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I am submitting herewith a dissertation written by Ronald William Sitton entitled "Framing by media and social movement organizations: Cross-cultural prestige press coverage of the Kyoto Protocol." I have examined the final paper copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Communication.

M. Mark Miller, Major Professor

We have read this dissertation
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Accepted for the Council:

Vice Chancellor and
Dean of Graduate Studies

FRAMING BY MEDIA AND SOCIAL MOVEMENT ORGANIZATIONS: CROSS-CULTURAL PRESTIGE PRESS COVERAGE OF THE KYOTO PROTOCOL

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Ronald William Sitton
May 2004



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DEDICATION

This dissertation is dedicated to the memories from

Ronald Curtis Macy

(my grandfather)

Haskell and Mattie Sitton

(my grandparents)

Darrin Smith

(my cousin)

and

Greg Martin

(my friend)

They passed away much too soon,

but inspired me to follow my dreams.

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> Therefore it is in some fear that I approach those matters at all, and in much confusion. And if there are questions in my mind how to undertake this communication, and there are many, I must let the least of them be, whether I am boring you, or whether I am taking too long getting started,

and too clumsily. If I bore you, that is that. If I am clumsy, that may indicate partly the difficulty of my subject, and the seriousness with which I am trying to take what hold I can of it; more certainly, it will indicate my youth, my lack of mastery of my so-called art or craft, my lack perhaps of talent.. . . but I must remind myself . . . that the centers of my subject are shifty . . . I am only human.

ABSTRACT

This dissertation examines the effects of news values and media routines on the framing of societal issues, with emphasis on cross-cultural prestige press coverage of the Kyoto Protocol. Media use news values to determine what makes the daily news and how that news is portrayed to the public. Journalists selectively choose news stories based on media routines, which help in gathering and disseminating the news in an efficient manner. Stakeholders attempt to frame the news in a manner worthy of news coverage, but media primarily report on the acceptance of or opposition to master frames. Evidence of this interplay exists when examining contentious issues like that of the Kyoto Protocol.

To find evidence of these processes, a computerized content analysis using the VBPro suite of programs examined 421 American prestige press articles, 721 British prestige press articles, 112 news releases and 443 opinion pieces appearing from January 1997 to Sept. 11, 2001. The texts were gathered from the Lexis-Nexis and Dow Jones databases. Hierarchical cluster analysis provided visual representations of the frames involved. The focus on prestige press coverage limits the external validity of the findings.

The analysis uncovered four master frames supported by 10 stakeholder frames concerning global climate change and the Kyoto Protocol. The news value of prominence affected the master frames, though not in the predicted manner concerning stakeholder support or opposition. However, historical analysis indicates support for previous research that indicated international politics held sway over the issue. The

analysis also found evidence of media routines at work, including gatekeeping, balancing competing positions and the spiral of opportunity.

Theoretically, this dissertation provides a synthesis of communications and sociological literature, and a cross-cultural comparison of an international environmental issue. Methodologically, VBPro was shown to quantify master frames, which may be the first time this has happened. Practically, the dissertation provides an explanation to journalists and stakeholders in government, science, business, and social movement organizations of how news values and media routines lead to the acceptance or rejection of issue frames, as well as the possible de-legitimization of sources outside the media routine.

PREFACE

> But is there anything more uncertain than the Histories we read, wherein if two authors tell of the same battle, such are the incongruities revealed that we are inclined to think they write of two different conflicts? (Eco, 1994, p.368)

The problem revealed in the preceding paragraph represents the impetus for the enterprise undertaken in this dissertation. How can a researcher be sure he or she has truthfully captured the essence of a situation when limited by the sources taking an opportunity to comment on it? Sources face limitations when attempting to have their views placed before the public, usually through a form of mass communication. The investigation described in the following pages allowed the author to attempt to systematically determine how sources succeed or fail in putting their fingerprint on the news.

Chapter 1 discusses the problems of selective interpretation of the news when multiple interpretations of the "facts" exist. It explains the need for an integrated communication and sociological approach to this area of study.

Chapter 2 details how framing can be considered the most-likely candidate to link together mid-level communications' theories to predict testable causal relationships. It focuses on media use of news values and routines, and the effect of using these devices on how an issue's frame is set. It focuses on environmental risks and the effect on public policy, and explains how selective framing of contentious environmental issues limits public policy debate and media discourse.

Chapter 3 details the methods by which competing frames may be examined using the VBPro suite of computerized content analysis programs and hierarchical cluster analysis on stakeholder and media texts to illuminate which values actually made it into public discourse and how they were altered or abandoned. It also details the need to focus on print's "Prestige Press" and differences in culture, and details the data under consideration.

Chapter 4 details the contentious nature of global climate change and specifically, the Kyoto Protocol, through the review of previous research. It notes how media routines concerning global climate change have their own eccentricities, including problems with news values and sourcing. It also provides hypotheses for analyzing frame changes due to news values and stakeholder coverage due to media routines.

Chapter 5 describes the actual analysis of the hypotheses using VBPro, VBMap and hierarchical cluster analysis on stakeholder and media texts. It provides constructed paragraphs using the terminology from each frame surrounding the Kyoto issue, and provides a visual representation of the relationship among individual frames. Each individual frame is then analyzed and output is provided. It also provides a historical analysis of the data to provide additional insights.

Chapter 6 summarizes the study, identifies conclusions on the effects of the news values and media routines on frames within media, and provides recommendations for further research.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION....1
Rationale....1
Problem....1
Objectives....3
The Issue....5

II. FRAMING....6
Framing in Mediated Communication....7
Environmental Risk Communication....8
The Framing Cycle....9
1. Product....10
News Values....11
Media Routines....17
Source Selection....17
1. Standard Sources....18
2. Alternative Sources....20
Gatekeeping....23
Agenda-Setting....25
Master Frames....28
2. Tactic....30
Spiral of Opportunity....32
Frame Alignment....33
3. Effect....35
Summary....37

III. FINDING THE FRAMES....40
Computerized Content Analysis....41
VBPro....42
Determining Stakeholder Frames....44
Analysis Using VBPro....47
1. Examining Issues in the News....47
Election Coverage....47
Pesticide Coverage....48
2. Investigating Stakeholders in the News....49
Determining Frequency of Use....49
Greenhouse Effect....49
Determining Stakeholder Frames....50
Election Coverage....50
Wetlands....51
Health Care Reform....53
Additional Issue Analysis....54

CHAPTER PAGE

Summary 54
Data Under Consideration.....e.....55
1. Time 55
2. Media Texts.....55
Prestige Press.....56
Deletions.....57
Totals.....59
3. Stakeholder Texts 59
News Releases 60
Totals.....61
Commentary/Letters to the Editor 61
Totals 63

IV. FRAMING GLOBAL CLIMATE CHANGE.....65
The Issue.....65
Contentious Nature of Kyoto Protocol.....67
Media Framing of Kyoto Protocol 70
1. News Values 71
2. Media Routines 73
Sourcing 73
The Scientific Community 75
Corporate Interests 76
Social Movement Organizations 78
Gatekeeping.....78
Agenda-Setting.....78
Summary 79
Hypotheses 79
1. Coverage via News Values.....79
2. Coverage via Media Routines 80

V. ANALYSIS 85
News Values.....85
1. Finding Stakeholder Frames.....86
2. Supporting Frames.....87
Master Frames.....87
Individual Frames.....88
3. News Value Hypothesis with Supporting Frames.....88
4. Individual Supporting Frame Analysis.....89
Religion.....89
Disaster Relief.....92
Industrial Nations.....94
Economy.....95

CHAPTER PAGE

New Technology....99
Conclusions....100
5. Opposing Frames....103
Master Frames....103
Individual Frames....103
6. News Value Hypothesis with Opposing Frames....104
7. Individual Opposing Frame Analysis....105
Business....105
Consumer....107
Unfinished Science....107
Weather....109
Activist Science....111
Conclusions....114
8. Visualizing the Frames....114
Media Routines....115
1. Finding the Stakeholders....115
2. Testing Stakeholder Hypotheses....118
Non-Governmental Stakeholders....118
Supporting Stakeholders....118
Opposing Stakeholders....121
Governmental Stakeholders....121
Conclusions....126
3. Visualizing Stakeholder Positions....127
Historical....129
1. Stakeholders in the News....129
Government....133
Science....135
Business....138
Social Movement Organizations....140
Summary....142
2. Stakeholder Efforts....143
Government....145
Science....146
Business....148
Social Movement Organizations....150
Summary....152
3. Media Comment....152

VI. DISCUSSION AND IMPLICATIONS....156
Discussion of Findings....156
1. Frames and Master Frames....156

CHAPTER PAGE

2. Using VBPro....157
3. News Values and Media Routines....158
4. Limitations....162
Implication of Findings....163
1. Theoretical....163
2. Methodological....164
3. Practical....164

BIBLIOGRAPHY....166

APPENDICES....191
A. Cleaning the Texts....192
1. Punctuation....192
2. Linking Words....193
Places....194
Elements of Issue....194
Conference Titles....195
Research....196
Titles....196
U.S. Government....197
U.S. Administrations....197
U.K. Government....198
U.K. Administrations....198
International Government....198
International Government Administrations....199
European Union Governmental Administrations....199
Other World Governmental Administrations....199
Opposing Stakeholders....200
Supporting Stakeholders....201
B. Variables....203
1. Media....203
2. Stakeholder....204
C. Differences in Frame Terminology via Select....206
1. Opposing (anti.alf)....206
2. Supporting (pro.alf)....209
D. Search Lists from Most Frequently Used Terminology....213
1. Opposing....213
2. Supporting....214
E. Supporting Kyoto Dendogram....215
F. Opposing Kyoto Dendogram....218
G. Master Search List of Frames....221
H. Search List of Stakeholders....223

CHAPTER PAGE

I. U.S. Prestige-Press Coverage of Government.....228
J. U.K. Prestige-Press Coverage of Government 234
K. U.S. Prestige-Press Coverage of Science.....243
L. U.K. Prestige-Press Coverage of Science 248
M. U.S. Prestige-Press Coverage of Business.....255
N. U.K. Prestige-Press Coverage of Business 257
O. U.S. Prestige-Press Coverage of SMOs.....261
P. U.K. Prestige-Press Coverage of SMOs.....263
Q. Government Position Pieces – U.S.....265
R. Government Position Pieces – U.K.....268
S. Science Position Pieces – U.S.....270
T. Science Position Pieces – U.K.....274
U. Business Position Pieces – U.S.....277
V. Business Position Pieces – U.K.....284
W. SMO Position Pieces – U.S.....287
X. SMO Position Pieces – U.K.....290
Y. U.S. Prestige-Press Comment.....292
Z. U.K. Prestige-Press Comment 295

VITA 299

LIST OF TABLES

TABLE PAGE

3-1. Articles by Paper by Presidency.....59

3-2. Opinion Pieces by Paper by Presidency 63

5-1. Religion Frame by Time and Country of Publication.....90

5-2. Disaster Relief Frame by Time and Country of Publication 93

5-3. Industrial Nations Frame by Time and Country of Publication 96

5-4. Economy Frame by Time and Country of Publication 98

5-5. New Technology Frame by Time and Country of Publication 101

5-6. Business Frame by Time and Country of Publication 106

5-7. Consumer Frame by Time and Country of Publication 108

5-8. Unfinished Science Frame by Time and Country of Publication 110

5-9. Weather Frame by Time and Country of Publication 112

5-10. Activist Science Frame by Time and Country of Publication 113

5-11. Eigenvectors for Three-Dimensional Map of Individual Frames.....114

5-12. Supporting Stakeholder Position by Time and Country of Publication.....120

5-13. Opposing Stakeholder Position by Time and Country of Publication 122

5-14. European Union Position by Time and Country of Publication.....124

5-15. Eigenvectors for Three-Dimensional Map of Stakeholder Positions.....127

5-16. Days of Coverage by Stakeholder Source by Time and Country.....130

5-17. Position Piece by Stakeholder Source by Time and Country.....144

5-18. Editorials by Intended Audience by Time and Country.....153

LIST OF FIGURES

FIGURE PAGE

5.1 Religion Frame Term Means per Administration per Country.....91

5.2 Disaster Relief Frame Term Means per Administration per Country.....94

5.3 Industrial Nations Frame Term Means per Administration per Country.....97

5.4 Economy Frame Term Means per Administration per Country.....99

5.5 New Technology Frame Term Means per Administration per Country.....102

5.6 Three-Dimensional Rendering of Stakeholder Frames.....116

5.7 E.U. Stakeholder Means per Administration per Country.....125

5.8 Three-Dimensional Rendering of Stakeholder Positions.....128

CHAPTER I

INTRODUCTION

Civilization at the beginning of the 21st century can be considered the information society, more so than at any other point in human history. Yet people seldom ponder the origin of the information that they receive. Journalists may be unaware that their everyday activities contribute to selective interpretation of the news. This is problematic, especially if one assumes media provide information that determines the basis for a society's choices.

Rationale

Journalists deal with "facts" on a daily basis, i.e. they pass along information about newsworthy events. Media use generally agreed-upon news values to determine what makes the daily news and how that news is portrayed to the public. Journalists selectively choose news stories based on media routines, which help in gathering and disseminating the news in an efficient manner. Journalists mastering the routines for processing the news are valued for their professionalism (Tuchman, 1977; Soloski, 1989).

Problem

The manner by which a journalist gathers information influences what facts are available for public consumption. Multiple interpretations of the facts exist within contentious issues. Stakeholders, i.e. individuals or groups having a vested interest in an issue, purport that their facts are more likely than others to provide *the* solution to an

issue. Each group's interpretation of the facts can be considered a "frame." A frame identifies a particular position, allowing the discussion and interpretation of events (Miller and Riechert, 2001, p. 114).

Due to their reliance on news values and media routines, journalists report some "facts" more often than other "facts." Journalists rely on news values to determine what is newsworthy. News values act as frames, i.e. categorical definitions of a situation of interest. Issues not as inherently newsworthy as others likely suffer the most from selective framing. Sociologist Erving Goffman (1974) notes that only stories with "newsworthiness" garner coverage; typical events do not make the news (p. 15).

Once a journalist determines what stories contain newsworthiness, media routines help determine who will be interviewed how, when, where and why. But media routines distort events (Altheide, 1976, p. 24), make news (Tuchman, 1977), and promote some events over others by virtue of being in the routine (Molotch & Lester, 1974). Miller and Riechert (2000) observed that the selective framing of events due to media routines limits public policy debates and media discourse on contentious issues (p. 47).

Though journalists use news values and media routines as help when reporting news, consequences arise from the framing of societal issues. Media primarily report on the acceptance of or opposition to "master" frames. For the purposes of this study, a master frame can be understood as a dominant position that must be addressed in order for a communicator to discuss a contentious issue. Like television using oil-covered animals when describing the Exxon Valdez incident, master frames provide the words associated with events; e.g. the master frames of 9-11 were heroism and terrorism. If the public does not receive adequate information concerning an issue as media focus on the

master frame to the detriment of contending views, people will make under-informed choices on societal issues. In this manner, media may contribute to the demise of the "self-evident truths" of the equality of humanity, including the unalienable rights of life, liberty and the pursuit of happiness (Jefferson, 1776).

Objectives

This study explains how issue framing by the media contributes to selective available information for the public. It examines media use of news values and media routines as contributors to the selective information deemed "fit" for public consumption. It analyzes and synthesizes framing literature in communications and sociology to explain how stakeholders attempt to manipulate an issue's frame to their own ends, and how the media "pass along" the frames to the public. It will provide the reader with a better understanding of the framing process, and ultimately the communication process.

Journalists will benefit from the explanation of how media routines lead to the legitimization of regular sources and the possible de-legitimization of those outside of the media routine. By exposing the predetermined framing of issues, hopefully this study will help journalists acknowledge the inadequacies of the current modus operandi and spur them to seek new ways to present a balanced news product.

Social movement organizations (also known as non-governmental organizations, hereafter referred to as SMOs) will benefit from an explanation of how journalists choose what issues are "newsworthy" and why some issue attract more media attention than

others. By better understanding journalistic procedures, SMOs will be better prepared to garner media coverage without fearing de-legitimization.

This study will elucidate the value of examining communication when social movement theorists study SMOs. Though scholars have examined competitive relationships among social movement organizations, governmental agencies, non-movement organizations and the media in a theoretical fashion, they have not tested their ideas in an empirical analysis. The study fulfills this need in the SMO literature as noted by Ellingson (1995, p. 270).

Previous analyses have not indicated how media routines contribute to the resulting master frame. By examining stakeholder success in balancing the master frame, this study tests a derivative of the Spiral of Opportunity theory, thus fulfilling a call for such research by Miller and Riechert (2001). The study also provides a cross-cultural comparison of an international environmental issue, fulfilling a call for such research by Brossard, Shanahan and McComas (2000, p. B2-18).

Communications and sociological researchers will both benefit from the explication of the framing process and from the demonstration of the computerized content analysis as a tool to quantify frames. Using VBPro, VBMap and hierarchical cluster analysis on stakeholder and media texts should illuminate:

1. The availability of information subsidies, i.e. the "packages" in which information is transmitted (Turk, 1986, p. 10).
2. The success of frames in garnering media coverage, the primary vehicle of public discourse on important issues.
3. The altering or abandonment of frames.

