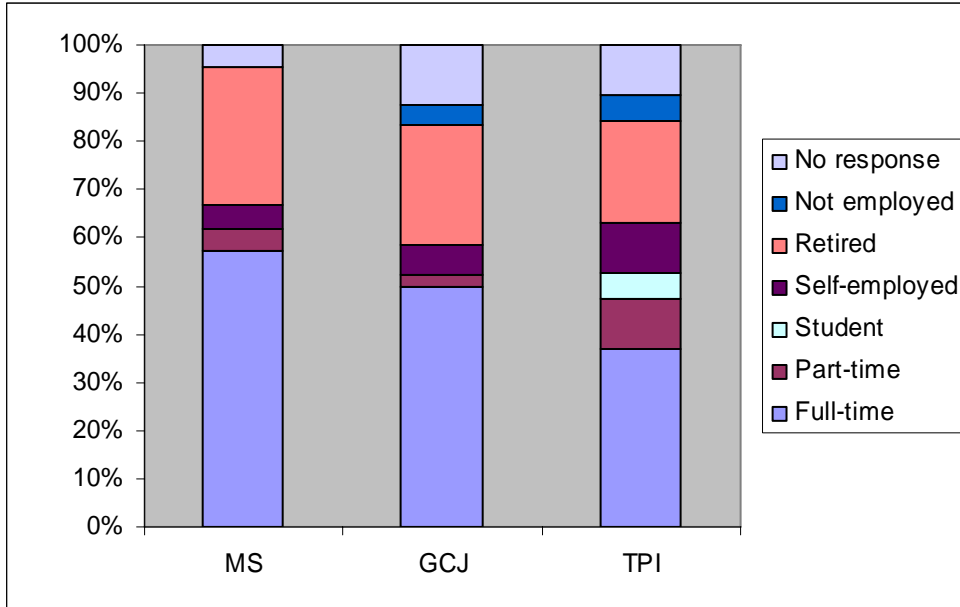


Figure 5. 5: Race distribution

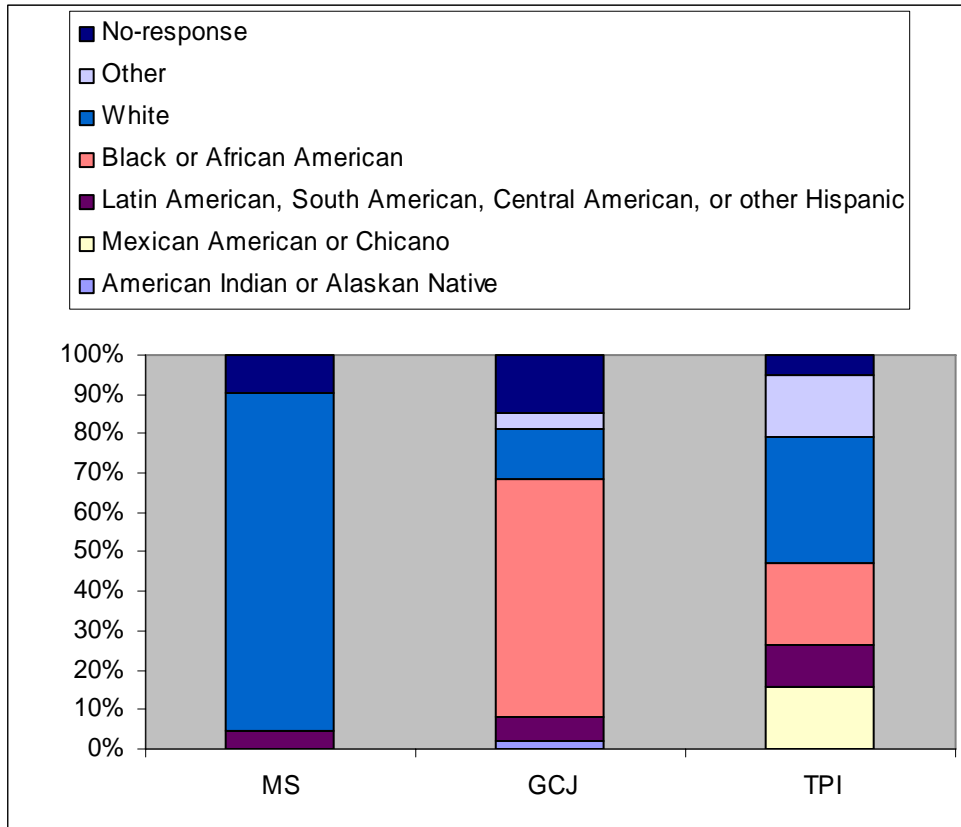
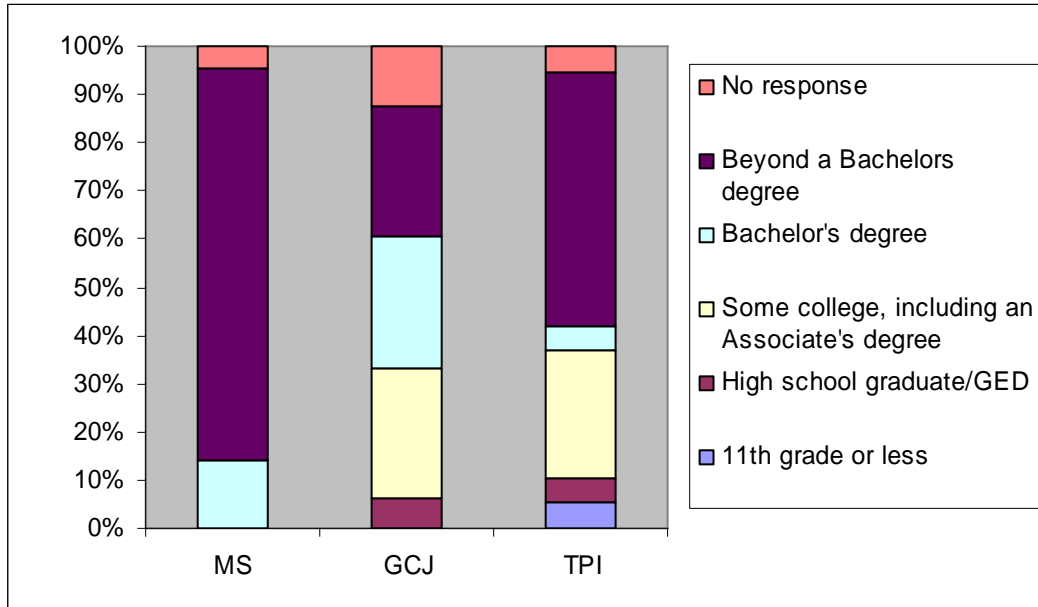