By analyzing public correspondence, the interactions of stakeholders and non-elites can be understood, alleviating Benford's (1997) concern (p. 421). This study should also alleviate McAdam, McCarthy and Zald's (1996b) concern that "studying political systems and various kinds of organization is inherently easier than trying to observe the social construction and dissemination of new ideas" (p. 6).

The Issue

To better understand the relationships between media, SMOs and framing, this study examines global climate change and the Kyoto protocol as an example of a contentious international environmental issue. The U.S. government initiated the 1992 "Earth Summit" to look at the problem. Though the 1997 Kyoto Protocol was formally signed in November 1998, a U.S. Senate resolution barred ratification as long as developing countries were exempt from their agreement to reduce greenhouse-gas emissions. Prior to the summer 2001 summit for ratification, President George W. Bush attacked the master frame concerning global climate change and pronounced the protocol to be "fatally flawed."

Previous research indicates changes in the dialogue surrounding the issue since 1987. This study examines whether media reliance on the news value of prominence affected the framing of the Kyoto Protocol. It also examines attempts of stakeholders to manipulate the protocol frame through use of commentary and news releases. Media norms of competing positions suggest that media will use stakeholder positions to balance presidential positions on the issue.

CHAPTER II

FRAMING

How do media decide what's newsworthy? Why do some issues receive more coverage than others? How can people agree that a problem exists and that something needs to be done, yet such efforts fail due to differences in approaches to solving it? The answer lies in differences of frames. A frame identifies a particular position, allowing the discussion and interpretation of events (Miller and Riechert, 2001, p. 114). As far back as the ancient Greeks, man has attempted to explain differences in perceptions of truth, i.e. frames.

> Objects of sense are of two kinds; some of them do not invite thought because the sense is an adequate judge of them; while in the case of other objects sense is so untrustworthy that further inquiry is imperatively demanded. (Plato, The Republic, Book VII)

Plato's description of Socrates' Grotto states that prisoners seeing shadows against a wall assume the shadows reveal truth. Yet when released, the multiple versions of the *actual* truth confounds them. Often, the released clings to a *truth* known while captive. Plato implies that senses cause differences in the perception of truth. What one person believes to be "common sense" seems illogical to another. Perception allows one to accept things as they are, but pushes another to investigate how or why things happened and how to promote change.

To actuate change, people communicate with others via a frame. Through framing, a source transmits frame attributes to a public through selected words, phrases or images. Any communication is subject to multiple layers of framing from both the

natural and social settings (Goffman, 1974). The language structure chosen by a communicator influences environmental understanding and behavior (Whorf, 1956). By focusing on a communicator's word choice, it is possible to ascertain the frames selected by the speaker (Miller and Riechert, 2001, p. 114). The speaker's word choice and language structure thus produces a frame on an issue, a.k.a. an "organization of experience" (Goffman, 1974, p. 13), which influences perception and arguably organizes an information society.

Framing In Mediated Communication

Society generates primary frameworks, rendering otherwise meaningless events into something meaningful by offering a conceptual structure that allows people to digest information (Goffman, 1974). Assuming that communication via media allows the conceptualization and understanding of events and how they shape society, mediated communication access influences the construction of social frameworks. Media highlight frames through mediated communication, i.e. the mass dissemination of information intended for public consumption that explains or makes sense of events and experiences, which allow individuals and groups access to differing observations of the same phenomenon. Mediated communication sometimes describes the claim, while at other times is interpreted as a claim (Spector and Kitsuse, 1977, p. 80). Snow, Zurcher and Ekland-Olson (1980) describe the mediated communication process as information dissemination through institutionalized mass communication mechanisms, such as newspaper, magazines, television, radio, movies and the Internet, or through

institutionalized, but individualized and privatized, communication mechanisms such as the mail, telephone and e-mail.

Environmental Risk Communication

Environmental issues pose concerns of possible future risks to the general public. German sociologist Ulrich Beck (1992) says environmental risks affect everyone through social problems, which do "not spare even the wealthy neighborhoods of the world community" (p. 44). He claims people living in a risk society must read more information, including alternative views, which may lead to political choices. He notes as the risk society develops, an antagonism between the afflicted and those profiting from the risk also develops.

> The social and economic importance of *knowledge* grows similarly, and with it the power over the media to structure knowledge (science and research) and disseminate it (mass media). The risk society is in this sense also the *science, media and information society* (p. 46, emphasis in original).

Repeated technological failures have made the public skeptical of technology-related risk claims (Hornig, 1992). Individuals actively evaluate their own risk based on observations of the world around them, consideration of the opinion of others, and willingness to believe in information provided by institutional sources and mediated communication processes (Trumbo, 1997). However, their comprehension about risk can change due to how the risk is framed for consumption. Media affect perceptions and interpretations of the importance of an issue's risk by displaying the contest between risk frames via risk communication (Sachsman, 1996; Miller, 1997, p. 367).

Media function as "a site or arena in which symbolic contests are carried out among competing sponsors of meaning, including movements" (Gamson and Meyer, 1986, p. 287). By selectively defining the risk, the winners control the rational solution to the problem at hand (Slovic, 1997, Gandy 1982). Even small differences in the framing of an issue's risk have robust influences on social perception and policy preferences (Gandy, Kopp, Hands, Frazer and Davis, 1997), thus determining an issue's permanence and societal norms (Miller, 2000a). If media fail to adequately cover an issue, public comprehension of the risk suffers. Assuming media provide information that determines the basis for society's choices, society may be deprived of diverse solutions for environmental risks due to a lack of coverage.

Journalists covering environmental issues do not differ much from the average journalist. Yet as in business or science reporting, the environmental journalist must know certain things before setting out to cover a story. The journalist must be prepared to ask every source the tough questions regarding the probable danger to the environment and human health, efforts to contain or clean up the hazard, and the probable punishment for the violators. If these questions are not asked, the full story is not available to the public, hampering efforts to proceed on a direct course of action.

The Framing Cycle

Media rely on information provided by stakeholders to explain issues to the public. Stakeholders rely on the media to get their message to the public in the most efficient manner. Yet it helps to understand that both media and stakeholders frame issues intentionally or unintentionally before the information reaches the public. Framing

is evident throughout the mediated communication process – as a product of media routines and journalists' reliance on news values and master frames; as a tactic of those attempting to affect the mediated communication process; and as a backlash effect that may de-legitimize stakeholders attempting to affect an issue's frame.

1. Product

As events ebb and flow, some maintain newsworthiness and garner continued coverage while others disappear from media observation. By defining social problems (Smith, 1993; Spector & Kitsuse, 1977; Shoemaker & Reese, 1996; Beck, 1992, p. 197; Meisner, 2000, p. B2-37; Best, 1989, p. 5; Good, p. B2-24; Miller, 1997, p. 367), media gain ideological power (Shoemaker and Reese, p. 224). This power comes from the framing of issues as a product of the processes used in news-gathering, including the use of news values, media routines, and master frames. Journalists seldom view events as social constructions in their effort to transmit information to the public; instead, they reflect attributes of the events in their reporting (Gamson, 1985, p. 617). To describe an event or issue, journalists gather available facts and put them together into a story. Facts have no intrinsic meaning, but take meaning from frames or a story line that "organizes them and gives them coherence, selecting certain ones to emphasize while ignoring others" (Gamson, 1989, p. 157). Since facts can be selectively used or interpreted, informational content is only relevant by distinguishing among potential frames, identified by the interpretive commentary surrounding them. Journalists can thus use frames to focus on facts and still consciously or unconsciously shape discourse (Miller &

Riechert, 1997b, p. 4; Entman, 1993, p. 56). Yet media refuse to cover some frames because of:

1. Lack of newsworthiness (based on news values)
2. Restricted coverage (based on media routines)
3. A combination of these factors.

Though environmental risk should entice media to cover environmental issues, the chronic nature and lack of overall "newsworthiness" makes environmental issues less likely to receive media coverage than issues containing multiple news values. Sachsman (1993) notes that journalists do not report risk problems; they report news. In reporting the news, they rely on news values to help them judge the newsworthiness of an event or issue. When encountering environmental issues, the journalistic standards of newsworthiness are the same as for any other story: risk may be an angle of the coverage, but not a news value (Sandman, Sachsman, Greenberg and Gochfield, 1987).

News Values

New York Sun editor Charles A. Dana once defined news as "anything that interests a large part of the community and has never been brought to its attention before" (Mencher, 2003, p. 66). News judgment comes from evaluating events or issues based on news values, which provide newsworthiness and predict an audience's need for information or entertainment (Shoemaker and Reese, p. 111). News values act as categorical definitions of the situation of interest, which determine the importance of an issue, event or personality. By relying on these categorical definitions of situations of interest, a journalist can intentionally or unintentionally frame the importance of an issue

for the general public. This implies news values provide a structural feature of the media, which can be measured, grouped, and manipulated. A common collegiate journalism text describes news values (Mencher, pp. 68-74):

1. **Timeliness** – Immediate or recent events. "News value diminishes with time. … People need to know about the activities of officials as soon as possible so they can assess the directions in which their leaders are moving. Told where they are being led, citizens can react before actions become irreversible" (pp. 68-69).
2. **Impact** – Events affecting many people.
3. **Prominence** – Events involving well-known people (e.g. politicians, celebrities, etc.) or institutions.
4. **Proximity** – Events geographically or emotionally close to the reader. "This … is known as *localizing* the news … People are interested in events and individuals that seem close to them" (p. 71).
5. **Conflict** – In addition to strife, antagonism and warfare, modern journalism "provides a forum for discussion of the conflicts that divide people and groups … this peaceful debate makes conflict resolution possible" (p. 72).
6. **Unusual** – events deviating or departing from everyday, expected experiences; often considered to be human-interest stories.
7. **Currency** – "an idea whose time has come" or ongoing coverage of an issue.
8. **Necessity** – when a journalist feels compelled to disclose information.

News values determine the newsworthiness of an issue (Goffman, 1974, p. 15), as well as the length and depth of coverage of that issue (Zald, 1996, p. 272). News selected

by news values promotes "a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (Entman, 1993, p. 52). Only those stories that fit one or more news values receive coverage – this includes triggering events that set the frame for follow-up stories. Yet reliance on news values provides obstacles for reporters to overcome. For example, Shoemaker and Reese (1996) note that journalists tend to frame science-related events in terms of human drama, conflict, and the unusual, thereby not always giving the public the information it needs to confront a problem. The following problems occur when relying entirely on news values when determining an issue's importance.

1. **Timeliness** - Timeliness requires journalists to interview the "usual suspects" when covering any issue. Deadlines leave little time to acquire different viewpoints from multiple sources on contentious issues. Though a journalist may intend to follow up a story with other viewpoints, breaking news may impede this coverage. In broadcast media, time limitations (and TV's visual requirements) constrain each news segment. Even with print publications, only so much time exists to gather information and still finish the article before deadline. Though timeliness defines news, many environmental problems are not of a timely nature (Epstein, 1973, p. 30; Sachsman, 2000, p. A2-3). Greenberg *et al.* note journalists often cover immediate risks (e.g. explosions, natural disasters) to the detriment of chronic risk coverage (e.g. disease, global warming).

2. **Impact** - Impact requires a journalist to report an issue's effect on the public. Government sources often have this type of information readily available, and thus have an advantage of being automatically quoted as an official source

(Sachsman, 1976). While the Internet provides immediate information that previously would have taken weeks or months to obtain, it also provides alternative sources the opportunity to promote their frame of an issue's impact. But smaller-market journalists may not have the time to investigate a contentious issue's possible impact to their audience. Environmental stories focus usually on the impact to surrounding communities, often emphasizing future negative possibilities if present actions are not taken (Davis, 1995). Yet many environmental stories fall into the false dichotomy of jobs versus the environment, i.e. pay now or pay later.

3. **Prominence** - Reporters present routine coverage of elites and government officials as the "normal state of affairs." Prominent governmental position require coverage regardless of who resides in the office or which political party is in power, e.g. a recent study confirms that White House journalists' "definition of news ... prioritizes the actions and opinions of the executive branch" (Howard, 2002). Politicians schedule events to take advantage of media deadlines (Shoemaker & Reese, p. 119; Epstein, p. 31). But alternative voices face higher hurdles in acquiring coverage of their viewpoints. In fact, the underprivileged and minority members of society are much less likely to receive press coverage than prominent individuals, even though they are much more likely to be affected by environmental risks.

4. **Proximity** - Proximity requires the information to be relevant to the audience by *space*; i.e. events in areas close to the audience have more relevance than events farther away. It also requires the event to occur near a media outlet:

geography and convenience affect whether television cameras will be taken to the scene for visuals on which television news is based (Greenberg, Sachsman, Sandman and Salomone, 1989; cf. Epstein, 1973). Yet proximity may not be the best determinant for some environmental risk stories. For example, environmental issues such as global warming affect the entire planet.

5. **Conflict** - Many news stories revolve around a conflict of frames. Print and television journalists extensively frame environmental issues in an adversarial manner (Karlberg, 1997). The focus on conflict provides a sexier article than an article about risks, which can be detrimental when the risks affect both parties. Alternative sources have a disadvantage, especially in situations where media are unable to get an immediate response. An attack on a frame may be perceived as improper or dangerous, leading to possible de-legitimization through terminology such as "so-called," "radical" or "fringe" (cf. p. 35). In addition, conflict may be contrived (e.g. some SMOs stage campaigns for coverage, leading journalists to accept their given frame).

6. **Unusual** – Human-interest stories require more space than hard news to properly explain an issue. Editors may bump them in favor of shorter pieces that fit the news hole. Some issues pose the problem of adequate visuals. Television news pictures of oil-covered animals after the Santa Barbara oil spill told what thousands of words could not, and could be said to have activated the environmental social movement (Sachsman, 1976). However, appeals to "save the animals," "save the planet" or "save the children" do not have much of a chance when faced against saving jobs.

7. **Currency** - Some issues have a chronic nature with ambiguous risks, making them harder to cover. Journalists struggle to continue coverage of environmental problems as health risks are hard to explain, problems are often wrapped in technical terminology, and the risk is somewhat ambiguous (Dunwoody and Griffin, 1993). Also, the currency of one issue (e.g. 9-11, O. J. Simpson trial, Elian Gonzalez, "Zippergate," etc.) may be detrimental to the coverage of other issues.

8. **Necessity** – A journalist may not see the necessity of reporting an issue due to time constraints or a reliance on a stakeholder's frame. If a journalist decides information not fitting one of the previous news values deserves attention, the possibility exists that some members of the general public will perceive correctly or incorrectly a hidden agenda on the journalist's part. Some science reporters who feel the necessity to report on an issue must combat irritation at editors due to the selection and presentation of their articles (Nelkin, 1995, p. 108).

In short, reliance on news values help journalists quickly determine if a story is worth covering. News values thus frame an issue as worthy of the public's attention or not, and determine how that coverage will be presented. Yet this same reliance can cause inadequate coverage of issues (e.g. environmental) that do not conform to common news values. Consequently, the risks involved with that issue may not be completely realized, especially when other issues deemed more newsworthy fill the news hole. Though media coverage of an issue produces concerns about an issue, that concern fades when coverage wanes (Klandermans and Goslinga, 1996, p. 313). Since most environmental issues

have a chronic nature, the lack of concern may produce detrimental risks that increase over time.

Media Routines

Media play a central role in the construction of meaning and the reproduction of culture via the mediated communication process, as story lines and images support particular frames. Understanding frame transmission and success depends in part upon understanding media production routines and the potential impact of different media (Zald, 1996, pp. 261-262). News is primarily an organizational product born of routines (Ettema, Whitney and Wackman, 1987, p. 40). Media routines, which comprise the things media professionals do to get a news story, bring frames to the public's attention. Media routines transmit and transform information (Zald, p. 270), distort events (Altheide, p. 24), make news (Tuchman, 1977), promote some events over others by virtue of being in the routine (Molotch & Lester, 1974), and limit public policy debates and media discourse on contentious issues due to selective framing (Miller & Riechert, 2000, p. 47). Routines including source selection, gatekeeping, and agenda-setting can lead to an issue's framing.

Source Selection

Journalists collect news through a beat, i.e. a routine gathering of information in a specific area. For example, a journalist having the police beat will routinely stop by the police station to determine if any newsworthy events have occurred. Journalists on the legislative beat will be found at city hall or the state capitol covering how lawmakers

change policy. News originates through routine channels including official proceedings, press conferences, and press releases (Sigal, 1973; Brown, Bybee, Werder & Strayhan, 1986). Many news sources come from beats, while other sources provide tips that the media follow.

Media set the range of debate on issues by selecting sources who represent the interests and opinions of the population. Yet instead of providing neutral observations, sources function as stakeholders. Self-interest behooves sources to frame information in beneficial ways. Stakeholders often have a vested interest in the outcome of an event (Sherizen, 1978, p. 212), are more likely to have economic or political power (Gans, 1979; Shoemaker & Reese, p. 59), and are more likely to be organized than individuals (Shoemaker & Reese, 1996). Sources set the initial frame of a story, and journalists often unwittingly accept that frame and pass it along through the news coverage (Miller and Riechert, 2000). Sources can be divided into a dichotomous pairing:

1. Standard source – stakeholders *directly* involved in media routines (e.g. governmental sources).
2. Alternative source – stakeholders not directly involved in media routines (e.g. SMOs).

1. Standard Sources

Journalists return to the same sources again and again due to the beat they cover as well as deadline pressures. Media cover policy makers because they make decisions on contentious issues. Although influenced by stakeholders, policy makers claim to be independent thinkers who have the nation's interest at heart. Framing by the policy-

maker, however, depends on their definition of the nation's best interest. Herman and Chomsky (1988) found policy makers directly frame information, i.e. they determine how an issue will be approached and how their constituents should view any issue. Government officials often dominate environmental risk coverage (Gans, 1979; Sigal, 1973), as they are acknowledged to be authoritative voices on most subjects. Sachsman (1976) found government sources have the advantages of supplying the greatest number of environmental press releases ***and*** being automatically quoted as official sources.[1] Politicians schedule events to take advantage of media deadlines (Shoemaker & Reese, p. 119; Epstein, p. 31). By reporting on the events, "[r]eporters assist officials by the stories they wrote – whether they chose to or not. And reporters were largely dependent on officials and their staffs for the information on which those stories were based" (Miller, 1978, p. 3).

The scientific community supplies another standard source for environmental news. But journalists often fail to review the literature or interview scientists for background on issues (Gelbspan, 2000, p. F1-7). Though science was once considered to be immune to cultural influences and scientists had no need to consider the application of their work (Nelkin, p. 20), Beck notes that scientists depend on external funding, decide which interests are studied, on whom or what the causes are projected, how the problems are interpreted, and what solutions are given. "Their possibilities of exerting practical influence lie in *how* they design scientific results" (p. 174, emphasis in original). In risk situations, Miller (2000a) cautions journalists against "granting scientists special status that they grant no other group."

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[1] My emphasis.

A third standard source consists of elite interests often covered in the business section of the news. Corporate owners of media outlets depend on these interests for advertising revenue, regulatory support, and access to information. "Network news demonstrated a clear tendency to showcase the opinions of the most powerful political and economic actors, while giving limited access to those voices that would be most likely to challenge them" (Howard, 2002). Yet in environmental risk situations, it is often the powerful political and economic stakeholders that have the most to gain by imposing risks upon those without political and economic power. Media coverage of "counter-science" allows risk producers to refute charges and attempt to promote other possible causes (Beck, p. 32). By virtue of the coverage, these interests gain legitimacy in the eyes of people who do not take the time to gain alternative information.

2. Alternative Sources

Journalists give credence to official packages from standard sources, making challengers prove the validity of any alternative package. When organized opposition forms against the official package, popular media norms of competing positions require journalists to cover the opposition (Gamson & Modigliani, 1989, pp. 6-7; Anderson, 1997, p. 49). Journalists contact groups not normally included in media routines, i.e. alternative sources including SMOs, which encourage media coverage by staging newsworthy events, and thus play to the media's need for news content (Shoemaker & Reese, p. 188). Gamson and Meyer claim media access depends on media routines, journalistic norms, and "beliefs about who the serious players are in any policy arena" (p. 282).

> The mass media play a crucial role in defining for movement actors whether they are taken seriously as agents of possible change ... the media spotlight validates the movement as an important player. This suggests that the opening and closing of media access and attention is a crucial element in defining political opportunity for movements (p. 285; see also Epstein, 1973).

Environmental SMOs can be divided into two categories: established and grass-roots. Established SMOs emerged from the conservation movements of the late 19th century (Cable & Benson, 1993; Dunlap & Mertig, 1994; Shabecoff, 1993; Gerlach, 1999). They focus their attention on global problems in a professional manner, preferring to lobby government officials, place advertisements stating their position, and send mailers or go door-to-door to turn out their constituency (Cable & Benson, 1993; Shabecoff, 1993). Their membership base consists of the affluent and educated, who work within the system in hopes of alleviating environmental problems. By becoming institutionalized, established SMOs impact the perception of issues as they supply information subsidies that conforms to media's "tight timescales and demands for newsworthy material" (Anderson, p. 12).

On the other hand, grass-roots SMOs mobilize in response to perceived environmental injustice by business and the governmental agencies in charge of overseeing them. They are concerned about local problems, and want environmental justice by making government enforce laws already on the books. If this is not sufficient, they will resort to methods including boycotts, rallies, protests and marches. Grass-roots SMOs typically have a lower socio-economic membership base consisting of minority members who are often uneducated, but who educate themselves on the topic of concern when confronted with a perceived lack of knowledge, which leads to lack of power

(Cable & Benson, 1993; Brown & Masterson-Allen, 1994). Grass-roots SMOs challenge authority by questioning their motives, proficiency, and ultimately, their legitimacy (Cable & Benson, 1993; Schnaiberg, 1980).

Buechler (2000) claims that SMOs in core countries of the world capitalist system, such as the United States, have "a distinctive flavor because of activists' claims that it is their own nation or government that is responsible for the problem, and that they have a particular responsibility as citizens to control the actions of their own government" (pp. 72-73). However, this aversion to the status quo may cause media to cast SMOs as deviant, leading to their de-legitimization. Grass-roots' SMO activists are often either dismissed or given less credence than a standard source. Anderson found that established SMOs, on the other hand, lobby prominent political figures to become "information conduits" – thus increasing the chance of their ideology gaining wide circulation (p. 41) in the mediated communication process, and decreasing the chance of de-legitimization.

Journalists ths affect framing through their source selection. By relying primarily on those standard sources within the media routine, media frame issues from the perspective of those in power – government, scientists and elite interests. Each group frames information for their interests, which may be detrimental to the interests of those out of power. Alternative voices not only face an uphill battle to gain media access, they also face possible de-legitimization as they oppose the status quo.

Gatekeeping

Through gatekeeping, first described by White (1950), journalists and editors decide ***if*** frames will reach the public by selectively filtering news events for inclusion in the mediated communication process. The process "involves every aspect of message selection, handling and control" (Shoemaker, 1991, p. 57). Those mastering the routines for processing the news are valued for their professionalism (Tuchman, 1977; Soloski, 1989). Hood (1972) noted gatekeepers select or reject news through their class background, upbringing and education, and their personal attitudes towards the world. Journalists appear to be the primary decision-makers in terms of what is or not included in newspaper content (Turk, 1986; Norris, 1997, p. 277), yet they practice framing when deciding the following:

1. What stories are covered
2. Who is asked questions and who is not
3. What questions are asked and what questions are not asked
4. Where and when to ask sensitive questions
5. How to ask the question
6. Why a question should or should not be asked.

Journalists affect frames when reporting by choosing relevant material from notes, determining which source is mentioned first and deciding if another source gets an opportunity for rebuttal. Journalists claim the "voice of truth" by controlling media access and response, and by presenting the voices of interviewees and activists as fallible and partial (Hertog and McLeod, 1995, p. 5). Journalists often report the stakeholders expressing an opinion, and thus frame issues from stakeholders' viewpoints. When

covering science, journalists commit both errors of commission and omission, i.e. while at times sources are misquoted or facts are misinterpreted, more often the reporter must be careful not to leave out information that would adequately explain the risks involved in environmental issues to the public (Singer & Endreny, 1993; Nelkin, 1995; Parenti, 1996; Breed, 1955).

Editors affect frames when determining which stories will enter the mediated communication process. If a story does not make the news, its frame is inconsequential. Yet the editors are somewhat constrained in their decisions, as they obtain their positions only after internalizing journalistic norms (Breed, 1955, p. 109; Bleske, 1991, p. 78). Entman implies that editors frame the news by determining a story's placement within pages of particular sections of a print medium or within segments of a broadcast. Issue placement prioritizes the news; i.e. stories on the front page of the newspaper or in the top of the newscast have more importance than stories residing on the back page of the paper or in the bottom of a newscast. Editors of a print medium also affect frames through headline construction, while broadcast editors may affect the frame of an issue through teasers. In both of these instances, word choice entices the audience to stay with the story rather than move on to another piece of information.

In short, the gatekeeping function determines *if* a frame will be passed to the public. The selective filtering of the news means some issues will not be covered, and the risks of those issues will not be on the public mind. Though gatekeeping makes processing and distributing the news easier, the lack of coverage given to chronic issues ensures that proper measures to alleviate the possible risks will not be taken until the issue possibly becomes catastrophic – and that may be too late.

Agenda-Setting

> News performs somewhat the same functions for the public that perception does for the individual man; that is to say, it does not so much inform as orient the public, giving each and all notice to what is going on (Park, 1955, p. 79).

Robert Park could have very well been describing the framing concept as viewed via agenda-setting when writing about news as a form of knowledge in the preceding quote. Agenda-setting affects frames as media prioritize the news, which may affect the relationship of public opinion to the media's agenda. Cohen (1963) is credited with refining Lippmann's (1922) idea of pictures in our heads (i.e. what people perceive as reality) into the agenda-setting theory that media tell readers not what to think, but what to think about. When McCombs and Shaw (1972) empirically tested the proposition, they found a high correlation between print media content priorities and public perception of the most important problems. Iyengar and Kinder (1987) found people watching network broadcasts assign greater importance to problems given steady news coverage. They also noted that the position of a story in a broadcast affects agenda-setting (p. 113). Yagade and Dozier (1990) note that agenda-setting effects may depend on the "concreteness" of an issue – if an issue is abstract, the media may not set the public agenda (p. 10).

Media discourse may not predict policy outcomes, but it reflects and helps produce public opinion concerning policy (cf. Koella, 2001). Media packages organize issues into frames that make sense of relevant events, suggesting what is at issue, implying a range of positions, and allowing for controversy among participants sharing a common frame (Gamson and Modigliani, p. 3). Cultural resonance increases the appeal

of the package. Sponsors promote collective agendas and provide suitable catchphrases to suggest the journalist's framing of the package. People assign greater importance to stories receiving steady news coverage, and to those stories with preferential placement in print or broadcast media. Media not only frame current events for the public, but influence story selection at local broadcast affiliates, radio outlets and print media (Howard, 2002; Nelkin, p. 8).

Science and environmental stories are a low priority for editors. Nelkin noted editors constrain the amount of space allocated to such stories due to a perceived lack of newsworthiness (p. 106). In addition, stories that do make the news are often relegated to the back pages of the newspaper or the end of a broadcast. If an environmental issue does not make the national news, it will seldom appear in other media outlets unless the issue meets the proximity news value. However, Anderson found some environmental stories maintain coverage because of:

1. A triggering event with newsworthiness
2. Inclusion of a strong visual element that people can identify with
3. An element of human interest.
4. A lack of available "hard" news (p. 159).

Recently, authors in the agenda-setting tradition suggested framing is but a second level of agenda-setting (McCombs & Bell, 1996; Ghanem, 1997; McCombs & Ghanem, 2001). The description of framing as the second level of agenda-setting involves two major hypotheses concerning attribute salience (Ghanem, p. 4):

- The attributes of an issue or object emphasized in the news affects the public's perception.

- The attributes of an issue or object emphasized in the news affects the salience to the public agenda.

The implication is that the media agenda picks up an issue's attributes along the way to transferring issue salience. Yet problems exist with this conception, the primary concern being that agenda-setting researchers specify their *own* categories of objects or attributes, rather than letting the attributes emerge from stakeholder texts as framing theorists do (Maher, 2001, p. 86).

While agenda-setting provides valuable approaches to measurement, Maher notes it lacks the theoretical depth of framing, which has itself proven to be a difficult concept to measure (p. 84). Unlike agenda-setting researchers, Maher claims that framing theorists study the environment outside reporters' message system (p. 87). He notes framing has a strong emphasis on causal reasoning, where agenda-setting has less interest in media portrayals of how social problems are caused (pp. 87-88). At the most basic level, Maher finds agenda setting researchers view frames as attributes of an object, but framing research emphasizes the constructed nature of media messages (p. 88). If the premise put forth that framing influences the media process of gathering and distributing information is correct, then framing enters the communications process prior to agenda-setting, i.e. the media cannot set the agenda without having previously framed the discussion, which in turn was framed by stakeholders.

Agenda-setting thus functions to push frames into the public consciousness. Chronic environmental issues that do not make the media agenda are unlikely to become important issues for the public. As media affects and reflects public opinion concerning policy, the lack of coverage given to chronic environmental issues results in a lack of

public knowledge of the risks associated with the issues. If a frame does not make the media agenda, proactive measures to alleviate possible risks will not be considered.

Master Frames

A master frame can be understood as a dominant position that must be addressed when a communicator discusses an issue; e.g. the master frame of the civil rights movement hinged on the idea of equality for all. Media highlight an issue's master frame, thus interpreting events and experiences for the general public (Snow, Rochford, Warden and Benford, 1986, p. 246). In broadcast media, a master frame can be understood to be the action images accompanying the new; e.g. pictures of oil-covered animals when describing the Exxon Valdez incident. However, chronic environmental issues often have few such images to present; e.g. an actual picture of global warming does not exist though many scientists point to indicators like increased temperature. In print media, master frames provide the words associated with events; e.g. the master frames of heroism and terrorism for 9-11 would allow for categorization of the majority of articles printed. When no definitive master frame exists, multiple master frames proposed by contending stakeholders vie for supremacy.

A master frame is analogous to Kuhn's (1996) paradigm, in that communicators agree in their identification of a master frame without agreeing on a full interpretation or rationalization of it. Kuhn describes paradigm changes through the example of normal science.

> Normal science, for example, often suppresses fundamental novelties because they are necessarily subversive of its basic commitments. Nevertheless, so long as those

> commitments retain an element of the arbitrary, the very nature of normal research ensures that novelty shall not be suppressed for very long. Sometimes a normal problem, one that ought to be solvable by known rules and procedures, resists the reiterated onslaught of the ablest members of the group within whose competence it falls. On other occasions a piece of equipment designed and constructed for the purpose of normal research fails to perform in the anticipated manner, revealing an anomaly that cannot, despite repeated effort, be aligned with professional expectation. ... when the profession can no longer evade anomalies that subvert the existing tradition of scientific practice . . then begin the extraordinary investigations that lead the profession at last to a new set of commitments, a new basis for the practice of science. *The extraordinary episodes in which that shift of professional commitments occurs are the ones known ... as scientific revolutions* (pp. 5-6, emphasis in original).

The same paradigm shift can be seen in shifts of a master frame. The master frame determines what elements of an issue are discussed or dismissed – in essence determining what questions are asked, what problems are studied, and ultimately what options are available for solutions. To discuss an issue in different terms, a master frame must be attacked as unsatisfactory until a new master frame is accepted. This action is similar to Kuhn's paradigm shift: once the former paradigm fails in its problem-solving activity, a new paradigm emerges as a direct response to the crisis.

Swart (1995) notes that master frames are symbolic frames culturally resonant to their historical milieu, which implies master frames provide powerful symbolic resources that can be reshaped around specific grievances and goals of diverse movements (p. 466). Snow and Benford (1992) found master frames provide the following uses to media and the public.

1. Master frames accent the seriousness and injustice of a social condition

2. Master frames make diagnostic and prognostic attributions
3. Master frames provide an interpretive medium through which collective actors assign blame for the problem under consideration
4. Master frames affect the mobilizing potency of SMOs, determined by the extent of frame resonance and whether a master frame operates in a restricted or elaborated manner

In short, master frames provide the shorthand explanation of an issue to the public. Media affect an issue's frame by focusing on master frames, sometimes to the detriment of other possible solutions to environmental risk situations. Though master frames allow the media and public to identify major issues, they also constrain journalists' decisions on what to report. By relying on the master frame, journalists return to the same sources for information, in essence perpetuating the master frame. However, journalists use alternative sources due to the news value of conflict when stakeholders attack the master frame through framing tactics.

2. Tactic

Sources attempt to affect an issue's frame by initiating news. Stakeholders, i.e. persons or groups with a vested interest in the outcome of events and policy decision, use framing as a *tactic* to affect policy and to garner media coverage. Stakeholders likely have economic or political power (Gans, 1979), and are more likely to be organized than individuals (Shoemaker and Reese, 1996). While examining legislative news, Sigal (1973) found that news is not necessarily what happens, but what a news source says has

happened because news does not "happen" until there is an exchange of information between journalists and their source. Entman (1993) indicates framing has important implications for political communication.

> Frames call attention to some aspects of reality while obscuring other elements, which might lead audiences to have different reactions. ... Framing in this light plays a major role in the exertion of political power, and the frame in a news text is really the imprint of power – it registers the identity of actors or interests that competed to dominate the text (p. 55).

Stakeholders choose value-laden terms to entice potential advocates to adhere to a prescribed position, i.e. they propose the "appropriate" frame for the media to cast an issue by elevating the perception of the most important facts through wording that taps potential values held by the public. Stakeholders understanding the media communication process have a better chance of affecting a frame than those who do not; e.g. Fishman finds grass-roots SMOs virtually impossible to cover according to standard news practices (1982, p. 215). If stakeholders produce messages that fit news values, they will increase the possibility of entering media routines, thereby affecting the issue's frame.