Figure 5. 6: level of education



Appendix F: Tables of Correlations between Individual Factors

Table 5. 12: Incentives to join an organization and Activeness in the organization

| Q7and Q8 | Attending at meetings | Membership dues, donations | Volunteer activities | Reading newsletters | Petitions and letters | Recruiting new members | Advocating for environment | Advocating for climate change | Participating in direct actions |
|--|-----------------------|----------------------------|----------------------|---------------------|-----------------------|------------------------|----------------------------|-------------------------------|---------------------------------|
| Recruited by friends, neighbors, and family members | .256* | .209 | .259* | .099 | -.074 | .195 | .065 | -.025 | .004 |
| Recruited by direct-mails | -.128 | .071 | -.007 | -.069 | .000 | -.120 | -.064 | -.010 | -.025 |
| Recruited by door-to-door visits | .014 | .051 | -.052 | -.084 | -.035 | .049 | -.075 | -.034 | .129 |
| Interests in nature conservation | .425** | .596** | .448** | .434** | .379** | .267* | .448** | .423** | .229 |
| Concerns about environmental policies | .285* | .362** | .415** | .323** | .383** | .255* | .414** | .475** | .359** |
| Concerns about living environment | .355** | .326** | .456** | .439** | .393** | .341** | .446** | .502** | .329** |
| Concerns about climate change | .211 | .204 | .285* | .229 | .285* | .192 | .361** | .343** | .264* |
| Services provided by organization | .046 | -.073 | .065 | .079 | .018 | .053 | .101 | .142 | .047 |
| To learn about the environmental issues | .197 | .239 | .271* | .319** | .265* | .072 | .258* | .297* | .194 |
| To learn about climate change | .142 | .128 | .209 | .194 | .200 | .119 | .165 | .182 | .186 |
| To make new friends | .285* | .250* | .242* | .117 | .023 | .200 | .172 | .195 | .144 |
| To have opportunities to address environmental issues | .477** | .355** | .565** | .479** | .473** | .399** | .515** | .597** | .390** |
| To have opportunities to address the climate change issues | .272* | .233 | .429** | .275* | .333** | .340** | .416** | .473** | .298* |

Pearson correlation; *. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

Table 5. 13: Concerns about climate impacts and Interest in activities

| Concern about climate impacts of | | Lobbying for disaster preparation | Campaign against industries | Lobbying for wildlife protection from climate change | Campaign against tree logging | Lobbying for renewable energy | Self education | Lobbying for the international treaty |
|---|-----|--|------------------------------------|---|--------------------------------------|--------------------------------------|-----------------------|--|
| droughts | MS | .291 | .176 | -.070 | .011 | -.096 | -.248 | -.021 |
| | GCJ | -.446 | .242 | -.367 | -.379 | .255 | .079 | .150 |
| | TPI | .148 | .077 | .271 | -.208 | .032 | -.324 | .109 |
| wildlife habitats | MS | -.213 | -.156 | .491* | .426 | .137 | -.431 | -.081 |
| | GCJ | -.507 | .087 | -.308 | -.343 | .196 | .303 | .157 |
| | TPI | .189 | .088 | .423 | -.186 | .334 | -.543 | -.085 |
| sea level rise | MS | .190 | -.077 | -.123 | -.164 | .083 | -.159 | .150 |
| | GCJ | -.467 | .235 | -.317 | -.361 | -.019 | .345 | -.060 |
| | TPI | .212 | -.082 | .282 | -.347 | .217 | -.297 | .046 |
| tropical disease | MS | .266 | .371 | -.153 | -.252 | -.040 | -.321 | .192 |
| | GCJ | -.338 | .451 | -.138 | -.248 | .037 | -.035 | .016 |
| | TPI | .409 | -.006 | .249 | -.239 | -.104 | -.221 | -.050 |
| hurricanes | MS | .368 | .061 | -.088 | -.199 | -.122 | -.042 | -.092 |
| | GCJ | -.316 | .271 | -.197 | -.225 | -.335 | .296 | -.159 |
| | TPI | .328 | -.231 | .524 | -.351 | .408 | -.506 | -.092 |
| heatstroke | MS | .335 | -.146 | -.207 | -.276 | -.035 | .051 | .148 |
| | GCJ | -.349 | .238 | -.111 | -.304 | -.088 | .215 | -.166 |
| | TPI | .059 | -.448 | .188 | -.648 | .214 | .058 | .322 |

Pearson correlation; *.p<0.05; **.p<0.01; marked only at positive correlation

Table 5. 14: Concerns about climate impacts and Willingness to participate

| Concern about climate impacts of | | Lobbying for preparation for hurricanes | Lobbying for coastal protection from a sea level rise | Campaign against refineries | Campaign against electric utilities | Lobbying for wildlife protection | Campaign for fuel efficient cars | Campaign against tree logging | Lobbying for renewable energy | Lobbying for international treaty | Lobbying for more research | Education for energy conservation |
|----------------------------------|-----|---|---|-----------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|-----------------------------------|----------------------------|-----------------------------------|
| | MS | 0.138 | -0.048 | 0.284 | 0.242 | -0.208 | -0.105 | -0.101 | -0.289 | -0.151 | -0.098 | -0.578 |
| droughts | GCJ | 0.141 | 0.228 | .331* | 0.276 | .419** | .561** | .439** | .496** | .436** | .477** | .479** |
| | TPI | 0.262 | 0.219 | 0.431 | .480* | 0.460 | 0.392 | 0.277 | 0.463 | 0.341 | 0.385 | 0.412 |
| wildlife habitats | MS | -0.042 | -0.031 | 0.357 | 0.201 | -0.137 | -0.233 | -0.012 | -0.271 | 0.046 | -0.309 | -0.245 |
| | GCJ | 0.113 | 0.231 | 0.312 | 0.241 | .410* | .535** | 0.219 | .367* | .353* | .402* | .376* |
| | TPI | 0.279 | 0.320 | .625** | .568* | .621** | .575* | 0.467 | .583* | .485* | .544* | .512* |
| sea level rise | MS | -0.273 | -0.404 | 0.227 | 0.404 | -0.250 | -0.102 | -0.365 | -0.265 | -0.331 | -0.173 | -0.167 |
| | GCJ | 0.221 | .342* | .354* | 0.273 | .401* | .456** | 0.293 | .437** | .420* | .450** | .402* |
| | TPI | 0.242 | 0.375 | .513* | .637** | .567* | .508* | 0.413 | .649** | 0.378 | .578** | 0.432 |
| tropical disease | MS | 0.331 | 0.346 | 0.387 | 0.339 | 0.159 | 0.033 | -0.029 | -0.021 | 0.021 | -0.055 | -0.611 |
| | GCJ | -0.071 | 0.112 | 0.292 | .386* | 0.241 | .390* | .373* | 0.331 | 0.281 | .394* | .393* |
| | TPI | 0.251 | 0.273 | 0.431 | .497* | 0.356 | 0.359 | 0.375 | 0.336 | 0.424 | .494* | 0.398 |
| hurricanes | MS | 0.408 | 0.149 | 0.449 | 0.406 | 0.000 | -0.061 | 0.055 | -0.113 | 0.126 | 0.047 | -0.351 |
| | GCJ | 0.170 | 0.279 | 0.187 | 0.123 | 0.158 | 0.164 | 0.123 | 0.242 | 0.224 | 0.243 | 0.304 |
| | TPI | 0.255 | 0.373 | .508* | 0.412 | 0.465 | 0.393 | 0.428 | .474* | 0.304 | .471* | 0.344 |
| heatstroke | MS | 0.109 | 0.018 | 0.151 | 0.211 | 0.071 | -0.145 | -0.182 | -0.302 | -0.207 | 0.010 | -0.403 |
| | GCJ | 0.167 | 0.267 | 0.318 | .354* | 0.286 | .520** | 0.270 | .361* | .355* | .391* | .461** |
| | TPI | 0.178 | 0.263 | 0.214 | 0.425 | 0.241 | 0.240 | 0.162 | 0.378 | 0.083 | 0.278 | 0.306 |