Stakeholders attempt to frame issues prior to media coverage, thereby possibly determining the terminology surrounding an issue's debate. Entman claims that once a terminology depicting a frame gains wide acceptance, using another risks the perception that the communicator lacks credibility – or the possibility that an audience will not understand what the communicator is talking about (Entman, 1993; cf. Hallin, 1986; Snow & Benford, 1992). This forces communicators to expend considerable energy framing events in a way that promotes their interests (before the media sets the frame) in

hope of getting their views through the mediated communication process relatively intact (Price, 1992, p. 32; Miller & Riechert, 1997b, pp. 3-4; Kennamer, 1994). Stakeholders attempt to frame issues in a tactical manner through the Spiral of Opportunity and through frame alignment.

Spiral of Opportunity

Miller and Riechert's (2001) "Spiral of Opportunity" theory suggests stakeholders articulate positions when they sense an opportunity to win converts, and become reticent if they sense their message would fall on deaf ears (p. 109). They claim framing cycles can be understood as phases marked by persuasive efforts of stakeholders and their effects (pp. 111-114). The process consists of:

1. Emergence phase - stakeholders attempt to gain visibility for their selective issue definition via mass media exposure
2. Definition/conflict phase - stakeholders increase efforts to have *their* definition of the issue presented in the media
3. Resonance phase - the values of a stakeholder's frame resonates with the public
4. Equilibrium/resolution phase- policy is set to conform to the frame.

Gandy (1982) states stakeholders use "information subsidies" to make information quickly and inexpensively available and thus increase the likelihood that the information will be used. Turk described information subsidies as the "packages" in which information is transmitted (p. 10). These packages include official proceedings, news releases, copies of written agency reports or documents, copies of internal memoranda, memos from public information officers to reporters, telephone calls to

reporters, in-person conversations, press conferences, letters of protest, exposes, media ads, and background briefings (Sigal, 1973; Brown, Bybee, Werder & Strayhan, 1986; Spector & Kitsuse, p. 79; Ibarra & Kitsuse, 1993, p. 54). Turk said issue salience as well as raw information is transmitted when sources provide information subsidies to journalists (p. 24). Journalists quote or paraphrase the stakeholders expressing an opinion, and thus frame issues from a stakeholder's viewpoint. As Miller and Riechert (2000) note, "The more a stakeholder is quoted, the more prominently the selective definition is presented in news coverage, relative to competing frames" (p. 47).

In short, stakeholders attempt to frame issues when they sense the opportunity to win converts. By using information subsidies, they increase chances of affecting an issue's frame. Stakeholders concerned with chronic environmental issues will use the opportunity to frame them in a manner that elevates the perception that their solutions are the *right* solutions for a perceived problem.

Frame Alignment

While some stakeholders garner media attention by virtue of their position, others must vie for media coverage. As individuals seldom garner coverage, they most join a social movement organization to have their voice heard. Snow, Rochford, Worden and Benford found SMOs gain membership through frame alignment, i.e. linking individual and SMO interpretive orientations by interpreting grievances, organizing experiences and guiding actions if the "grievances are sufficiently generalized and salient to provide support for SMOs" (pp. 235-239). For example, protesters against the 2003 war on Iraq agreed that war is wrong though not necessarily on the reasons why. However, frame

alignment cannot be assumed given the existence of multiple grievances and SMOs, nor can frame alignment be expected to persist indefinitely as it is subject to reassessment and renegotiation (pp. 247-248). Snow et. al. described four frame alignment processes (pp. 236-249), including:

- Frame bridging, i.e. "the primary form of alignment" that links two or more ideologically congruent but structurally unconnected frames regarding a particular issue or problem (p. 238) through mediated communication.
- Frame amplification, i.e. the clarification and invigoration of an interpretive frame that bears on a particular issue, problem or set of events (p. 239). Frame amplification is vulnerable if a movement fails to consistently uphold highlighted core values or beliefs, or if a value is discredited or loses salience (p. 249).
- Frame extension, i.e. the act of encompassing interests or points of view incidental to primary objectives but of considerable salience to potential adherents (p. 243).
- Frame transformation, i.e. the act of planting and nurturing new values, discarding old meanings or understandings, and reframing "erroneous beliefs" (p. 245). Frame transformations occur when a new primary framework ascends to function as a "master frame" that interprets events and experiences (p. 246).

SMOs offer multiple collective action frames, with the common implication that "those who share the frame can and should take action" (Gamson, 1995, pp. 89-90). SMOs actively seek media coverage for publicity, legitimacy and viability (McAdam, 1996; Schneider, 1985), in turn influencing recruitment strategy and mobilization through "broadened socialization messages" (Snow, Zurcher and Ekland-Olson, pp. 790-799).

By using frame alignment as a tactic, stakeholders entice more people to accept a position on an issue, increasing their chances of affecting the "master frame."

SMOs use a master frame alignment process to link activities, goals, and ideologies to broader cultural and political contexts (Swart, p. 466). An elaborated master frame becomes more applicable to grievances and goals of other movements, while a restrictive master frame provides a constricted range of definition allowing for little interpretation (Swart, p. 478; Snow & Benford, 1992, pp. 138-139). Mooney and Hunt (1996) found master frames persist across time, as movements use multiple interpretations to construct collective action frames that often integrate two or more persistent master frames (p. 178). Yet they note some master frames lose credibility, resonance or potency over time; they call this "frame dissonance" (p. 193).

SMOs thus use frame alignment as a tactic to entice more advocates to join their cause, thereby increasing their chance of affecting an issue's master frame. Solutions to chronic environmental issues that do not fit the master frame often lack the newsworthiness necessary to garner media coverage. However, SMOs face the prospect of de-legitimization as a consequence of attacking an issue's master frame.

3. Effect

Due to the reliance on traditional sources due to the news routine, alternative voices may not be seen as legitimate. Stakeholders thus not only face an uphill battle to have their frame taken into consideration, but also must guard against possible de-legitimization as a backlash effect from challenging the status quo. De-legitimization can

cause stakeholders to have a group stigma, i.e. a discrepancy between the perceptions and actualities of the group, which can affect a group's members (Goffman, 1963). Media force alternative sources to either:

1. Make reasonable arguments and be ignored;
2. Attract media attention through dramatic or illegal activities and chance being de-legitimized; or
3. Mute their positions so as to be covered as routine news (Gitlin, 1980; Hertog & McLeod, 1995).

De-legitimization can result from journalists using words such as "bizarre" or "militaristic" (Hallin, 1986, pp. 32-36), and "radical" or "so-called" (Hertog & McLeod, 1995) when reporting about such groups, to using quotations around terms such as "peace march" (Gitlin, 1980, p. 28) when reporting on their activities. Media do not screen "deviant" ideas, but portray them in a calculated manner to underscore their deviance (Shoemaker, 1984; Shoemaker & Reese, p. 225; Epstein, p. 6). Since interest groups must find alternative ways to get media coverage (Molotch & Lester, p. 202), e.g. demonstrations, they stand the risk of becoming de-legitimized within the media, as their ideas are often contrary to the status quo (Fishman, p. 219). Anderson explains the process:

> If a statement from a minority radical organization is selected this may convey the impression that they adequately represent the opposing view. At times, such a ploy may be used deliberately in order to marginalize opposition. ... Balancing an official view with an opposition perspective may give the outward appearance of impartiality yet it subtly influences the debate (p. 49).

Stakeholders thus face the prospect of being framed in a de-legitimizing manner as a consequence of attempting to affect an issue's master frame. This backlash effect can cause a group stigma, which in turn might affect SMO mobilization and recruitment. When dealing with chronic environmental issues, stakeholder de-legitimization by journalistic framing takes the focus away from the issue and places it on the group. This process cheats the public from diverse solutions to environmental risks.

Summary

Framing can be considered the most-likely candidate to link together mid-level communications' theories to predict testable causal relationships. It has been studied in a qualitative fashion for some time, but through quantitative methods it is possible to find frames from the words within a text and minimize researcher subjectivity via computerized content analysis. Selective framing of issues limits public policy debate and media discourse. Framing is evident in the mediated communication process as a product of journalists' activities, as a tactic used by stakeholders, and as a backlash effect of de-legitimization for some stakeholders who choose to attack the master frame.

Though news values may not be the best indicator of the importance of environmental issues, journalists use them on a daily basis to determine what is newsworthy or not. When journalists focus on news values, some issues garner coverage to the detriment of sufficient coverage of other issues. For example, environmental issues pose many risks to the general public. But due to their chronic nature and lack of "newsworthiness," environmental issues are less likely to receive the proper coverage that would benefit those making public policy on the issues. Due to their beats,

journalists continually encounter the same sources for information. Occasionally they go "outside the box" to get background from scientists that would explain the risks associated with environmental stories – but this seems to be the exception, rather than the rule. As gatekeepers of the news, journalists filter available information on any risk through their selection of what is included in a news item. Editors then determine if the item will even make it into the day's mediated communication process. If so, they determine the headlines or teasers for the story as well as the placement. This placement and ongoing coverage can set the media agenda, which in time can set the public's and policy-makers' agenda. By focusing on the master frame, journalists help the public understand chronic environmental issues. But that same focus may prevent the consideration of alternative solutions to chronic environmental risks.

Though environmental risks affect everyone (in essence making everyone a stakeholder), very few gain entrance into the debate concerning solutions to the impending risks, due in part to media access. Media access allows stakeholders the opportunity to determine the **manner** in which an issue is framed. By controlling the frame, one can control available options to combat a problem, and thus determine how an issue will be approached. Stakeholders use the spiral of opportunity and frame alignment in an attempt to affect the master frame. Stakeholders within media routines dominate the limited coverage that contentious environmental issues do receive. In this manner, they set the master frame and thus determine the possible solutions that are deemed proper. For alternative sources to get their voices heard, they must point out inconsistencies or other problems with the master frame. Yet by going against the status

quo, they risk de-legitimization by the media. If attention to media determines the basis for choice, then society is deprived of diverse solutions due to selective framing of issues.

Since environmental risks know no boundary, everyone affected should have some input into the decision of how to handle the risks. An adequate environmental public policy is mandatory for government to protect its citizens from risks. Yet often in the case of environmental risks, government lays aside protections due to the influence of prestigious stakeholders. A lack of risk knowledge puts sections of society at a decided disadvantage. Those without prestige or associations with an active political participant must endure risks without adequate representation. This goes directly against the "self-evident truths" of the equality of humanity, including the unalienable rights of life, liberty and the pursuit of happiness (Jefferson, 1776).

CHAPTER III

FINDING THE FRAMES

Gamson (1985) claims frames are implicit within text, not appearing as social constructions to journalists or audiences, "but as primary attributes of events that reporters are merely reflecting" (p. 617). Facts have no intrinsic meaning, but take meaning from frames or a story line that "organizes them and gives them coherence, selecting certain ones to emphasize while ignoring others" (Gamson, 1989, p. 157). Informational content is only relevant by distinguishing among potential frames, identified by the interpretive commentary surrounding them. Coser (1977) noted Goffman's observations would not be evident to everyone.

> Goffman's amazingly acute observations of interactions and interchanges, his marvelously trained sociological eye for all the nuances of human conduct under the gaze of others, his Simmelian ability to unravel the intricacies of human transactions, have largely enriched our knowledge of microsociological processes. Only the future will tell whether his type of sociology can be so codified that it can be transmitted to other, perhaps less gifted, analysts (p. 577).

Yet by using a computerized content analysis program, researchers can analyze electronic texts gathered from full-text databases to determine how stakeholders attempt to frame an issue from the frequencies of words associated with that issue. Stakeholder frames can then be measured against frames presented in the media to analyze how media routines affect the frames disseminated to the public.

Computerized Content Analysis

Researchers have attempted to find aspects of framing through in-depth interviews or interpretive analysis of media messages, surveys and content analysis. Entman noted content analysis has been a preferred method for judging text in the communications field, though it may yield data that misrepresent media messages perceived by the public (p. 57). Stempel (1989) said the content analysis method allows researchers to study and analyze communication [messages] in a systematic, objective and quantitative manner for the purpose of measuring variables. Breaking this definition into its components lets the researcher know that content analysis is:

1. Systematic, in that it sets a procedure, so that all content is treated in same manner;
2. Objective, in that it lets the chips fall where they may; and
3. Quantitative, in that it counts instances where a particular variable has been measured in a determined manner. In addition, content analysis measures the manifest content, i.e. only the content within the text is measured instead of inferring meanings that are not evident from an initial reading of the text.

Where traditional content analysis has sometimes been criticized due to the possibility that personal bias might enter the findings, technological developments alleviate those criticisms somewhat with the use of computers to conduct content analysis. Tankard, Hendrickson and Lee (1994) note that computerized content analysis of database-material has the advantages of gathering large samples of media content, processing large amounts of data quickly, and searching for rare kinds of media content (pp. 12-13). However, they caution that search procedures will sometimes identify

articles not dealing with the content of interest, and databases typically omit nonverbal signs involved in mass communication, e.g. photographs, pull quotes, headline type style and size, and the position on the page (pp. 13-14).

VBPro

Miller developed a computerized content analysis program to minimize researcher subjectivity. This technology allows the researcher to not only code, but to leave a record detailing exactly how the material was coded for future researchers to follow or critique. He notes:

> Although is almost impossible to get perfect agreement between differing human coders, perfect agreement is exactly what can be expected for computerized coding. Therefore, reliability is a minor issue for computerized content analysis. On the other hand, validity looms large in computerized content analysis. That occurs because computers find it easy to count terms, but is not good at ascertaining the meanings of those words. Human coders can examine the context of words in context and adjust for anomalies, but it's extremely difficult to get computers to do that. Implicitly, assumption made in computerized content analysis is that computer counts will be contaminated by error, but that these are tolerable given large sample sizes (Miller, 2001).

Miller's (1997) computerized content analysis program, VBPro,[2] reduces analyst subjectivity by relying on computerized algorithms and providing continuous measures of competing frames (p. 368). To prepare text for use by VBPro, Miller recommends the following cleaning procedures:

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[2] Available at http://mmmiller.com/vbpro/vbpro.html

1. Check texts for duplicate headlines or miscellaneous references. Those with questionable use to the study should be removed.
2. Check the texts for spelling errors.
3. Clean the texts of characters that the programs recognizes as flags, which includes the following:

    a. pound signs (#) indicate a case number in VBPro; the word "number" will replace usage of pound signs

    b. [square brackets] indicate portions of text to be omitted from VBPro analysis; {braces} will replace square brackets

    c. hyphens (-) VBPro separates hyphenated words into two words; underscores will replace hyphens (e.g. part-time would become part_time)

    d. ellipses(. . .) VBPro recognizes a period followed by a space as the end of a sentence; spaces within an ellipses will be removed.

4. Insert case identifiers. VBPro recognizes pseudo terms with the dollar sign preceding them (e.g. $PRO, $ANTI) as variables. Dollar signs are used because the pseudo-terms will not occur in the text of the releases.

Additional cleaning procedures that are useful for VBPro's alphabetizer function can be found in Appendix A. Case identifiers and pseudo-terms were inserted for each article consistent with the coding found in Appendix B. Once texts are cleaned and coded, they are submitted to VBPro. VBPro provides options not available in all content analysis programs. It will:

1. Alphabetize and count the occurrences of the words in a file,

2. Sort the words by frequency of occurrence,
3. Tag words in the contexts of sentence, paragraph or user defined case, and
4. Code for the number of occurrences of words and phrases by sentence, paragraph or case.

Determining Stakeholder Frames

Goffman (1974) noted the difficulty in assessing the frame (p. 21), but Miller (2000b) contends events can be analyzed by noting frames of stakeholders' rhetoric and how those frames resonated with media and the voters. Entman notes that frames are located in emphasized keywords, metaphors, concepts, symbols and visual images (p. 7). Miller's VBPro and VBMap allow stakeholder values to become evident through their own texts. Through frame mapping, spatial dimensions of issue frames are found through multidimensional scaling techniques (Miller & Riechert, 2001, p. 115). Miller and Riechert (1997a) note that frame mapping contrasts to traditional qualitative methods of studying stakeholders by providing quantification and comparison of the occurrences and co-occurrences of specific words and phrases used by the stakeholders (p. 3).

> The frame mapping method minimizes problems of research judgment by beginning with the collection of texts that are unambiguously attributable to distinct stakeholder groups. There can be little argument against allowing frame terms to emerge in the sources own words (Miller & Riechert, 1997c, p. 11).

To determine stakeholder frames, stakeholder texts are submitted to VBPro's Alphabetizer, which produces lists of out-of-context words and their frequencies, in alphabetical order and ranked in descending order by frequency. The frequency of the

stakeholders' use of terminology in describing their frame indicates their choice of emphasis, e.g. stakeholders against an issue may use the word "risk" more often than those for an issue, who will likely prefer the word "benefits". The alphabetized files are then submitted to a relatively new edition to the VBPro suite of programs: the Select function (Koella, p. 54). VBPro's Select program compares alphabetized files from two different stakeholders. Using a chi-square analysis, Select sorts out terms tending to be used exclusively by each set of stakeholders.

VBPro Select generates two lists of the 200 most frequent and most exclusive terms used by each set of stakeholders, ranked in descending order of chi-square magnitude. Higher magnitude of a term used by one set of stakeholders indicates the term was used more frequently and more exclusively by that set of stakeholders, and was rarely used by competing stakeholders, e.g. the word "risk" would likely appear more often in texts from an issue's opponents than from an issue's proponents. From the two Select lists, the top 240 frequent, substantive words[3] (excluding articles, conjunctions, prepositions, abbreviations, acronyms, auxiliary verbs, attribution verbs, initials, pronouns, titles, and proper nouns[4]) are extracted for further analysis. Though this requires a judgment call by the researcher, choosing 120 words for analysis ameliorates subjectivity as each word becomes merely a candidate in the final analysis (Miller & Riechert, 1997c, p. 6; Miller, 1997, p. 369).