Pearson correlation; *,p<0.05; **,p<0.01; marked only at positive correlation

Table 5. 15: Attribution of climate change and Interest in activities

| Attribution to | Interest in | Lobbying for disaster preparation | Campaign against industries | Lobbying for wildlife protection | Campaign against tree logging | Lobbying for renewable energy | Self education | Lobbying for the international treaty |
|-------------------------|-------------|-----------------------------------|-----------------------------|----------------------------------|-------------------------------|-------------------------------|----------------|---------------------------------------|
| Federal government | MS | .496* | .285 | -.253 | -.396 | -.043 | -.116 | .142 |
| | GCJ | -.108 | -.159 | .231 | .492* | -.163 | -.269 | .099 |
| | TPI | .126 | .060 | .269 | .069 | -.086 | .076 | -.370 |
| Electric utilities | MS | .150 | .526* | -.141 | -.232 | -.224 | -.027 | -.151 |
| | GCJ | .041 | .251 | -.014 | .468 | -.128 | -.118 | -.353 |
| | TPI | .275 | -.213 | -.049 | -.487 | -.035 | .166 | .118 |
| Oil and coal industries | MS | .148 | .283 | -.009 | .263 | -.038 | -.418 | .010 |
| | GCJ | .321 | .407 | -.127 | -.001 | -.358 | -.106 | -.195 |
| | TPI | -.219 | -.402 | .280 | -.466 | .549 | -.036 | .179 |
| Car companies | MS | .120 | -.110 | -.119 | -.124 | -.103 | .163 | .020 |
| | GCJ | -.051 | -.016 | -.040 | -.431 | .215 | .137 | .163 |
| | TPI | -.296 | -.572 | -.099 | .076 | -.179 | .515 | .210 |
| Timber industries | MS | -.406 | -.432 | .469* | .422 | .178 | .006 | -.167 |
| | GCJ | -.171 | -.251 | .184 | .080 | -.051 | .110 | .103 |
| | TPI | .288 | .118 | .221 | .310 | -.150 | -.404 | -.193 |
| Individual people | MS | -.361 | -.393 | .031 | .094 | .166 | .243 | .119 |
| | GCJ | -.072 | -.129 | -.200 | -.540 | .402 | .263 | .123 |
| | TPI | -.135 | .639* | -.401 | .286 | -.048 | -.173 | .046 |

Pearson correlation; *. P<0.05 level; **. P<0.01(2-tailed); marked only at positive correlation

Table 5. 16: Attribution of climate change and Willingness to participate

| Attribution to | Willingness to participate in | Lobbying for preparation for hurricanes | Lobbying for coastal protection from a sea level rise | Campaign against refineries | Campaign against electric utilities | Lobbying for wildlife protection | Campaign for fuel efficient cars | Campaign against tree logging | Lobbying for renewable energy | Lobbying for international treaty | Lobbying for more research | Education for energy conservation |
|-------------------------|-------------------------------|---|---|-----------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Federal government | MS | -.282 | -.388 | -.268 | -.316 | -.518 | -.380 | -.507 | -.194 | -.364 | -.477 | .218 |
| | GCJ | .218 | .288 | .496* | .639** | .405 | .391 | .632** | .655** | .451 | .570** | .513* |
| | TPI | .511 | .606* | .389 | .249 | .584* | .277 | .634* | .355 | .316 | .581* | .226 |
| Electric utilities | MS | .453 | .450 | .280 | .452 | .187 | .090 | .230 | .397 | .262 | -.006 | -.012 |
| | GCJ | -.133 | -.308 | .103 | .082 | -.042 | -.139 | .042 | -.051 | -.156 | .181 | .087 |
| | TPI | -.194 | .048 | -.182 | .028 | -.183 | -.102 | -.193 | .007 | -.073 | .038 | -.042 |
| Oil and coal industries | MS | .000 | .000 | .306 | .058 | .082 | .000 | .313 | -.117 | -.042 | .098 | -.339 |
| | GCJ | .124 | -.223 | -.165 | -.321 | -.283 | -.276 | -.279 | -.409 | -.328 | -.258 | -.086 |
| | TPI | -.342 | -.253 | -.111 | .111 | -.052 | -.046 | -.363 | .115 | -.303 | -.106 | -.003 |
| Car companies | MS | .419 | .477* | .029 | .038 | .050 | .267 | .159 | .266 | .240 | .132 | -.293 |
| | GCJ | .102 | .207 | .081 | .062 | .268 | .320 | -.019 | .039 | .013 | .030 | .000 |
| | TPI | -.265 | -.444 | -.556 | -.612 | -.601* | -.506 | -.477 | -.544 | -.205 | -.591 | -.278 |
| Timber industries | MS | -.326 | -.032 | -.141 | -.251 | .297 | .145 | .207 | -.006 | .137 | .067 | .273 |
| | GCJ | -.175 | -.239 | -.428 | -.527 | -.401 | -.058 | -.362 | -.483 | -.197 | -.430 | -.329 |
| | TPI | .271 | .079 | .173 | -.156 | .172 | .075 | .363 | -.069 | .494 | .154 | .215 |
| Individual people | MS | -.171 | -.357 | -.101 | .038 | -.057 | -.071 | -.240 | -.273 | -.170 | .178 | .028 |
| | GCJ | -.169 | .126 | -.205 | -.117 | -.082 | -.274 | -.181 | .010 | .048 | -.246 | -.269 |
| | TPI | -.029 | -.051 | .175 | .284 | .022 | .180 | -.047 | .087 | -.209 | -.060 | -.106 |

Pearson correlation; *. P<0.05 level; **. P<0.01(2-tailed); marked only at positive correlation

Table 5. 17: Dissatisfaction with issues regarding climate change and Interests in activities

| Dissatisfaction with | Interest in | Lobbying for disaster preparation | Campaign against industries | Lobbying for wildlife protection | Campaign against tree logging | Lobbying for renewable energy | Self education | Lobbying for the international treaty |
|---|-------------|-----------------------------------|-----------------------------|----------------------------------|-------------------------------|-------------------------------|----------------|---------------------------------------|
| | | | | | | | | |
| Reluctant policies | MS | .076 | .169 | -.342 | -.549 | .033 | .221 | .251 |
| | GCJ | -.134 | -.502 | -.097 | .236 | .003 | .339 | .121 |
| | TPI | .105 | -.139 | .112 | .214 | .080 | -.069 | -.271 |
| Emissions from industries | MS | -.126 | .107 | .220 | .438 | .138 | -.541 | .016 |
| | GCJ | -.313 | .110 | -.092 | .241 | .031 | -.354 | .386 |
| | TPI | -.154 | -.274 | -.314 | .103 | -.215 | .520 | .063 |
| Excessive pursuits of industrial interests | MS | -.047 | -.040 | -.202 | .024 | -.241 | .252 | .017 |
| | GCJ | .263 | -.285 | -.050 | -.060 | -.075 | .056 | .107 |
| | TPI | -.504 | .328 | .000 | .723** | .160 | -.317 | -.067 |
| Endangering wildlife habitats | MS | -.041 | -.218 | .565* | .417 | -.269 | -.168 | -.140 |
| | GCJ | .143 | .145 | .149 | -.345 | .040 | -.230 | .133 |
| | TPI | .163 | -.162 | .237 | -.145 | -.273 | .271 | -.143 |
| Disproportionate impacts on the disadvantaged | MS | .165 | .019 | -.263 | -.424 | .435 | .212 | -.126 |
| | GCJ | .031 | .464* | .093 | -.106 | .012 | .051 | -.509 |
| | TPI | .048 | .037 | .206 | -.670 | .419 | -.247 | .228 |

Pearson correlation; *. P<0.05 level; **. P<0.01(2-tailed); marked only at positive correlation

Table 5. 18: Dissatisfaction with issues regarding climate change and Willingness to participate

| Dissatisfaction with | Willingness to participate in | Lobbying for preparation for hurricanes | Lobbying for coastal protection from a sea level rise | Campaign against refineries | Campaign against electric utilities | Lobbying for wildlife protection | Campaign for fuel efficient cars | Campaign against tree logging | Lobbying for renewable energy | Lobbying for international treaty | Lobbying for more research | Education for energy conservation |
|---|-------------------------------|---|---|-----------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Reluctant policies | MS | -.253 | -.329 | -.306 | -.298 | -.390 | -.093 | -.454 | .153 | -.096 | -.148 | .689** |
| | GCJ | .128 | .273 | .082 | .158 | .314 | .237 | .074 | .291 | .383 | .218 | .175 |
| | TPI | .174 | .231 | .532 | .407 | .194 | .372 | .280 | .199 | .355 | .356 | .384 |
| Emissions from industries | MS | .217 | .401 | .384 | .265 | .286 | .100 | .495* | -.005 | .280 | .099 | -.556 |
| | GCJ | .126 | -.057 | .201 | .042 | .101 | -.053 | .215 | .129 | .162 | .185 | .060 |
| | TPI | -.318 | -.388 | -.286 | -.245 | -.568 | -.189 | -.448 | -.390 | -.089 | -.478 | -.032 |
| Excessive pursuits of industrial interests | MS | .324 | .568* | .054 | .246 | .288 | .183 | .385 | .274 | .303 | .101 | -.006 |
| | GCJ | -.148 | -.273 | -.513 | -.396 | -.344 | -.162 | -.435 | -.330 | -.298 | -.427 | -.378 |
| | TPI | -.293 | -.491 | -.086 | -.124 | -.067 | -.112 | -.089 | -.125 | -.227 | -.221 | -.473 |
| Endangering wildlife habitats | MS | -.187 | -.376 | .092 | -.186 | -.136 | -.512 | -.140 | -.664 | -.258 | -.451 | .034 |
| | GCJ | -.074 | -.071 | -.066 | -.281 | .042 | -.153 | -.018 | -.084 | -.319 | -.136 | -.087 |
| | TPI | .459 | .473 | .176 | .064 | .481 | .242 | .503 | .314 | .385 | .332 | .266 |
| Disproportionate impacts on the disadvantaged | MS | -.199 | -.429 | -.280 | -.105 | -.150 | .313 | -.430 | .235 | -.312 | .406 | -.109 |
| | GCJ | .135 | .076 | .230 | .304 | -.068 | .056 | .141 | -.012 | -.003 | .118 | .166 |
| | TPI | -.213 | -.026 | -.336 | -.116 | -.132 | -.287 | -.277 | -.038 | -.430 | -.075 | -.230 |

Pearson correlation; *, P<0.05 level; **, P<0.01(2-tailed); marked only at positive correlation

Table5. 19: Experience of climate impacts and Interest in activities

| Experience of | Interest in | Interest in | | | | | | |
|------------------------|-------------|-----------------------------------|-----------------------------|----------------------------------|-------------------------------|-------------------------------|----------------|---------------------------------------|
| | | Lobbying for disaster preparation | Campaign against industries | Lobbying for wildlife protection | Campaign against tree logging | Lobbying for renewable energy | Self education | Lobbying for the international treaty |
| Drought | MS | -.219 | -.136 | .183 | .205 | .141 | -.142 | .128 |
| | GCJ | -.309 | .338 | -.092 | -.271 | .033 | -.077 | .115 |
| | TPI | -.045 | -.104 | .144 | -.110 | -.397 | .512 | -.073 |
| Ecological destruction | MS | -.438 | .090 | .433 | .391 | .255 | -.432 | .145 |
| | GCJ | -.234 | .339 | .101 | -.229 | .037 | -.158 | .050 |
| | TPI | .318 | .152 | .395 | -.087 | .068 | -.297 | -.319 |
| Rise in sea level | MS | -.194 | .216 | .057 | .079 | .050 | -.223 | .227 |
| | GCJ | -.215 | -.032 | -.035 | .000 | .000 | -.070 | .249 |
| | TPI | .318 | -.007 | .338 | -.052 | .324 | -.366 | -.382 |
| Tropical diseases | MS | -.282 | .106 | -.018 | .047 | .255 | -.179 | .279 |
| | GCJ | -.383 | .078 | .103 | -.148 | .227 | -.074 | .171 |
| | TPI | -.130 | .276 | .355 | .227 | -.298 | -.046 | -.107 |
| Hurricanes | MS | -.309 | .166 | .022 | .038 | .181 | -.321 | .509* |
| | GCJ | .317 | .292 | .013 | -.236 | -.379 | -.041 | -.222 |
| | TPI | .341 | -.138 | .363 | .139 | .029 | -.243 | -.378 |
| Heat stroke | MS | -.167 | .088 | -.014 | -.080 | .182 | -.186 | .354 |
| | GCJ | -.398 | .034 | .051 | -.125 | -.130 | .178 | -.031 |
| | TPI | .043 | -.199 | .000 | .210 | -.509 | .339 | -.014 |

Pearson correlation; *. P<0.05 level; **. P<0.01(2-tailed); marked only at positive correlation

Table5. 20: Experience of climate impacts and Willingness to participate

| Experience of | Willingness to participate in | Lobbying for preparation for hurricanes | Lobbying for coastal protection from a sea level rise | Campaign against refineries | Campaign against electric utilities | Lobbying for wildlife protection | Campaign for fuel efficient cars | Campaign against tree logging | Lobbying for renewable energy | Lobbying for international treaty | Lobbying for more research | Education for energy conservation |
|------------------------|-------------------------------|---|---|-----------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Drought | MS | .152 | .156 | .278 | .295 | .000 | -.153 | .058 | -.391 | -.040 | -.156 | -.379 |
| | GCJ | .070 | .143 | .300 | .425** | .351* | .518** | .432** | .413* | .292 | .406* | .509** |
| | TPI | .314 | .248 | .089 | .371 | .212 | .267 | .234 | .293 | .246 | .189 | .430 |
| Ecological destruction | MS | -.136 | -.163 | .149 | .112 | -.056 | -.224 | .007 | -.422 | -.263 | -.208 | -.350 |
| | GCJ | .257 | .401* | .476** | .551** | .555** | .712** | .530** | .533** | .353* | .525** | .609** |
| | TPI | .408 | .349 | .274 | .272 | .128 | .274 | .312 | .081 | .422 | .277 | .609** |
| Rise in sea level | MS | .393 | .346 | .291 | .309 | .145 | -.222 | .108 | -.247 | -.121 | -.103 | -.509 |
| | GCJ | .275 | .403* | .365* | .381* | .467** | .453** | .343* | .467** | .363* | .456** | .399* |
| | TPI | .247 | .351 | .242 | .360 | .263 | .317 | .425 | .285 | .394 | .443 | .442 |
| Tropical diseases | MS | .365 | .291 | .135 | .145 | .050 | -.142 | -.034 | -.264 | -.132 | -.009 | -.617 |
| | GCJ | .041 | .231 | .185 | .308 | .219 | .338* | .223 | .262 | .298 | .239 | .337* |
| | TPI | .259 | .157 | .002 | .278 | .209 | .183 | .249 | .211 | .257 | .217 | .253 |
| Hurricanes | MS | .151 | .096 | .368 | .235 | .143 | -.245 | -.061 | -.294 | -.114 | -.080 | -.372 |
| | GCJ | .433** | .453** | .287 | .002 | .074 | -.025 | .087 | .013 | -.012 | .044 | .162 |
| | TPI | .115 | .107 | -.109 | .047 | -.023 | .033 | .196 | .015 | .285 | .177 | .272 |
| Heat stroke | MS | .283 | .195 | .216 | .157 | .091 | -.276 | -.165 | -.341 | -.164 | -.133 | -.449 |
| | GCJ | .351* | .446** | .347* | .315 | .385* | .491** | .176 | .305 | .409* | .308 | .438** |
| | TPI | .213 | .137 | -.195 | .005 | -.070 | -.031 | .154 | -.025 | .169 | .053 | .165 |