The list of 120 words is then submitted to VBPro's Coder, which creates a file indicating the count of the chosen terms. This file contains comma-delimited columns of

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[3] Substantive words are high-frequency terms with meaning in the realm of the issue studied.
[4] Proper nouns, pronouns and titles are eliminated as a person cannot be a frame *per se*, but can only disseminate or respond to a frame.

data in ASCII format (case identifier followed by subsequent columns of frequency counts of occurrence of key terms) that can easily be read by statistical packages such as SAS or SPSS (Miller & Riechert, 1997c, p. 7). Coded texts are entered into VBMap, which uses an eigenvalue extraction algorithm to search for patterns of co-occurrence among terms associated primarily with one stakeholder or another (Miller & Riechert, 1997c, p. 7). VBMap produces a data matrix indicating how many times each term occurs in each article. The matrix represents the degree of co-occurrence between pairs of terms by the cosine coefficient. The mapper extracts the eigenvectors from the centered coefficient matrix and produces two files: one containing descriptive information for ease of interpretation and another containing comma-delimited columns of data in ASCII format for use with SAS or SPSS (Miller, 1997, p. 370).

The eigenvectors in VBMap's ASCII output provide Cartesian coordinates for multidimensional maps that can be plotted to provide visual representations of the patterns of occurrence and co-occurrence of selected terms. In this three-dimensional mapping of plot coordinates, terms cluster if they co-occur and disperse if they are far apart (Miller, 1997, p. 370). Miller and Riechert (1997c) note that clustered terms are interpreted as the themes or frames in the texts (pp. 2-3), which Miller (1997) said tend to be exclusively used by one or another of the stakeholders (p. 368).

The coded files from VBMap may be used in cluster analysis by statistical packages including SAS or SPSS. For example, coordinates entered into SPSS indicate which terms tend to cluster together in the text by way of a dendogram, a tree-like diagram where branches show how closely the terms appear to each other. Through multidimensional scaling and hierarchical cluster analysis of data provided by VBPro and

VBMap, researchers can "see" patterns of co-occurrence among words and code identifier terms for groups or positions (Miller & Riechert, 1997b). Miller, Andsager and Riechert (1998) note that VBPro can be used to investigate framing and media content related to any complex issue.

> [T]he mean frequency of occurrence of terms in news stories is taken as the degree to which that story reflects the frame of the stakeholder group from whose texts the terms were derived . . . These frames can be ascertained through frame mapping analysis of texts unambiguously attributable to stakeholder groups. Such analysis reveals the terms each stakeholder group uses to articulate its frame. The frequency of occurrences of each group's frame terms in news stories is indicative of the degree to which that group has captured media attention (Miller & Riechert, 1997b, pp. 8-9).

Concept- and frame-mapping techniques allow themes to emerge from the texts rather than from a typology that may overlook important themes. The concept-mapping and frame-mapping techniques have been used to illustrate selective stakeholder framing and the propensity for these terms to appear in media texts.

Analysis Using VBPro

1. Examining Issues in the News

Election Coverage

Miller and Denham (1995) examined elite press poll coverage during the 1988 and 1992 election years to investigate amounts of coverage given to horserace and image issues compared to substantive issues, as well as differences across election phase and between individual newspapers. They studied 468 news articles (excluding editorials,

columns, letters, etc.) reporting specific poll results, based on probability samples, in specific percentages or points that originated in the *Los Angeles Times* (90 articles), *New York Times* (237) and *Washington Post* (141). Miller and Denham defined 23 horserace terms (i.e. terms consistently associated with a candidates relative position in the race for public office), 14 image terms (superficial political stances and personal candidate characteristics), and 24 substantive issue terms. They coded for term occurrence in context to examine the mean percent of horserace and issue terms per story across 1988 and 1992. They performed a three-way ANOVA to examine the impact of election year, campaign phase and individual newspaper on percent of horserace and issue terms per story. They determined:

1. The use of horserace terms in 1992 increased as the campaign progressed, indicating that though media began coverage with sound intentions, they reverted to covering the horserace.
2. Editorial policy determines how the election was covered by individual newspapers
3. Horserace terminology was higher in pre-convention stories in 1988, but higher in post-convention stories in 1992.

Through their findings, Miller and Denham argue that journalists have discretion concerning campaign coverage.

Pesticide Coverage

Miller and Riechert (1994) examined thematic emphasis of pesticide coverage in one general magazine and three specialized magazines. They studied 161 articles

including 24 from *Audubon,* 14 from *Nutrition Today,* 60 from *Successful Farming,* and 67 from *Time*. They identified significant differences in relative prominence of 11 major themes in the pesticide articles. They determined concept mapping procedures were valid due to the presence of differences expected in different specialized publications; also, the identified theme emphasis unexpected in specific publications indicated the procedures' power.

2. Investigating Stakeholders in the News

Determining Frequency of Use

Greenhouse Effect

Miller, Boone & Fowler (1992) examined Associated Press coverage of "greenhouse effect" to investigate stakeholder frequencies in news phases and the events that brought them to attention. They studied 324 articles containing the word "greenhouse effect" over two and a half years to discern natural breaking points of news coverage. They used VBPro to:

1. Find and categorize actors cited in news copy, isolated by finding attribution words and phrases (e.g. said, say, says, reported, according to)
2. Find and categorize key terms related to the pattern of news flow concerning Greenhouse effect
3. Code for the presence or absence of search terms for each category of actors or events by assigning a 1 if the category occurred one or more times and a value of 0 otherwise, yielding a stories-by-categories matrix of data

Miller, Boone & Fowler submitted VBPro data to SAS for a cross-tabulation of category occurrence by time phase. They determined different actors were cited at different stages of the agenda building process, and the greenhouse effect became a campaign issue during the 1988 election. They concluded that media confine themselves to coverage of activities of others rather than initiating movements.

Determining Stakeholder Frames

Election Coverage

Miller, Andsager and Riechert (1996) examined issues and images from press releases from the top four Republican presidential primary candidates compared to their coverage in the *New York Times*, *Washington Post* and *Los Angeles Times*, to determine newspaper framing of candidates and transference of terms and ideas from press releases to news coverage. They studied 245 press releases from the four candidates' Web pages from 1995-1996 and 296 news articles from elite press previously described from December 26, 1995 to February 20, 1996. Using VBMap and SPSS hierarchical cluster analysis, using the agglomerative algorithm and the cosine measure of similarity, they determined candidates contribute to campaign hoopla and horserace aspects by not focusing on issues or controversy in their press releases. From news stories, they determined journalists focused on issues and positions that candidates avoid in their press releases.

Two years later, Miller, Andsager and Riechert (1998) extended their examination of press releases from the top four Republican presidential primary candidates in 1996 compared to their coverage in the *New York Times*, *Washington Post* and *Los Angeles*

Times, to determine how well the candidates' information subsidies shaped media coverage. Using VBMap and SPSS hierarchical cluster analysis, using the agglomerative algorithm and the cosine measure of similarity, they determined news stories distinguished the candidates more than press releases and placed the candidates in different positions relative to each other. Miller, Andsager and Riechert also note that the concept-mapping method is a convenient and efficient tool to examine political communication, and is particularly useful in measuring information subsidy success in shaping news coverage.

Wetlands

Riechert (1996) examined advocacy group news releases about wetlands to investigate stakeholders' differential framing of policy issues, differential framing by media due to stakeholder quoting, and whether coverage of frames shift over time. She studied 102 news releases from the National Audubon Society and the American Farm Bureau Federation, 10 years of which were available from PR Newswire, and 1,465 AP news articles mentioning wetlands from July 1984-June 1995. Riechert identified 29 frame terms best representing the wetlands discussion by each group, and then measured the frames' representation in media coverage. She determined that distinct stakeholders define and selectively discuss issues differently, found a positive relationship between quotes from credible stakeholders and the prominence of the stakeholders' issue frame, and identified shifts over time of relative prominence of competing frames in the news coverage. Riechert (1996) notes the techniques provide precise methods of measuring

theme emphasis in texts, avoiding the problem of inter-coder reliability present in traditional content analysis approaches (pp. 77-78).

Riechert (1997) extended her examination of wetlands news coverage by focusing on news narratives relating to science, policy and public opinion to investigate the extent and manner news coverage follows those topics. She determined news articles used interesting contrasts of relative discussion of science, policy and public opinion issues, with science terms gaining more than 20 percent of discussion, policy terms gaining almost 21 percent of discussion, and public opinion terms gaining less than 1 percent of discussion.

Riechert and Miller (1997a) examined selective media and stakeholder framing of wetlands to investigate differential framing of issues, influence of source on frame prominence, and noting how competing frames shift over time. They focused on 58 news releases from the National Audubon Society and 44 from the American Farm Bureau Federation to represent stakeholders, and 1,465 Associated Press news articles (excluding editorials and obituaries) from July 1984 to June 1995. Using VBMap and SPSS cluster analysis, they determined wetlands escalated on the news agenda over 11 years, e.g. when advocates were mentioned or quoted the frame appeared more prominently in the article. These findings provided evidence of source influence, though it did not address the factors determining sources. Clear patterns of frame prominence in news coverage emerged with the wetland conservation frame dominating from 1984-1991 and the property-owner frame dominating from 1991-1995.

Riechert and Miller (1997c) extended their examination of AP coverage of wetlands to investigate news about wetlands over time, shifts in news coverage across the

presidential administrations of Ronald Reagan, George Bush and the first term of Bill Clinton, and whether and how coverage differences were manifested during the administrations. They studied 1,756 AP articles (excluding international wetlands discussions, editorial roundups, obituaries and irrelevant articles) from 1984-1996. Riechert and Miller determined that wetland issues' frames varied significantly depending on which president held office: coverage of the habitat restoration theme was highest during Reagan's term, coverage of the jobs/development theme was highest during Bush's term, and coverage of the regulation legislation and agricultural/spending themes were highest during the first term of the Clinton administration. They found evidence that in some cases, presidents may effectively energize an issue and reframe it in the media, and yet may not always control its evolution.

Health Care Reform

Koella (2001) examined the effects of framing on the debate of President Clinton's health care reform plan. She studied 2,523 articles including 790 from *The New York Times,* 808 from *The Los Angeles Times* and 925 from *The Washington Post.* The articles appeared in newspapers from the time of Clinton's inauguration and his immediate appointment of the Task Force for Health Care Reform to the announcement of the death of the health care reform bill in Congress. Though she used rhetorical analysis in addition to frame mapping, her analysis seems to be the first to use VBPro's Select function to determine and help examine multiple frames in context of news coverage. She determined that journalists used stakeholder terminology when discussing

health care reform, suggesting frame manifestation in news articles. She also found coverage of frames shifting across time.

Additional Issue Analysis

In addition to the previously described studies, VBPro and VBMap have also been used to illustrate selective stakeholder framing and the propensity for these terms to appear in media texts while examining issues including abortion (Andsager & Miller, 1994; Andsager, 2000), breast cancer (Andsager & Powers, 1999), breast implants (Andsager & Smiley, 1998; Powers & Andsager, 1999), hate speech (Miller & Andsager, 1995; Miller & Andsager, 1997), and the Exxon-Valdez oil spill (Dyer, Miller & Boone, 1991).

Summary

Using VBPro, VBMap and hierarchical cluster analysis on stakeholder and media texts should illuminate which values actually made it into public discourse and how they were altered or abandoned. This should alleviate McAdam, McCarthy and Zald's (1996b) concern that "studying political systems and various kinds of organization is inherently easier than trying to observe the social construction and dissemination of new ideas" (p. 6). By analyzing public correspondence, the interactions of stakeholders and non-elites can be understood, alleviating Benford's concern (1997, p. 421). This requires gathering both media and stakeholder texts to determine what information subsidies were

available and what actually made it to the media, the primary vehicle of public discourse on important issues.

Data Under Consideration

1. Time

The time period under focus was from January 1997 to Sept. 11, 2001, which is roughly six months before the initial Kyoto meeting until the bombing of the World Trade Center and the Pentagon. This includes the last term of President Clinton, and the first portion of President Bush's first term in the White House with a logical dividing point of Bush's inauguration on Jan. 20, 2001.

2. Media Texts

The majority of the public's information on environmental problems comes through media texts, which provide an overview of the issue as well as competing stakeholders' attempts at framing the issue. While it is impossible to gather every text, computerized databases such as Lexis-Nexis and Dow Jones provide a sampling of mediated communication text in machine-readable form. Lexis-Nexis provides examples from the broadcast and print media, including newspapers, magazines and wire articles.

A determination was made to focus on print media, as the nature of broadcast news provides information in an encapsulated form, whereas news in a print medium is lengthier, providing the opportunity for more references and examples of the contending frames. Meisner notes that scholars consider newspapers to be the most reliable sources

of news (p. B2-37). Also, Good found that people getting their news from newspapers have more awareness about climate change and thus the Kyoto issue than those receiving news from television (p. B2-26).

Print media texts were gathered through the Dow Jones database and the Lexis-Nexis academic database. Considered texts include features, news reports, notes, editorials, and columns from the prestige press. Letters to the Editor and other opinion pieces were gathered for use in determining stakeholder frames (explained later). The guided searches required that the term "Kyoto" OR "Global Warming" OR "Climate Change" had to be in the headline or lead paragraph. Though the search will not gather every article on the issue due to the aforementioned framing through headline construction, it should provide a sufficient number of texts for analysis.

Prestige Press

American print coverage focuses on selected "prestige" newspapers available in either Lexis-Nexis or the Dow Jones database, including the *New York Times, Washington Post* and *L. A. Times, USA Today* and the *Wall Street Journal*. Prestige press coverage of any issue is not considered typical of U.S. newspapers as a whole, but as coverage that exceeds common papers. Stempel (1969) originally dubbed 15 newspapers singled out in an American editors' poll as "most superior for news coverage, integrity and public service" as the "prestige press" (p. 699). The prestige press has international news-gathering ability and extensive foreign affairs coverage (Wells & King, 1994; Hertog, 2000). It is said to influence print and broadcast media, as well as policy makers and the public (Gitlin, 1980; Hertog, 2000; Kim, 2000). Lacy, Fico and

Simon (1991) found prestige newspapers more likely than large circulation newspapers to present both sides of a controversy and a more balanced story.

For comparisons, the British "prestige press," as defined by Sinclair (1982), focuses on the *Times* and *Sunday Times, Independent* and *Independent Sunday, Daily Telegraph* and *Sunday Telegraph, Guardian, Observer,* and the *Financial Times.* The *Financial Times* is included to balance coverage from the *Wall Street Journal* in the United States. Though Gaunt (1988) found differences in the training of British and American journalists, news values are expected to be the same from professional constraints and newsroom socialization. Though weekend editions are produced by different staffs and editors, and sometimes contain different types of content, both daily and weekend editions are used since Fradgley and Niebauer (1995) note the practice occurs in both England and the United States. This provides an assessment of the entire frame presented by the newspapers.

Deletions

Each article source was noted to remove articles not originating from the paper under consideration, including articles written either by the Associated Press, UPI or Reuters. Other deletions included duplicate headlines, teasers, miscellaneous references and opinion pieces.

1. **Duplicate headlines –** Though all duplicate headlines were originally slated for removal, further inspection indicated some duplicate headlines were actually letters to the editor under a similar headline. Duplicate headlines were examined to determine if they were letters to the editor or multiple

versions of previous articles. (Note: Articles sometimes run in shorter, tighter-written versions for later editions. Therefore, in actual instances of duplicate articles, the longest example was chosen in hopes of providing more words to find a dominant frame.)

2. **Teasers –** Occasionally the teaser paragraphs from the table of contents will be considered as a news article when it is a summary at best. Therefore, "news summaries" within the *New York Times* and "shorts" within the *Financial Times* were not considered to be content material and were removed.

3. **Miscellaneous References –** Although miscellaneous references can be understood to provide currency to an issue, it was necessary to remove them to focus on the issue. The headlines were examined, and then articles with questionable headlines were examined in depth to see if a miscellaneous reference was included. Articles about the following were included for each search term as results for the initial search:

   A. Kyoto - heritage, Geishas, business, restaurant name, culinary arts center, Japanese myth, artists, rail travel, Regus, prince

   B. Global warming - striking Mars, indicates global acceptance, US Women's Soccer Team, researcher's obituary, foreign films, arts and books, skiing, folklore, British vineyards

   C. Climate change – within Iranian politics, swift water rescue teams, stock market gains, Sonny Rollins jazz cd, humor piece, travel, cricket, racing, sports

Table 3-1. Articles by Paper by Presidency

Paper	Bush presidency	Clinton presidency
Los Angeles Times	24 (38)	60 (114)
New York Times	16 (29)	82 (136)
USA Today	19 (20)	43 (46)
Wall Street Journal	22 (35)	53 (73)
Washington Post	31 (40)	71 (106)
Total U.S. articles	**112 (162)**	**309 (475)**
Financial Times	76 (101)	133 (172)
Guardian	58 (85)	103 (148)
Independent & Independent Sunday	56 (82)	94 (135)
Observer	7 (9)	29 (34)
Daily Telegraph & Sunday Telegraph	31 (48)	57 (77)
Times & Sunday Times (London)	25 (59)	52 (101)
Total U.K. articles	**253 (384)**	**468 (667)**

4. **Opinion pieces –** Commentary, Opinions/Editorials and Letters to the Editor were removed from the sample, but kept for further analysis as stakeholder texts. A discussion of this analysis will follow in the next section.