Pearson correlation; *, P<0.05 level; **, P<0.01(2-tailed); marked only at positive correlation

Table 5. 21: Belief in causal relationship between Hurricane Katrina and Willingness to participate

| Willingness to participate in | Belief in causal relationship between Hurricane Katrina and climate change | | |
|---|--|--------|--------|
| | MS | GCJ | TPI |
| Lobbying for preparation for hurricanes | -.050 | .300 | .485* |
| Lobbying for coastal protection from sea level rise | .092 | .355* | .579** |
| Campaign against refineries | .498* | .406* | .312 |
| Campaign against electric utilities | .453 | .422* | .383 |
| Lobbying for wildlife protection | .356 | .390* | .338 |
| Campaign for fuel efficient cars | -.011 | .368* | .377 |
| Campaign against tree logging | .249 | .411* | .514* |
| Lobbying for renewable energy | .165 | .396* | .225 |
| Lobbying for international treaty | .149 | .554** | .436 |
| Lobbying for more research | -.050 | .448** | .443 |
| Education for energy conservation | -.173 | .311 | .703** |

Pearson correlation; *.p<0.05; **.p<0.01; marked only at positive correlation

Table 5. 22 Knowledge related to global climate change and Willingness to participate

| Knowledge on | Willingness to participate in | Lobbying for preparation for hurricanes | Lobbying for coastal protection from sea level rise | Campaign against refineries | Campaign against electric utilities | Lobbying for wildlife protection | Campaign for fuel efficient cars | Campaign against tree logging | Lobbying for renewable energy | Lobbying for international treaty | Lobbying for more research | Education for energy conservation |
|--------------------------|-------------------------------|---|---|-----------------------------|-------------------------------------|----------------------------------|----------------------------------|-------------------------------|-------------------------------|-----------------------------------|----------------------------|-----------------------------------|
| Greenhouse gases | MS | -.311 | -.233 | -.035 | .088 | -.101 | .217 | -.331 | .494* | .017 | .006 | .414 |
| | GCJ | .012 | .096 | .236 | .161 | .315 | .406* | .340* | .330* | .347* | .380* | .285 |
| | TPI | .359 | .431 | .727** | .808** | .672** | .770** | .573* | .708** | .512* | .576** | .574* |
| Fossil fuel combustion | MS | -.357 | -.380 | -.078 | .146 | -.186 | .054 | -.513* | .286 | -.200 | -.124 | .347 |
| | GCJ | -.033 | .111 | .299 | .289 | .362* | .432** | .290 | .367* | .381* | .397* | .270 |
| | TPI | .163 | .333 | .685** | .891** | .760** | .829** | .579* | .802** | .516* | .650** | .501* |
| Tree logging | MS | -.458 | -.297 | -.170 | -.112 | -.252 | -.198 | -.414 | .035 | -.168 | -.362 | .459* |
| | GCJ | .053 | .102 | .271 | .258 | .442** | .581** | .462** | .449** | .431** | .476** | .359* |
| | TPI | .436 | .584** | .769** | .726** | .731** | .729** | .765** | .700** | .743** | .782** | .584** |
| Wildlife habitats | MS | -.190 | -.142 | .154 | -.052 | -.089 | -.206 | -.195 | .126 | .113 | -.343 | .394 |
| | GCJ | .108 | .204 | .339* | .332 | .495** | .653** | .503** | .517** | .514** | .540** | .414* |
| | TPI | .449 | .536* | .735** | .666** | .575* | .669** | .621** | .514* | .641** | .631** | .692** |
| Sea level rise | MS | -.086 | -.009 | .100 | -.090 | -.077 | -.111 | -.189 | .284 | .175 | -.269 | .467* |
| | GCJ | .026 | .135 | .276 | .307 | .504** | .607** | .349* | .445** | .415* | .470** | .300 |
| | TPI | .395 | .557* | .788** | .688** | .730** | .731** | .708** | .699** | .698** | .747** | .604** |
| Hurricanes | MS | -.210 | -.236 | .059 | .086 | -.217 | -.172 | -.348 | .085 | -.076 | -.257 | .431 |
| | GCJ | .231 | .282 | .338 | .294 | .471** | .575** | .339 | .428* | .454** | .456** | .358* |
| | TPI | .304 | .470* | .663** | .628** | .614** | .654** | .724** | .572* | .556* | .632** | .478* |
| Tropical diseases | MS | .079 | .102 | .015 | .107 | -.237 | -.201 | -.344 | .044 | .040 | -.407 | .084 |
| | GCJ | -.057 | -.006 | .054 | .016 | .047 | .198 | .085 | .074 | .089 | .145 | .048 |
| | TPI | .304 | .377 | .429 | .503* | .393 | .492* | .504* | .421 | .498* | .459* | .647** |
| Heat stroke | MS | -.173 | -.234 | -.187 | .056 | -.345 | -.376 | -.434 | -.263 | -.237 | -.385 | .329 |
| | GCJ | -.030 | .059 | .096 | .028 | .182 | .272 | .069 | .156 | .195 | .196 | .093 |
| | TPI | .320 | .425 | .575* | .655** | .415 | .575* | .380 | .491* | .475* | .517* | .676** |
| International treaty | MS | -.054 | .019 | .124 | .095 | .082 | .237 | -.125 | .450 | .232 | .087 | .309 |
| | GCJ | .153 | .263 | .348 | .349 | .492** | .520** | .382* | .506** | .453** | .490** | .398* |
| | TPI | .157 | .349 | .775** | .874** | .823** | .874** | .660** | .870** | .568* | .713** | .495* |
| Renewable energy | MS | -.469 | -.431 | -.161 | .067 | -.219 | .101 | -.423 | .310 | -.183 | -.068 | .611** |
| | GCJ | -.043 | .054 | .054 | .060 | .227 | .278 | .121 | .241 | .171 | .221 | .131 |
| | TPI | .395 | .530* | .843** | .776** | .734** | .808** | .668** | .716** | .638** | .709** | .703** |
| Disproportionate impacts | MS | -.116 | -.169 | .112 | .263 | -.076 | .081 | -.215 | .318 | -.034 | -.043 | .155 |
| | GCJ | .072 | .181 | .294 | .289 | .397* | .440** | .340* | .358* | .344* | .404* | .301 |
| | TPI | .333 | .469* | .549* | .714** | .622** | .643** | .619** | .652** | .539* | .639** | .650** |

Pearson correlation; * p<.05; ** p<.01; marked only at positive correlation

Table 5. 23: Knowledge related to global climate change and Concern about climate impacts

| Knowledge on | Concern about | Droughts | wildlife habitats | sea level rise | tropical disease | hurricanes | heat stroke |
|--------------------------|---------------|----------|-------------------|----------------|------------------|------------|-------------|
| Greenhouse gases | MS | .077 | .052 | .254 | .053 | -.118 | -.123 |
| | GCJ | .517** | .519** | .537** | .641** | .310* | .412** |
| | TPI | .516* | .711** | .535* | .465* | .587** | .458* |
| Fossil fuel combustion | MS | .347 | .094 | .607** | .362 | .000 | .165 |
| | GCJ | .422** | .461** | .462** | .618** | .239 | .403** |
| | TPI | .549* | .647** | .631** | .576** | .519* | .535* |
| Tree logging | MS | .047 | .129 | .268 | .005 | -.238 | -.073 |
| | GCJ | .612** | .579** | .396** | .423** | .260 | .390** |
| | TPI | .504* | .742** | .608** | .506* | .683** | .378 |
| Wildlife habitats | MS | .169 | .322 | .169 | .076 | -.089 | -.132 |
| | GCJ | .629** | .611** | .469** | .425** | .300 | .404** |
| | TPI | .472* | .714** | .519* | .487* | .638** | .393 |
| Sea level rise | MS | .117 | .200 | .058 | .118 | -.026 | -.103 |
| | GCJ | .530** | .598** | .509** | .471** | .187 | .395** |
| | TPI | .515* | .781** | .597** | .459* | .701** | .355 |
| Hurricanes | MS | .268 | .073 | .411 | .250 | .118 | .146 |
| | GCJ | .521** | .583** | .557** | .391* | .298 | .474** |
| | TPI | .418 | .669** | .508* | .507* | .690** | .447 |
| Tropical diseases | MS | .378 | .086 | .377 | .533* | .285 | .380 |
| | GCJ | .464** | .474** | .330* | .372* | .153 | .303* |
| | TPI | .539* | .621** | .573* | .631** | .611** | .656** |
| Heat stroke | MS | .142 | .139 | .384 | .136 | .232 | .432 |
| | GCJ | .366* | .446** | .316* | .222 | .071 | .229 |
| | TPI | .569* | .602** | .660** | .624** | .574* | .693** |
| International treaty | MS | .187 | .000 | .219 | .338 | .233 | .135 |
| | GCJ | .475** | .496** | .400** | .356* | .291 | .414** |
| | TPI | .688** | .774** | .782** | .651** | .656** | .536* |
| Renewable energy | MS | .055 | -.076 | .458* | -.025 | -.170 | -.087 |
| | GCJ | .372* | .441** | 0.294 | .200 | .044 | .167 |
| | TPI | .633** | .839** | .709** | .555* | .725** | .425 |
| Disproportionate impacts | MS | .456* | .194 | .531* | .413 | .137 | .146 |
| | GCJ | .375* | .415** | .388* | .363* | .221 | .376* |
| | TPI | .616** | .666** | .738** | .673** | .643** | .692** |

Pearson correlation; *.p<0.05; **.p<0.01; marked only at positive correlation

Table 5. 24: Knowledge related to global climate change and Attributions of climate change

| Knowledge on | Attribution to | Federal government | Electric utilities | Oil and coal industries | Car companies | Timber industries | Individual people |
|--------------------------|----------------|--------------------|--------------------|-------------------------|---------------|-------------------|-------------------|
| Greenhouse gases | MS | .488* | .306 | .000 | -.287 | -.236 | -.242 |
| | GCJ | .250 | .088 | -.140 | .050 | -.209 | -.105 |
| | TPI | .181 | -.143 | .222 | -.328 | .142 | -.077 |
| Fossil fuel combustion | MS | .581* | .363 | -.146 | -.377 | -.502 | -.003 |
| | GCJ | .430* | .013 | -.266 | -.013 | -.256 | -.057 |
| | TPI | .151 | .071 | .306 | -.486 | -.144 | .104 |
| Tree logging | MS | .491* | .146 | -.066 | -.463 | -.089 | -.072 |
| | GCJ | .214 | .016 | -.398 | .024 | .026 | .011 |
| | TPI | .340 | -.021 | .082 | -.344 | .331 | -.298 |
| Wildlife habitats | MS | .538* | .404 | .084 | -.515 | -.243 | -.245 |
| | GCJ | .096 | .027 | -.264 | .077 | -.025 | .019 |
| | TPI | .286 | -.195 | .331 | -.213 | .243 | -.312 |
| Sea level rise | MS | .615** | .476* | .055 | -.404 | -.301 | -.377 |
| | GCJ | .166 | -.072 | -.226 | .261 | -.044 | -.136 |
| | TPI | .426 | -.225 | .312 | -.276 | .304 | -.385 |
| Hurricanes | MS | .729** | .381 | .051 | -.610 | -.384 | -.181 |
| | GCJ | .072 | -.046 | -.129 | .111 | -.013 | -.052 |
| | TPI | .437 | -.182 | .371 | -.237 | .213 | -.424 |
| Tropical diseases | MS | .531* | .400 | -.196 | -.205 | -.378 | -.180 |
| | GCJ | -.083 | -.128 | -.163 | .056 | .223 | .070 |
| | TPI | .342 | -.127 | .588* | .083 | .163 | -.700 |
| Heat stroke | MS | .327 | -.007 | -.421 | -.305 | .044 | .174 |
| | GCJ | -.004 | -.244 | -.436 | .127 | .183 | .232 |
| | TPI | .212 | .057 | .623 | .006 | -.243 | -.363 |
| International treaty | MS | .620** | .514* | .177 | -.436 | -.370 | -.407 |
| | GCJ | .376 | .115 | -.260 | -.174 | -.079 | -.125 |
| | TPI | .307 | -.087 | .243 | -.589 | -.019 | .116 |
| Renewable energy | MS | .539* | .109 | -.175 | -.349 | -.180 | -.024 |
| | GCJ | .213 | -.172 | -.362 | .000 | -.069 | .202 |
| | TPI | .341 | -.245 | .261 | -.524 | .242 | -.064 |
| Disproportionate impacts | MS | .634** | .571* | .183 | -.417 | -.612 | -.289 |
| | GCJ | .313 | -.018 | -.290 | -.065 | -.058 | -.034 |
| | TPI | .378 | -.012 | .546 | -.314 | .009 | -.370 |