Totals

Table 3-1 indicates the total articles under consideration after the deletions were made, with the original total before deletions in parentheses. Overall, the U.K. prestige press wrote considerably more articles than the U.S. prestige press.

3. Stakeholder Texts

The most efficient way to determine stakeholder frames is to examine stakeholder materials. Stakeholder texts can be normally be divided into three positions regarding any issue: supporting, opposing or neutral. Into the supporting file are placed texts

having an unambiguous statement of support for an issue. Into the opposing file are placed texts containing an unambiguous statement of contempt for the issue. If there are no statements of support or contempt, files are placed in the neutral file. The Spiral of Opportunity implies that groups will remain silent waiting for an opportunity to join in the fray when they see advantages developing. Thus some groups may seem to be a natural fit for a supporting or opposing position, but not take a stand within their statements – i.e. they are using different framing terminology so as not to get soiled in the battle. By mapping frame terms against the stakeholder texts, Riechert (1996) found it possible to find instances where the participant's language identifies them as holding a frame they may not have publicly announced.

Multiple frames may emerge instead of a pure dichotomy of pro and anti (cf. Koella, 2001), thus it is valuable to save multiple instances of stakeholder commentary for an extended analysis. Once the lists of frame terms have been generated, they will be reviewed in the context of the stakeholder texts. This will ensure that terms clustering together on the dendogram do co-occur in the releases in meaningful ways. By reading the terms in context, a better understanding of the way they are used will help better define each stakeholder frame. Once the frames have been identified, they can be compared and the degree of variation can be determined. Stakeholder texts for this analysis come from two sources: news releases and commentary/letters to the editor.

News Releases

Previous content analysis researchers have used news releases gathered through the Lexis-Nexis database to find unambiguous stakeholder texts (Miller & Riechert,

1994; Riechert, 1996; Miller, 1997; Riechert & Miller, 1997a, 1997b; Koella, 2001). To find individual press releases, guided searches required that the term "Kyoto" or "Global Warming" or "Climate Change" had to be in the headline or lead paragraph. The selected publication, PR Newswire, plays a key role in dissemination of time-critical financial information. The newswire delivers full-text, unedited news releases as written by the originators, found at the end of the release. Organizations distributing press releases over this wire can be found in Appendix A.

Totals

When the same press release ran on different days, the second press release was removed. Of the 216 documents found, 13 were removed for miscellaneous references to the search terms, and three were removed for duplicate headlines. Of the remaining 200, 37 releases favored the Kyoto protocol, 75 releases were against the protocol and 88 were neutral. While reading the releases, it was apparent that some of those considered neutral on the Kyoto Protocol seemed to be a natural fit for a pro or anti position. Many of these did not offer support for the protocol though the release acknowledges global warming as a problem and offers solutions for that problem.

Commentary/Letters to the Editor

This study also utilizes commentary, opinions/editorials and letters to the editor found in media texts. Often, researchers fail to consider opinion pieces within the newspapers they observe, preferring to concentrate on news product that is assumed to be neutral. Letters to the Editor and Opinion/Editorials are removed as not being part of the

news product. And yet they are a part of the frame presented to the general public. The question becomes: *What to do with them?* Since letters to the editors and opinion/editorials provide commentary from participants within an issue, they are *excellent* places to look for competing frames.

When dealing with contentious issues such as global warming, active stakeholders take every opportunity to frame an issue. This includes the standard attempts to gain media access through letters to the editors and opinion/editorials, places where they are much less likely to be subjected to balanced viewpoints within the individual article. Most newspaper files have individual letters to the editors as an individual file within Lexis-Nexis. However, some papers like the *LA Times* have multiple letters under one headline. In such cases it is necessary to separate those into individual files.

While individual papers have only a few letters to the editors or opinion/editorials, a sample of multiple papers provides an excess of opinion articles. These are useful when using VBPro's Select Program in order to find the words stakeholders are using in an attempt to set the frame. This serves the function of indicating some of the stakeholder views that actually ***entered*** the media and thus impacted on the master frame. It is also more efficient than attempting to gather individual data from multiple stakeholder Websites.

The pseudo-term $pro was placed in all supporting texts, and the pseudo-term $anti was placed in all opposing texts. The pseudo-term $Clinton was placed in texts published during the Clinton administration, and the pseudo-term $Bush was placed in texts published during the Bush administration.

Table 3-2. Opinion Pieces by Paper by Presidency

Paper	Bush presidency	Clinton presidency
Los Angeles Times	25	65
New York Times	10	29
USA Today	1	0
Wall Street Journal	6	6
Washington Post	8	30
Total U.S. opinion	**50**	**130**
Financial Times	22	30
Guardian	25	30
Independent & Independent Sunday	19	27
Observer	1	4
Daily Telegraph & Sunday Telegraph	14	14
Times & Sunday Times (London)	32	45
Total U.K. opinion	**113**	**150**

Totals

Table 3-2 indicates the total opinion pieces from newspapers under consideration. Opinion pieces increased dramatically during the Bush presidency, though it accounts for less than a fourth of the Clinton presidency in time. As previously noted, cleaning procedures are recommended to prepare the texts. Once the lists of frame terms have been generated, they will be reviewed in the context of the stakeholder texts. This will ensure that terms clustering together on the dendogram do co-occur in the releases in meaningful ways. By reading the terms in context, a better understanding of the way they are used will help better define each stakeholder's frame. Once the frames are identified, they can be compared and the degree of variation can be determined. This will identify the stakeholders as supporting or opposing Kyoto, allowing further analysis of media routines by noting if stakeholders were used in media norms of competing positions. When generating a dendogram, the frame terms used more exclusively by

supporters should cluster around the $pro pseudo-term, and the terms used more exclusively by opponents should cluster around the $anti pseudo-term.

CHAPTER IV

FRAMING GLOBAL CLIMATE CHANGE

The generalized nature of framing has thus far focused on:

1. Media framing via news values and media routines
2. Stakeholder framing to garner media coverage
3. Framing of environmental issues.

In addition, documentation of the ability to find frames via VBPro indicates that analysis of any issue should be feasible as long as media texts and stakeholder texts are available in machine-readable form. Miller (1997) notes that a "contentious issue" should provide more than adequate enough coverage to conduct the analysis. Framing can be better understood when examining a contentious environmental issue such as global climate change.

The Issue

Sachsman (2000) notes that global climate change is a chronic environmental issue that became an international political story in the 1990s (p. A2-5). Scientists began speculating on the effects of increased carbon released into the atmosphere by the burning of fossil fuels during the late 19th century (Wilson, 2000, p. 203; Cooper, p. 5). However, the topic did not receive prominent coverage until 1988, when U.S. National Aeronautics and Space Administration scientist James Hansen testified before the U.S. Congress that he was confident that global warming was under way (Miller, Boone &

Fowler, 1992, p. 30; Cooper, p. 5; Wilson, p. 204; Shanahan, 2000, p. B2-1). Cooper notes Hansen's testimony in part led to the creation of the United Nations' Intergovernmental Panel on Climate Change (p. 5).

Based on a preponderance of the evidence at the turn of the millennium, scientific consensus exists regarding global climate change (Intergovernmental Panel on Climate Change, 2001; Dotto, 2000, p. F1-2; Good, 2000, p. B2-27).[5] Human activities such as driving automobiles, heating residences and businesses, and providing power for factories contribute to greenhouse gas emissions.[6] With just 4 percent of the world's population, the United States produces nearly a quarter of all greenhouse gases due to its energy reliance on fossil fuels (Cooper, p. 14; Brown, Renner & Halweil, 1999).

Some claim warming global temperatures might increase proposed *negative* consequences such as the spread of disease, threats to wildlife, increased costs in health care and insurance claims, and increases in extreme weather events, such as floods, droughts, hurricanes, heat waves, heat-related deaths, glacial melt, sea-level rise, the drying up of inland waters and the possible failure of human agricultural systems (Environmental Protection Agency, 2001; Good, p. B2-22; Meisner, p. B2-41; Shanahan, p. B2-3). Skeptics counter that the earth has always had climatic cycles, the earth might actually be cooling, and changes produced by carbon dioxide may compensate for any warming (Good, p. B2-22). Williams (2001) notes that temperature-monitoring devices such as satellites, weather balloons and proxy dating through tree rings, ice cores, lake sediments, etc. show no evidence of global warming.

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[5] For an excellent quote on the subject, see Krupp in Cooper, p. 8.

[6] These activities are responsible for 80 percent of global carbon emissions (Cooper, p. 13) and 98 percent of U.S. carbon dioxide emissions, 24 percent of U.S. methane emissions and 18 percent of U.S. nitrous oxide emissions (Environmental Protection Agency, 2001); see also Andrey & Mortsch, 2000, p. WP-6

Contentious Nature of Kyoto Protocol

Global climate change is indicative of Miller's (1997) "contentious issue" in the political sphere and thus provides an opportunity to observe competing stakeholder frames. At the U.N. Framework Convention on Climate Change conference on Dec. 11, 1997, international representatives met in Kyoto, Japan to suggest improvements to the initial Earth Summit treaty's "Rio Declaration" (1992). The resulting "Kyoto Protocol" proposed a more effective set of measures to reduce the effects of global climate change than those previously provided. Three-dozen industrialized nations agreed to reduce emissions of carbon dioxide, methane and nitrous oxide (naturally occurring gases) by 5.2 percent below 1990 levels, and reduce manmade gases (chlorofluorocarbons, hydrofluorocarbons and perfluorocarbons) to below 1995 levels (Cooper, p. 15). These legally binding reductions would be in place between 2008 and 2012.

Presidents Bill Clinton and George W. Bush voiced different opinions concerning the Kyoto Protocol. Clinton's climate change proposal for the Kyoto Conference proposed that science provide the foundation for action and economic efficiency provide the standard to rank response options (U.S. Climate Change Plan, 1997). However, a 1997 U.S. Senate resolution bars the Kyoto Protocol's ratification as long as it exempts developing countries from their agreement to reduce greenhouse-gas emissions. This resolution kept Clinton from asking the Senate to ratify the Kyoto Protocol though it was formally signed Nov. 12, 1998 (Cooper, 2001; Saunders, 2001).

Sitton and Miller (2000) found voters view Democrats as pro-environment and Republicans as anti-environment. The global climate change issue follows that general

reasoning. Prior to the summer 2001 summit for ratification, Bush attacked the master frame concerning global climate change through his insistence that insufficient evidence dominated the scientific debate concerning the issue (Cooper, 2001; Corn, 2001). He announced that the United States would find alternative ways of reducing the effects of global climate change as he considered the Kyoto Protocol to be "fatally flawed." The United States became the lone world power not to ratify the protocol. In addition to different viewpoints provided by the presidents, the protocol is also contentious due to the following issues.

1. **Legally-binding reductions**: A 1997 U.S. Senate resolution bars the Kyoto Protocol's ratification as long as it exempts developing countries from their agreement to reduce greenhouse-gas emissions (Cooper, p. 5). This resolution kept Clinton from asking the Senate to ratify the Kyoto Protocol though it was formally signed on Nov. 12, 1998 (Cooper, p. 17).
2. **Economic concerns**: Economic concerns that limiting emissions would interfere with economic growth have dogged the Kyoto Protocol (Andrey & Mortsch, p. WP-6; Shanahan, pp. B2-5 – B2-6). U.S. economists have argued that meeting the proposed emissions cuts by 2012 would double energy prices, cost 2. 4 million jobs and a reduce the average annual household income by almost $3,000 (Cooper, p. 8). Yet, others claim the economic benefits from the development of renewable energy resources could reach as much as $200 billion (Cooper, p. 10; Brown, Renner & Halweil, 1999).
3. **Debate over scientific evidence**: As previously noted, there has been some debate over the scientific evidence concerning global climate change.

Shanahan found the conflict between scientists studying the global climate change issue might lead the public to perceive that due to uncertainties, science cannot be trusted (p. B2-7). But Brossard, Shanahan and McComas note that scientific uncertainty is uncontroversial as science is by definition uncertain (p. B2-15). When scientists speaks of uncertainty, they are usually referring to findings having a level of confidence below 90 to 99 percent – a certainty Dotto claims the average person might consider debilitating (p. F1-2).

4. **Proposals within the protocol**: The protocol includes proposals that assume advanced industrial economies will need time to complete the overhaul form carbon-intensive fossil fuels to cleaner energy sources; however, some have argued that they would allow countries to offset their total emissions without actually reducing carbon emissions (Cooper, p. 3). The proposals included the following:
    a. Clean development mechanism – allows industrial countries assisting developing countries in constructing non-polluting utilities and other environmentally sound enterprises to use that investment to offset part of their emissions cuts (Cooper, p. 17).
    b. Emissions-trading system – provides credits for countries that produce fewer emissions than the allowable limit, which can then be sold to other countries to help them abide by the protocol (Cooper, p. 3).
    c. Carbon sequestration - allows countries to include carbon "sinks" such as forests to help offset their total emissions (Cooper, p. 3).

Media Framing of Kyoto Protocol

In environmental risk situations such as global climate change, a problem's answers can be set by scientific solutions (Schnaiberg, 1980; Coleman, 1995). However, most people learn about global climate change through the media rather than from scientific journals (Wilson, p. 201; Good, p. B2-26; Dotto, p. F1-3). Media focus on news that attracts audiences but does little to enlighten them concerning risks associated with climate change (Wilson, p. 201; Brossard, Shanahan & McComas, p. B2-11). For example, if global climate change is heralded as an uncertain science, a much different frame exists than if it is condemned as a possible threat to mankind's existence.

Previous content analysis has shown that U.S. media coverage of the global climate change dialogue has changed from a scientific discussion to one of international politics and economics (Meisner, 2000; Rosales, 2000; Shanahan, 2000). Shanahan identified the first cycle of the global climate change issue (1987-1994) as focusing on danger, and then scientific controversy (pp. B2-2a– B2-3). He identified the second cycle (1995-1997) as focusing on the international politics and economics of the Kyoto conference (p. B2-6). Brossard, Shanahan and McComas note that non-U.S. media primarily reflected the international political angle as their focus for reader interest (p. B2-18). They attribute the differences in international coverage to differences in national cultural characteristics (Brossard, Shanahan, & McComas, p. B2-17; Shanahan, p. B2-6). These differences can also be viewed as differences in frames. However, these analyses have not focused on stakeholders' attempts to affect the master frame, nor have they indicated how news values and media routines contribute to the resulting master frame.

1. News Values

As previously described in Chapter II, media intentionally or unintentionally frame information due to a reliance on news values and media routines. Journalists' reliance on news values determines the frequency of coverage of global climate change. Chapter II describes how news values affect environmental problems in general, but the global climate change story has its own circumstances:

1. **Timeliness** – As previously noted, global climate change is a chronic issue. Many people find the issue to be too abstract, as most of the claimed effects will occur sometime in the future.
2. **Currency** – Though meetings of international governments provide the currency news value needed for media coverage, the issue must compete with other current issues. In addition, the risks from global climate change are hard to explain and are somewhat ambiguous.
3. **Impact** – The global climate change issue first focused on the possible negative consequences of weather-related catastrophes, disease, increased medical expenses, and other threats to the well being of humans and wildlife (Environmental Protection Agency, 2001; Good, p. B2-22; Meisner, p. B2-41; Shanahan, p. B2-3). However, stakeholders with economic interests have attempted to frame the issue so the impact is viewed as environment v. business concerns (Andrey & Mortsch, p. WP-6; Shanahan, pp. B2-5 – B2-6; Cooper, p. 5, 21; Gilmore, 2000, p. B1-4; Gelbspan, p. F1-5).

4. **Prominence** – When prominent individuals such as the president discuss problems with global climate change, it signals a concern that everyone on the planet may be affected. However, Beck notes the underprivileged and minority members of society have very little input concerning the issue. Brossard, Shanahan and McComas point to global climate change as the first environmental issue to be resolved at the international level involving the European Community (EC); thus the international political aspects have provided the "exciting" component necessary to make international news (p. B2-11).
5. **Proximity** – As previously noted, proximity may not be the best determinant for environmental risk stories, e.g. global climate change could affect the entire planet. Global climate change is a hard issue to cover because the effects can be different in different regions (Meisner, p. B2-35; Fisher, Shortle, O'Connor & Ward, 2000, p. A4-1).
6. **Conflict** – Where once the media emphasized dueling scientists when discussing global climate change (Dotto, p. F1-3; Gelbspan, p. F1-7; Cooper, p. 8; Brossard, Shanahan & McComas, p. B2-12; Good, p. B2-25; Gilmore, p. B1-4), now the emphasis has turned to dueling nations (Meisner, p. B2-42; Shanahan, p. B2-6). This second frame has been particularly appealing to international newspapers depicting the "United States v. the World" international political story (Brossard, Shanahan, & McComas, p. B2-17; Shanahan, p. B2-6). Presidential negotiations with other countries also fit the media value of conflict (U.S. interests v. World interests).