Pearson correlation; *p<0.05; **p<0.01; marked only at positive correlation

BIBLIOGRAPHY

- Adger, W. N. (2001). "Scales of Governance and Environmental Justice for Adaptation and Mitigation of Climate Change." *Journal of International Development* 13(7): 921-931.
- Agarwal, A., S. Narain, et al. (2002). *The Global Commons and Environmental Justice--Climate Change. Environmental justice: discourse in international political economy.* J. Byrne, L. Glover and C. Martinez. New Brunswick, New Jersey, Transaction Publishers. 8: 171-199.
- Ajzen, I. and M. Fisbbein (1974). "Factors Influencing Intentions and the Intention-Behavior Relation." *Human Relations* 27(1): 1-15.
- Barkan, S. E. (2004). "Explaining Public Support for the Environmental Movement: a Civic Voluntarism Model." *Social Science Quarterly* 85(4): 913-937.
- Barkan, S. E., S. F. Cohn, et al. (1995). "Beyond Recruitment: Predictors of Differential Participation in a National Antihunger Organization." *Sociological Forum* 10(1): 113-134.
- Batliwala, S. (2002). "Grassroots Movements as Transnational Actors: Implications for Global Civil Society." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 13(4): 393-409.
- Benford, R. D. and D. A. Snow (2000). "Framing Process and Social Movements: an Overview and Assessment." *Annual Review of Sociology* 26(1): 611-639.
- Betsill, M. M. and E. Corell (2001). "NGO Influence in International Environmental Negotiations: A Framework for Analysis." *Global Environmental Politics* 1(4): 65-85.
- Blee, K. M. and V. Taylor (2002). *Semi-structured Interviewing in Social Movement Research. Methods of Social Movement Research.* B. Klandermans and S. Staggenborg. Minneapolis, MN, the University Minnesota Press. 16: 92-117.
- Bord, R. J., A. Fisher, et al. (1997). "Is Accurate Understanding of Global Warming Necessary to Promote Willingness to Sacrifice?" *Risk: Issues in Health, Safety & Environment* 8(4): 339-354.

- Bord, R. J., R. E. O'Connor, et al. (2000). "In What Sense does the Public Need to Understand Global Climate Change?" *Public Understanding of Science* 9(3): 205-218.
- Bosso, C. J. (2003). "Rethinking the Concept of Membership in Nature Advocacy Organizations." *Policy Studies Journal* 31(3): 397-411.
- Bullard, R. D. (2000). "Climate Justice and People of Color." Retrieved May 21, 2006, from <http://www.ejrc.cau.edu/climatechgpc.html>.
- Burns, T. J. and T. LeMoyne (2001). "How Environmental Movements Can Be More Effective: Prioritizing Environmental Themes in Political Discourse." *Human Ecology Review* 8(1): 26-38.
- Čapek, S. M. (1993). "The "Environmental Justice" Frame: A Conceptual Discussion and an Application." *Social Problems* 40(1): 5-24.
- Carmin, J. and D. B. Balser (2002). *Selecting Repertoires of Action in Environmental Movement Organizations: An Interpretive Approach*. 15: 365-388.
- Carpenter, C. (2001). "Businesses, Green Groups and The Media: The Role of Non-Governmental Organizations in the Climate Change Debate." 77(2): 313-328.
- Cohn, S. F., S. E. Barkan, et al. (2003). "Dimensions of Participation in a Professional Social-Movement Organization." *Sociological Inquiry* 73(3): 311-337.
- Davies, S. (1999). "From Moral Duty to Cultural Rights: A Case Study of Political Framing in Education." *Sociology of Education* 72(1): 1-21.
- Dowie, M. (1995). *Losing Ground: American environmentalism at the close of the twentieth century*. Cambridge, MA, The MIT Press.
- Dreiling, M. and B. Wolf (2001). "Environmental Movement Organizations and Political Strategy: Tactical Conflicts over NAFTA." *Organization and Environment* 14(1): 34-56.
- Elliott, M., M. Winslow, et al. (2004). *African Americans and Climate Change: An Unequal Burden*, Congressional Black Caucus Foundation, Redefining Progress.

EPA (1998). Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. A. Totten and B. Dickerson. Washington D.C., the Environmental Protection Agency.

Ferree, M. M. (1992). The political context of rationality: rational choice theory and resource mobilization. *Frontiers in Social Movement Theory*. A. D. Morris and C. M. Mueller. New Haven, CT, Yale University Press: 29-52.

Freudenberg, N. and C. Steinsapir (1992). Not in Our Backyards: the Grassroots Environmental Movement. *American Environmentalism : the U.S. Environmental Movement, 1970-1990*. R. E. Dunlap and A. G. Mertig. Philadelphia, Taylor & Francis: 27-37.

Gamson, W. A. and D. S. Meyer (1996). Framing Political Opportunity. *Comparative Perspectives on Social Movements: Political Opportunities, Mobilizing Structures, and Cultural Framings*. D. McAdam, J. D. McCarthy and M. N. Zald. Cambridge, UK, Cambridge University Press: 275-290.

Gelobter, M., A. Hoerner, et al. (2006). *Climate change in California: Health, Economic and Equity Impacts*. Oakland, CA, Redefining Progress.

Gottlieb, R. (1993). *Forcing the spring: the transformation of the American environmental movement*. Washington D.C. , Island Press.

IPCC (1995). Summary for Policymakers: Scientific-Technical Analyses of Impacts, Adaptations and Mitigation of Climate Change Second Assessment Report: Climate Change 1995. WorkingGroupII. Geneva, Switzerland, IPCC: pp. 22.

IPCC (2001). *Climate Change 2001: Impacts, Adaptation, and Vulnerability*. Third Assessment Report. WorkingGroupII. Geneva, Switzerland, IPCC.

Jenkins, J. C. (1983). "Resource Mobilization Theory and the Study of Social Movements." *Annual Review of Sociology* 9(1): 527-553.

Kasperson, R. E. and J. X. Kasperson (2001). *Climate Change, Vulnerability, and Social Justice*. Stockholm, Risk and Vulnerability Programme, Stockholm Environmental Institute.

- Kempton, W. (1993). "Will Public Environmental Concern Lead to Action on Global Warming?" *Annual Review of Energy and the Environment* 18(1): 217-245.
- Kempton, W., D. C. Holland, et al. (2001). "Local Environmental Groups: A Systematic Enumeration in Two Geographical Areas." *Rural Sociology* 66(4): 557-578.
- Kitchell, A., W. Kempton, et al. (2000). "Identities and Actions within Environmental Groups." *Human Ecology Review* 7(2): 1-20.
- Kitchenham, B. and S. L. Pfleeger (2002). "Principles of Survey Research Part 5: Populations and Samples." *Software Engineering Notes* 27(5): 17-20.
- Klandermans, B. (1984). "Mobilization and Participation: Social-Psychological Expansions of Resource Mobilization Theory." *American Sociological Review* 49(5): 583-600.
- Klandermans, B. and S. Goslinga (1996). *Media Discourse, Movement Publicity, and the Generation of Collective Action Frames: Theoretical and Empirical Exercises in Meaning Construction. Comparative Perspectives on Social Movements: Political Opportunities, Mobilizing Structures, and Cultural Framings.* D. McAdam, J. D. McCarthy and M. N. Zald. Cambridge, UK, Cambridge University Press: 312-337.
- Klandermans, B. and D. Oegema (1987). "Potentials, Networks, Motivations, and Barriers: Steps Towards Participation in Social Movements." *American Sociological Review* 52(4): 519-531.
- Klandermans, B. and J. Smith (2002). *Survey Research: A Case for Comparative Design. Method of Social Movement Research.* B. Klandermans and S. Staggenborg. Minneapolis, MN, the University of Minnesota Press. 16: 3-31.
- Klandermans, B., S. Staggenborg, et al. (2002). *Conclusion: Blending Methods and Building Theories in Social Movement Research. Methods of Social Movement Research.* B. Klandermans and S. Staggenborg. Minneapolis, MN, the University of Minnesota Press. 16: 314-349.
- Knoke, D. (1988). "Incentives in Collective Actions Organizations." *American Sociological Review* 53(3): 311-329.