7. **Human interest/unusualness** – With an issue such as global climate change, adequate pictures are hard to find. To compensate for this, Sachsman (2000) notes that television networks linked global climate change problems with news pegs such as heat waves and melting polar ice in the 1990s (p. A2-6).
8. **Necessity** – If a reporter insists on covering the global climate change issue, some members of the general public may perceive correctly or incorrectly a hidden agenda on the reporter's part.

2. Media Routines

If media routines follow the patterns indicated in Chapter II, evidence should be available by analyzing media texts and stakeholder texts to determine which frames were used and accepted or rejected. Stakeholder texts will indicate the frames used to describe an issue. Frames will be apparent from the wording used by different stakeholders when discussing an issue.

Sourcing

As previously described in Chapter II, journalists may frame an issue by their choice of sources. Stakeholders for the global climate change issue include scientists, corporate interests, and SMOs.[7] Standard sources, as previously defined, include scientists and corporate interests. SMOs provide the best example of alternative sources, though the type of SMO may determine how much coverage is actually received.

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[7] Synthesized fromMeisner, p. B2-40; Fisher, Shortle, O'Connor & Ward, 2000

The Scientific Community

Since global climate change is first and foremost a science story, Garrison and Greer-Wootten (2000) note scientists provide journalists a standard source. Hartz and Chappell (1997) note that scientists distrust media, but need to get their messages into the media to secure public interest, thus securing future funding and future scientists. However, journalists find scientific jargon (Hartz & Chappell, 1997; Andrey & Mortsch, p. WP-3) and the qualifications on scientific findings (Dotto, p. F1-3) difficult to communicate at best. The result is an ill-informed public. Hartz and Chappell explain.

> Besides scientists who don't speak English and journalists who don't speak science, there are uncertain gatekeepers and a public ill-equipped to grasp the nuance and significance of scientific developments (p. xii).

Content analysis has shown that scientists are a primary source concerning the causes and problems of global climate change, but have appeared less frequently as sources when the issue turned to judgments or remedies (Trumbo, 1996; Shanahan, 2000).

> It is not surprising that science diminished in importance, even thought the years have seen what everyone would agree is a massive increase in the amount of data being poured out about global climate change. Most of these data are now less interesting, and the public is probably more skeptical about them. As new scientists come to agree with each other more, there is less to report (Shanahan, p. B2-5).

Sachsman (2000) notes one reason for the skepticism comes from scientists predicting global *cooling* in the 1970s (p. A2-4). Shanahan explains:

> The overall significance of the coverage from 1988 to 1994: science cannot be trusted ... As the press slavishly follows each new study, overturning sometimes strongly

> held beliefs, citizens can imagine that they knew best all along, or that it is worth little to pay much attention (p. B2-7).

Dotto accused media of covering scientific disputes over global climate change as "screaming matches" (p. F1-3) between stakeholders in an attempt at "balanced" or "objective" coverage (Gelbspan, p. F1-7; Cooper, p. 8; Brossard, Shanahan & McComas, p. B2-12; Good, p. B2-25; Gilmore, p. B1-4). This is partly due to other stakeholders using science to legitimize their claims. It is reasonable to assume that different stakeholders use their own "experts" to garner media coverage in attempts to balance perspectives provided by different American presidents.

In the global climate change issue, environmental and advocacy groups have used the conclusions of Intergovernmental Panel on Climate Change, a group of more than 2,000 scientists and policy analysts from 100 countries reporting to the U.N. (Intergovernmental Panel on Climate Change, 2001), to enhance their credibility and legitimate their point of view (Nelkin, p. 138). On the other hand, corporate interests established the Global Climate Coalition in 1989 to lobby against legislation designed to curb emissions (Cooper, p. 5). Coal, oil and gas companies have spent large sums of money supporting continued fossil fuel use, opposing the concept of global warming, and insinuating that carbon dioxide is good for the global climate (Gilmore, p. B1-4; Andrey and Mortsch, pp. WP-3 – 4; Cooper, p. 21; Gelbspan, p. F1-5). Though global climate change has become more certain, Rosales notes it "may be irrelevant if it does not support the efficacy at achieving its political purpose.n... No climate change agenda will be implemented without its application through the political process" (p. C2-5).

Corporate Interests

Governmental and corporate interests are often intertwined, leaving the lower socio-economic interests to confront environmental problems while those in power are removed from the situation (Schnaiberg, 1980; Cable & Cable, 1995). Coleman finds cultural values "strikingly evident when viewing comments by government officials and others who embrace as values economic growth, progress and advancement through technology" (p. 487). Buechler claims it is the government's role to translate "antigrowth" SMO environmental demands into opportunities for commercial ventures by "pro-environment," profit-seeking corporations. Yet Beck notes environmental risks are becoming a problem for all global residents as some toxins refuse to stay within one area – suggesting that the ecosystem is in fact allocating equal portions to everyone!

Shanahan found economists and business leaders have received steady coverage throughout media coverage of global climate change (p. C2-7). In a comparison of United States and French coverage, business and industry leaders were cited in 29 percent of *New York Times*' articles but only 9. 6 percent of *Le Monde*'s articles. Biliouri (2000) notes that industry interests dominated many of the EU committees discussing policy initiatives (p. A3-5). Rosales clarifies the problem:

> Policy is often enacted because of influence and these influences manipulate evidence to suit their interests, to try to maintain the status quo or develop a new advantage … Climate change will increasingly be exposed to many of these varied interests arguing for the costs to be borne by someone else or that global warming is not happening (p. C2-5).

Skeptics funded by corporate interests have exploited the uncertainty issue concerning global climate change. Coal, oil and gas companies have spent large sums of money supporting continued fossil fuel use, opposing the concept of global warming, and insinuating that carbon dioxide is good for the global climate (Gilmore, p. B1-4; Andrey and Mortsch, pp. WP-3 – 4; Cooper, p. 21; Gelbspan, p. F1-5). The Global Climate Coalition was established in 1989 to coordinate business participation in the international policy debate on the issue of global climate change and global warming (Cooper, p. 5). However, the coalition deactivated in 2002 since it "served its purpose by contributing to a new national approach to global warming" (Global Climate Coalition, 2001).

Yet, several corporations that once dismissed global warming as flawed theory have reconsidered, and now plan to voluntarily reduce their greenhouse gas emissions.[8] Thirty-two major companies, with most included in the Fortune 500, are working together through the Pew Center on Global Climate Change's Business Environmental Leadership Council (2001) to educate the public on the risks, challenges and solutions to climate change. Parenti (1993) accused corporations of using propaganda to convince the public it has been caring for the environment (pp. 76-77). This could be construed as necessary since media occasionally report items that put business in a bad light, though they never challenge the capitalist system. "[E]ven these limited exposures are more than business elites care to hear and are perceived by them as an anti-business vendetta," Parenti said (p. 221).

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[8] Includes oil giants BP Amoco and Shell, chemical manufacturer DuPont and aluminum producers Alcan Aluminum Ltd. of Canada and Pechiney SA of France (Cooper, p. 10).

Social Movement Organizations

Media choose to focus on frames constructed by *active* stakeholders attempting to get their views into the media. Though previously characterized as having limited access and little influence on the global climate change negotiations, Biliouri notes that SMOs have become a force within the last decade.

> The whole concept of (a SMO) as a group of passionate environmentalists has changed to a well-structured and well-researched group of professionals seeking to find solutions that will promote environmental awareness, seek a solution to the issue of climate change and influence at the best of their abilities the public, the media and most importantly the decision-makers at a national, regional and international level (p. A3-5).

Gatekeeping

Evidence of gatekeeping can be found by noting those frames or stakeholders that either did or did not garner media coverage. As journalists return to sources due to the beat they cover, global climate change frames set by those sources should be noticeable compared to other frames set by stakeholders deemed unworthy of coverage. Though the stakeholders may attempt to impress their view on the issue, without media coverage they cannot be expected to alter the master frame of the global climate change issue.

Agenda-Setting

Evidence of agenda-setting can be ascertained by noting a frame's relative prominence across time. Frames receiving more coverage over time can be understood as moving up the agenda, while frames receiving less coverage can be understood as

moving down the agenda. However, this study does not assess relative positioning within the news.

Summary

Previous research indicates a change in the dialogue surrounding global climate change since the issue first appeared in 1987. Though scholars have examined competitive relationships among SMOs, governmental agencies, non-movement organizations and the media in a theoretical fashion, they have not tested their ideas in an empirical analysis (Ellingson, p. 270). These analyses have not focused on stakeholders' attempts to affect the master frame, nor have they indicated how media routines contribute to the resulting master frame. These instances of framing should be observable by using VBPro and VBMap (described in Chapter III).

Hypotheses

1. Coverage via News Values

The literature review suggests media report issues from a frame provided by prominent government officials due to the news value of prominence. Since Clinton and Bush differ on the Kyoto Protocol, it is reasonable to assume coverage of the different presidents should provide changes in the frames used to characterize the issue, i.e. as the presidency changes, media coverage will reflect this change in coverage of the Kyoto Protocol. VBPro will indicate if a frame change is evident with the succession of presidents.

British papers provide an opportunity to examine differences in reporting the Kyoto Protocol between the United States and the European Union. Previous research indicates European newspapers focused on conflicts between United States and Europe in order to build a European identity as an international political power (Brossard, Shanahan & McComas, p. B2-18). Once it becomes evident that the United States is not going to sign the protocol, the European Union (represented by British papers) should change the framing concerning the Kyoto Protocol to reflect a position of solidarity concerning the issue.

> **H1. Time Period will interact with Country of Publication such that the mean number of supporting frame terms will decrease in U.S. papers from T1 (Clinton presidency) to T2 (Bush presidency), while the mean number of supporting frame terms will increase in U.K. papers from T1 (Clinton presidency) to T2 (Bush presidency).**

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. If correct, a disordinal interaction should occur between Time Period and Country of Publication such that as opposing frame terms increase in U.S. papers, the supporting frame terms decrease. In U.K. papers, opposing frame terms are expected to decrease while supporting frame terms increase or remain the same.

2. Coverage via Media Routines

Previous social movement organization literature suggests established SMOs have become influential in global climate change negotiations in the last decade. Media

routines' literature suggests that as established SMOs widened their influence, their use of information subsidies would increase, thus making them more attractive as sources for media to use when invoking popular media norms of competing positions.

Miller and Riechert's (2001) "Spiral of Opportunity" theory suggests stakeholders articulate positions when they sense an opportunity to win converts, and become reticent if they sense their message would fall on deaf ears (p. 109). If the theory holds, stakeholders in the Kyoto Protocol issue should have differential success getting media coverage across the time periods provided. Subdividing the time periods under consideration provides an opportunity to examine events that may have triggered the spiral of opportunity and thus the master frame of the issue:

1. Kyoto conference – roughly the period from January 1997 until Dec. 14, 1998. This includes the conference and the aftermath of President Clinton's decision to sign the Kyoto Protocol though it was not submitted to the Senate for ratification.
2. Lame-duck presidency – the period from Dec. 15, 1998 to Jan. 20, 2001. This includes the beginning of Clinton's impeachment proceedings through Bush's inauguration. The spiral of opportunity implies that Clinton's adversaries would take his misfortune as an opportunity to attack issues they did not support. In essence, Clinton's misfortune should allow additional voices into the debate of the issue.
3. Bush presidency – the period from Jan. 20 – Sept. 11, 2001. This includes the beginning of Bush's presidency through the date EPA director Christine Todd Whitman announced that the administration had no interest in

implementing Kyoto. It also includes the reaction to Bush's decision and the other nations' decision to ratify the protocol without the United States. It stops on Sept. 11, as the issue received less coverage due to a global focus on the terrorist attacks against the United States.

Individual stakeholder positions will be found through mapping frame terms against stakeholder texts. The names of each stakeholder and their individual positions can be mapped against the newspaper file to determine when and if their positions were used. Once the major themes and stakeholders involved in the Kyoto Protocol issue are identified, their relative prominence can be compared across presidential administrations. Clinton's presidency favored passage of the Kyoto Protocol. Bush, however, clearly took a position against passage of the protocol. Media norms of competing positions suggest differences in stakeholders used for balance during the different presidential administrations (Gamson & Modigliani, pp.6 –7; Anderson, p. 49). According to the Spiral of Opportunity, opposing stakeholders should take advantage of President Clinton's impeachment proceedings to present their arguments in the media.

H2a: Time Period will interact with Country of Publication such that the mean number of supporting stakeholders will decrease in U.S. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) then increase to T3 (Bush presidency), while the mean number of supporting stakeholders will remain constant in U.K. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) then increase to T3 (Bush presidency).

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. If correct, an ordinal interaction should occur between Time Period and Country of Publication such that the

supporting stakeholders decrease in U.S. papers when Clinton is impeached, then increase when Bush is elected; in U.K. papers, the supporting stakeholders will remain steady during the Clinton administration then increase during the Bush administration.

If true, significant differences in stakeholders used as sources across the periods will provide evidence for the systematic shifts in media coverage over time and will illuminate the role of competing positions relating to media routines.

As previously indicated, British papers provide an opportunity to examine differences in reporting the Kyoto Protocol between the United States and the European Union. Previous research indicates European newspapers focused on conflicts between United States and Europe in order to build a European identity as an international political power (Brossard, Shanahan & McComas, p. B2-18). Thus, international politics provides additional stakeholder positions to consider. As no administration change occurred in Britain during the time period under consideration, European stakeholder positions should remain approximately the same during the Clinton administration. However, with Bush's attack on the Kyoto protocol, the conflicts between the United States and European Union should cause supporting EU stakeholder viewpoints to increase during the Bush administration and opposing stakeholder viewpoints to decrease.

H2b: Time Period will interact with Country of Publication such that the mean number of European Union stakeholders will increase in U.S. and U.K. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) to T3 (Bush presidency).

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. If correct, an ordinal interaction should occur between Time Period and Country of Publication such that European Union stakeholders will increase in both U.S. and U.K. papers over time, with a more marked increase in the U.K. as European leaders vent their anger over Bush's decision.

CHAPTER V.

ANALYSIS

The previous literature review provides ample reasons for testing the effect of news values and media routines upon the successful transmission of frames into media. It has been shown that framing is both a product and a tactic in the mediated communication process. The following quantitative analysis tests hypotheses previously mentioned in the hopes of learning more about the process. Using VBPro, VBMap and hierarchical cluster analysis on stakeholder and media texts should illuminate which frames actually made it into public discourse and how they were altered or abandoned. This requires gathering both media and stakeholder texts to determine what information subsidies were available and what actually made it to the media, the primary vehicle of public discourse on important issues.

News Values

The first hypothesis examines the effect of news values on the successful transmission of frames into media. As previously stated, the literature review suggests media report issues from a frame provided by prominent government officials due to the news value of prominence. With differing presidential views concerning the Kyoto Protocol, it is reasonable to assume that U.S. prestige press coverage during the presidential terms will provide changes in the frames used to characterize the global climate change issue, i.e. as the presidency changes, media coverage will reflect this change in coverage of the Kyoto Protocol. U.S. media is expected to change from framing issues from a supporting view to an opposing view with the change of presidents.

It is also reasonable to assume that U.K. prestige press coverage (representing the European Union) should change toward supporting the Kyoto Protocol to reflect a position of solidarity concerning global climate change once President Bush decided not to ratify the international document.

To conduct the analysis, data were cleaned according to the procedures set forth in Chapter III. Files included U.S. newspapers, U.K. newspapers, supporting stakeholder texts and opposing stakeholder texts. The cleaned texts were then submitted to VBPro's Format function.

1. Finding Stakeholder Frames

Stakeholder files were submitted to VBPro's Alphabetizer, which produces the previously described files of terms and frequencies. Frame terms were chosen for analysis by using VBPro's Select program, which compared alphabetized files from supporting stakeholder texts and opposing stakeholder texts. Using a chi-square analysis, Select determines which terms tend to be used exclusively in each set of stakeholder texts. From the lists of the 200 most frequently used terms by each stakeholder group (see Appendix C), the top 120 substantive words in each list were extracted for further analysis (see Appendix D).

The lists provided search lists for VBPro's Coder with stakeholder identification codes inserted in each text to indicate the text's source (see Appendix B). The formatted stakeholder texts were coded using the lists to determine how the terms separated. The coding output was submitted to VBMap, then submitted to SPSS hierarchical cluster

analysis to determine how the terms separated with the stakeholder texts. The dendograms produced by this process appear in Appendices E and F.

2. Supporting Frames

The SPSS dendogram in Appendix E represents frames supporting the Kyoto Protocol. At first glance, the frame clusters clearly represent supporting stakeholders' positions on the global climate change issue.

Master Frames

As previously noted, master frames interpret events and experiences for the general public (Snow *et. al.*, 1986, p. 246), in essence determining what elements of an issue are discussed or dismissed. The dendogram indicates two master frames, responsibility and benefits, dominated the discussion from those supporting the Kyoto Protocol. The responsibility master frame primarily consists of the individual frames named "disaster relief" and "industrial nations." The benefits master frame primarily consists of the individual frames named "economy" and "new technology." The individual frame named "religion" mixes the responsibility and benefits master frames, as can be seen in the dendogram (Appendix E). Religion appears above the responsibility frame but is linked with the benefits master frame. This can be understood as the sacred argument for a secular issue.