- Krosnick, J. A. (1999). "Survey Research." *Annual Review of Psychology* 50: 537-567.
- Levy, D. L. and D. Egan (1998). "Capital Contests: National and Transnational Channels of Corporate Influence on the Climate Change Negotiations." *Politics and Society* 26(3): 337-361.
- Levy, D. I. and S. Rothenberg (2002). *Heterogeneity and Change in Environmental Strategy: Technological and Political Responses to Climate Change in the Global Automobile Industry Organizations, Policy and the Natural Environment: Industrial and Strategic Perspectives*. A. Hoffman and M. Ventresca. Stanford, Stanford University Press.
- Lowry, R. C. (1998). "All Hazardous Waste Politics is Local: Grass-roots Advocacy and Public Participation in siting and Cleanup Decisions." *Policy Studies Journal* 26(4): 748-759.
- Manne, A. (1995). "The greenhouse debate: economic efficiency, burden sharing and hedging strategies." *Energy Journal* 16(4): 1-37.
- McAdam, D. (1996). *The Framing Function of Movement Tactics: Strategic Dramaturgy in the American Civil Rights Movement. Comparative perspectives social movements*. D. McAdam, J. D. McCarthy and MayerXald. Cambridge, UK, Cambridge University Press: 338-355.
- McCarthy, D. (2004). "Environmental Justice Grantmaking: Elites and Activists Collaborate to Transform Philanthropy." *Sociological Inquiry* 74(2): 250-270.
- McCarthy, J. D. and M. N. Zald (1977). "Resource Mobilization and Social Movements: A Partial Theory." *The American Journal of Sociology* 82(6): 1212-1241.
- McCright, A. M. and R. E. Dunlap (2000). "Challenging global warming as a social problem: an analysis of the conservative movement's counter-claims." *Social Problems* 47(4): 499-522.
- McCright, A. M. and R. E. Dunlap (2003). "Defeating Kyoto: The Conservative Movement's Impact on U.S. Climate Change Policy." *Social Problems* 50(3): 348-373.

- Miller, A. and C. Sisco (2002). Ten Actions of Climate Justice Policies. Second National People of Color Environmental Leadership Summit - Summit II Resource Paper Series, the Environmental Justice Resource Center at Clark Atlanta University.
- Mitchell, R. C., A. G. Mertig, et al. (1992). Twenty years of environmental mobilization: Trends among national environmental organizations. *American Environmentalism: The U.S. Environmental Movement, 1970-1990*. R. E. Dunlap and A. G. Mertig. Washington D.C., Taylor & Francis New York: 11-26.
- Morgan, M. G., R. Cantor, et al. (2005). "Learning from the U.S. National Assessment of Climate Change Impacts." *39(23)*: 9023-9032.
- Mueller, C. M. (1992). Building social movement theory. *Frontiers in Social Movement Theory*. A. D. Morris and C. M. Mueller. New Haven, Yale University Press: 3-25.
- Muller, E. N. and K.-D. Opp (1986). "Rational Choice and Rebellious Collective Action." *American Political Science Review* 80(2): 471-488.
- Newport, F. and L. Saad (2001). "American Consider Global Warming Real, but Not Alarming." *The Gallup Poll Monthly*: 2-16.
- O'Connor, R. E., R. J. Bord, et al. (1999). "Risk Perceptions, General Environmental Beliefs, and Willingness to Address Climate Change." *Risk Analysis* 19(3): 461-471.
- Olson, M. (1965). *The logic of collective action; public goods and the theory of groups*. Cambridge, Mass., Harvard University Press.
- Pendergraft, C. A. (1998). "Human Dimensions of Climate Change: Cultural Theory and Collective Action." *Climatic Change* 39(4): 643-666.
- Pettit, J. (2004). "Climate Justice: A New Social Movement for Atmospheric Rights." *IDS Bulletin* 35(3): 102-106.
- Pinsonneault, A. and K. L. Kraemer (1993). "Survey Research Methodology in Management Information Systems: An Assessment." *Journal of management information systems* 10(2): 75.

- Schneider, S. H. and K. Kuntz-Duriseti (2002). *Uncertainty and Climate Change Policy. Climate Change Policy: A Survey.* S. H. Schneider, A. Rosencranz and J. O. Niles. Washington DC, Island Press: 53-87.
- Shellenberger, M. and T. Nordhaus (2004). *The Death of Environmentalism: Global Warming Politics in a Post-Environmental World.* 2006.
- Shutkin, W. A. (2000). *The Land That Could Be: Environmentalism and Democracy in the Twenty-First Century.* Cambridge, MA, MIT Press.
- Snow, D. A. and R. D. Benford (1992). Master Frames and Cycles of Protest. *Frontiers in Social Movement Theory.* A. D. Morris and C. M. Mueller. New Haven, CT, Yale University Press: 133-155.
- Snow, D. A., E. B. Rochford, Jr., et al. (1986). "Frame Alignment Processes, Micromobilization, and Movement Participation." *American Sociological Review* 51(4): 464-481.
- Stallings, R. A. (1973). "Patterns of Belief In Social Movements: Clarifications from an Analysis of Environmental Groups." *The Sociological Quarterly* 14(4): 465-480.
- Stempeck, B. (2005). *Senators Taking Long-Shot Climate Bill on Road, Greenwire.* Feb. 11, 2005.
- Stern, P. C., T. Dietz, et al. (1999). "A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism." *Human Ecology Review* 6(2): 81-97.
- SummitII NationalOffice (2002). *Second National People of Color Environmental Leadership Summit Resource Papers: a Synthesis Executive Summary.* R. D. Bullard.
- Tarrow, S. (1992). *Mentalities, Political Cultures, and Collective Action Frames: Constructing Meanings through Action.* *Frontiers in Social Movement Theory.* A. D. Morris and C. M. Mueller. New Haven, Yale University Press: 174-202.
- Taylor, D. E. (1992). *Can the Environmental Movement Attract and Maintain the Support of Minorities? . Race and the Incidence of Environmental Hazards.* B. Bryant and P. Mohai. Boulder, CO, Westview: 28-54.

- Taylor, D. E. (2000). "The Rise of the Environmental Justice Paradigm: Injustice Framing and the Social Construction of Environmental Discourses." *American Behavioral Scientist* 43(4): 508-580.
- Tol, R. S. J., T. E. Downing, et al. (2004). "Distributional Aspects of Climate Change Impacts." *Global Environmental Change* 14(3): 259-272.
- Trumbo, C. (1996). "Constructing Climate Change: Claims and Frames in US News Coverage of an Environmental Issue." *Public Understanding of Science* 5(3): 269-283.
- Webster, M. (2002). "The curious role of "learning" in climate policy: should we wait for more data?" *Energy Journal* 23(2): 97-119.
- Webster, M., C. Forest, et al. (2003). "Uncertainty Analysis of Climate Change and Policy Response." *Climatic Change* 61(3): 295-320.
- Weingart, P., A. Engels, et al. (2000). "Risk of Communication: Discourse on Climate Change in Science, Politics, and the Mass Media." *Public Understanding of Science* 9: 261-283.
- Wolsink, M. (1994). "Entanglement of Interests and Motives: Assumptions behind the NIMBY-theory on Facility Siting." *Urban Studies* 31(6): 851-866.