Individual Frames

From the SPSS dendograms, it is necessary to examine frame clusters in the context of the news releases to make sure the words co-occurred in a meaningful way. The dendogram identifies five individual frames, given the names "religion," "disaster relief," "industrial nations," "economy" and "new technology." To verify the individual frames, the top five articles containing high frequencies of each set of the frame terms were examined.

3. News Value Hypothesis with Supporting Frames

The news value hypothesis will be tested in two parts. At first, the test will look for differences in supporting frame success within both the United States and United Kingdom from the Clinton presidency to the Bush presidency. A second test will examine opposing frames in a like manner.

> **H1.a. Time Period will interact with Country of Publication such that the mean number of supporting frame terms will decrease in U.S. papers from T1 (Clinton presidency) to T2 (Bush presidency), while the mean number of supporting frame terms will increase in U.K. papers from T1 (Clinton presidency) to T2 (Bush presidency).**

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. The tests analyzed for mean differences in topic the percentage of coded words coded for each topic, with time and country serving as the independent variables and topic categories serving as the

dependent variables. If the hypothesis 1.a is correct, a disordinal interaction should occur between time period (horizontal axis in plot) and country of publication (vertical axis) such that supporting frames will decrease in U.S. media, but increase or remain the same in U.K. media over time.

4. Individual Supporting Frame Analysis

For each individual frame, the analysis provides a general description of each frame; a constructed paragraph describing the frame using terms (in bold) in the context they appeared in the stakeholders' texts; and a table of SPSS output and conclusions from the statistical analysis.

Religion

The religion frame represents clergy support for the Kyoto Protocol. This frame describes a sacred responsibility with benefits for all mankind. As previously discussed, religion mixes the responsibility and benefits master frames.

> **Climate change** violates moral and religious principles of **justice** as it destroys **people's** quality of **life**, including inundation of **low-lying** land by rising seas. This **unprecedented challenge** demands **taking** action and **working together**. People of **faith** have a **responsibility** to **act** as stewards of **God's creation**. **Church** leaders believe the Kyoto Protocol is an important first **step** with future improvements to **follow**.

Table 5–1 provides SPSS output from the 2X2 ANOVA test on the religion frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis.

Table 5-1. Religion Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: RELIGION

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	2.0685	2.22636	467
	BUSH	2.5159	2.37092	252
	Total	2.2253	2.28642	719
U.S.	CLINTON	2.1401	2.52243	307
	BUSH	3.4775	4.10287	111
	Total	2.4952	3.07558	418
Total	CLINTON	2.0969	2.34693	774
	BUSH	2.8099	3.03474	363
	Total	2.3245	2.60641	1137

Tests of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	197.831	3	65.944	9.936	.000
Intercept	5663..909	1	5663.909	853.419	.000
Country of Publication	58.087	1	58.087	8.752	.003
Time	173.345	1	173.345	26.119	.000
Country of Publication * Time	43.111	1	43.111	6.496	.011
Error	7519.415	1133	6.637		
Total	13861.000	1137			
Corrected Total	7717.245	1136			

a R Squared.= .026 (Adjusted R Squared.= .023)

As indicated in Table 5-1, the interaction between time and country of publication is significant (0.01) for the religion frame. Significant differences exist in religion frame means for country of publication from the Clinton administration (U.S.=2.14; U.K.=2.07) to the Bush administration (U.S.=3.48; U.K.=2.52). Though significant, this result contradicts the hypothesis, which stated that means would decline for supporting frames in the United States. Instead, figure 5.1 shows the religion frame increasing in frequency in both countries from the Clinton administration to the Bush administration, though not at the same rate.

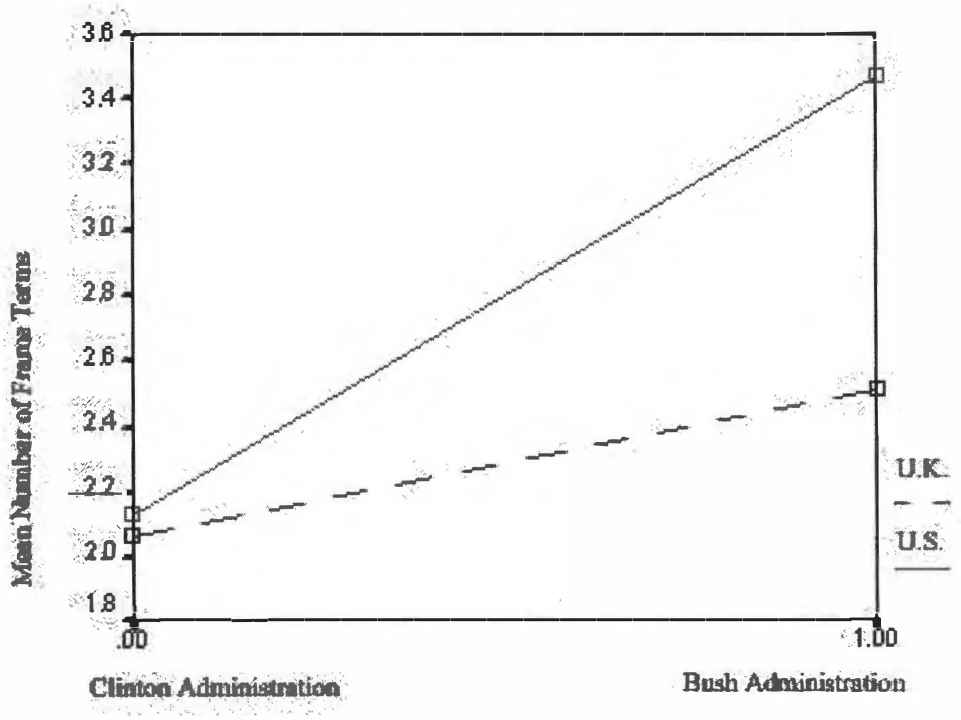


Figure 5.1. Religion Frame Term Means per Administration per Country

Disaster Relief

The disaster relief frame represents support for the Kyoto Protocol because of the responsibility of world governments to fend off impending disasters due to global climate change. This individual frame falls within the larger responsibility master frame.

> The **world's** weather-related **disasters** are more **urgent** than previously **thought**, causing **ever** larger crises **like storm** damage that might sink **island** nations. **First**, governments need to make a **law fighting** global climate change by moving the world toward **cleaner** technology and **getting** closer to the emission levels proposed at the Earth **Summit**. **Second**, the world must establish a **process** to identify and evaluate new technologies. **Rich** countries **want** to bear little cost toward that **end**. The flexibility of the protocol on **ozone layer** made it easier for governments to **accept cuts**, **making** it possible for the world to move in a common direction. International leaders should **keep** trying to convince the United States. To head **off** climate change, the world must eventually make much larger emissions cuts. But the environmental **lobby think**s the Kyoto Protocol would at **least** slow global climate change.

Table 5–2 provides SPSS output from the 2X2 ANOVA test on the disaster relief frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is significant (0.00) for the disaster relief frame. Significant differences exist in disaster relief frame means for country of publication from the Clinton administration (U.S.=6.76; U.K.=5.41) to the Bush administration (U.S.=7.73; U.K.=4.38). Though significant, this result contradicts the hypothesis, which stated that supporting frames' would decline for in the United States and increase in the United Kingdom. In fact, the opposite is true. Figure 5.2 shows the disaster relief frame increasing in the United States, while decreasing in Britain from the Clinton to Bush administrations.

Table 5-2. Disaster Relief Frame by Time and Country of Publication

Descriptive Statistics
Dependent Variable: Disaster Relief

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	5.4111	4.99465	467
	BUSH	4.3849	3.83092	252
	Total	5.0515	4.64343	719
U.S.	CLINTON	6.7557	5.74703	307
	BUSH	7.7297	6.40589	111
	Total	7.0144	5.93690	418
Total	CLINTON	5.9444	5.34291	774
	BUSH	5.4077	5.00267	363
	Total	5.7731	5.24047	1137

Tests of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1268.162	3	422.721	16.002	.000
Intercept	32084.954	1	32084.954	1214.604	.000
Country of Publication	1196.688	1	1196.688	45.302	.000
Time	.148	1	.148	.006	.940
Country of Publication *Time	217.729	1	217.729	8.242	.004
Error	29929.294	1133	26.416		
Total	69092.000	1137			
Corrected Total	31197.456	1136			

a R Squared= .041 (Adjusted R Squared= .038)

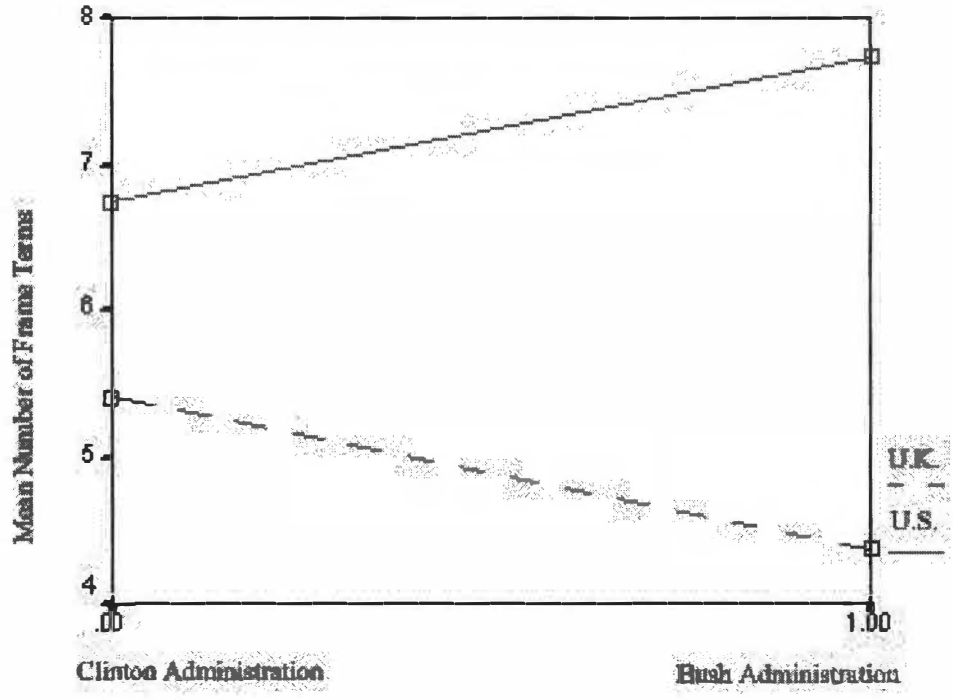


Figure 5.2. Disaster Relief Frame Term Means per Administration per Country

Industrial Nations

The industrial nations frame represents support for the Kyoto Protocol because of the responsibility of industrial nations to take the lead in fighting global climate change. This individual frame falls within the larger responsibility master frame.

> **Industrialized nations** should make a **commitment** to **take immediate action** and **tackle** the **threat** of global climate change. Kyoto **represents** the **beginning** of a **difficult start** to **combating** the **big problem** The **main** reason to adopt the protocol is the **signs** of a **changing** climate. But if the United States decides to **break** its Kyoto commitments, the **rest** of the **world** is equally free to respond by cutting off capital to the United States.

Table 5-3 provides SPSS output from the 2X2 ANOVA test on the industrial nations frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is significant (0.03) for the industrial nations frame. Significant differences exist in industrial nations frame means for country of publication from the Clinton administration (U.S.=4.45; U.K.=4.11) to the Bush administration (U.S.=5.01; U.K.=3.67). Though significant, this result contradicts the hypothesis, which stated that supporting frames' would decline for in the United States and increase in the United Kingdom. In fact, the opposite is true. Figure 5.3 shows the industrial nations frame increasing in the United States, while decreasing in the United Kingdom from the Clinton administration to the Bush administration.

Economy

This frame represents support for the Kyoto Protocol following proposals for new technologies rather than reliance on fossil fuels. This individual frame falls within the larger benefits master frame.

> The United States should follow Britain's **shift** in the **battle** on climate change by **investing** in **clean-fuel** technology and creating a long-term **market** for renewable energy. Britain hopes to reach its **target** for a 20 percent **reduction** in carbon emissions through **sustainable** development; e.g. the UK's first **offshore** commercial wind and wave power stations represent **gains** for the British economy. However, the **new** U.S. administration's approach to the **environment** would promote **oil** drilling, a **clean** coal-power **industry**, and phasing out a "**dirty** dozen" toxic chemicals. This may not allay **insurers** concern of possible bankruptcy due to the risks of climate change.

Table 5-3. Industrial Nations Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: Industrial Nations

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	4.1113	4.36338	467
	BUSH	3.6667	3.28221	252
	Total	3.9555	4.02094	719
U.S.	CLINTON	4.4495	4.08567	307
	BUSH	5.0090	3.99658	111
	Total	4.5981	4.06496	418
Total	CLINTON	4.2455	4.25594	774
	BUSH	4.0771	3.56465	363
	Total	4.1917	4.04728	1137

Tests of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	167.034	3	55.678	3.421	.017
Intercept	16167.799	1	16167.799	993.327	.000
Country of Publication	153.685	1	153.685	9.442	.002
Time	.717	1	.717	.044	.834
Country of Publication * Time	54.875	1	54.875	3.371	.067
Error	18441.168	1133	16.276		
Total	38586.000	1137			
Corrected Total	18608.202	1136			

a R Squared = .009 (Adjusted R Squared = .006)

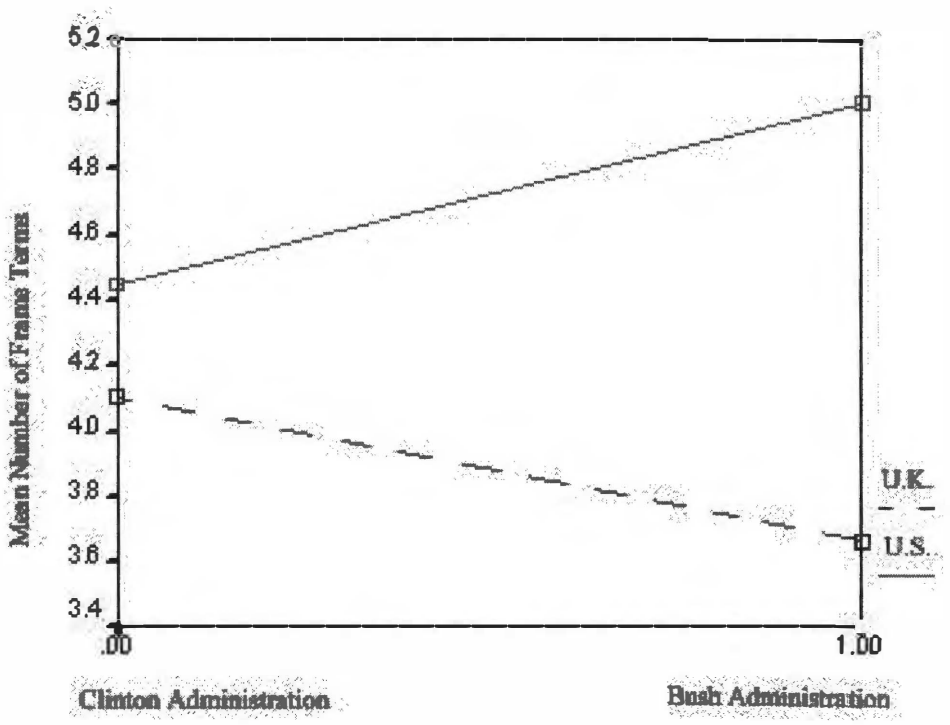


Figure 5.3 Industrial Nations Frame Term Means per Administration per Country

Table 5-4 provides SPSS output from the 2X2 ANOVA test on the economy frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is significant (0.01) for the economy frame. Significant differences exist in economy frame means for country of publication from the Clinton administration (U.S.=4.24; U.K.=4.35) to the Bush administration (U.S.=4.5; U.K.=3.18). Though significant, this result contradicts the hypothesis, which stated that supporting frames' would decline for in the United States and increase in the United Kingdom. In fact, the opposite is true. Figure 5.4 shows the economy frame increasing in the United States,

Table 5-4. Economy Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: ECONOMY

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	4.3490	4.56195	467
	BUSH	3.1786	3.59668	252
	Total	3.9388	4.28272	719
U.S.	CLINTON	4.2378	4.22320	307
	BUSH	4.5045	4.76135	111
	Total	4.3086	4.36829	418
Total	CLINTON	4.3049	4.42825	774
	BUSH	3.5840	4.02897	363
	Total	4.0748	4.31614	1137

Tests of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	266.185	3	88.728	4.81a	.002
Intercept	14405.242	1	14405.242	781a048	.000
Country of Publication	80.293	1	80.293	4.353	.037
Time	44.447	1	44.447	2.410	.121
Country of Publication * Time	112.402	1	112.402	6.094	.014
Error	20896.461	1133	18.443		
Total	40041.000	1137			
Corrected Total	21162.646	1136			

a R Squareda= .013 (Adjusted R Squareda= .010)

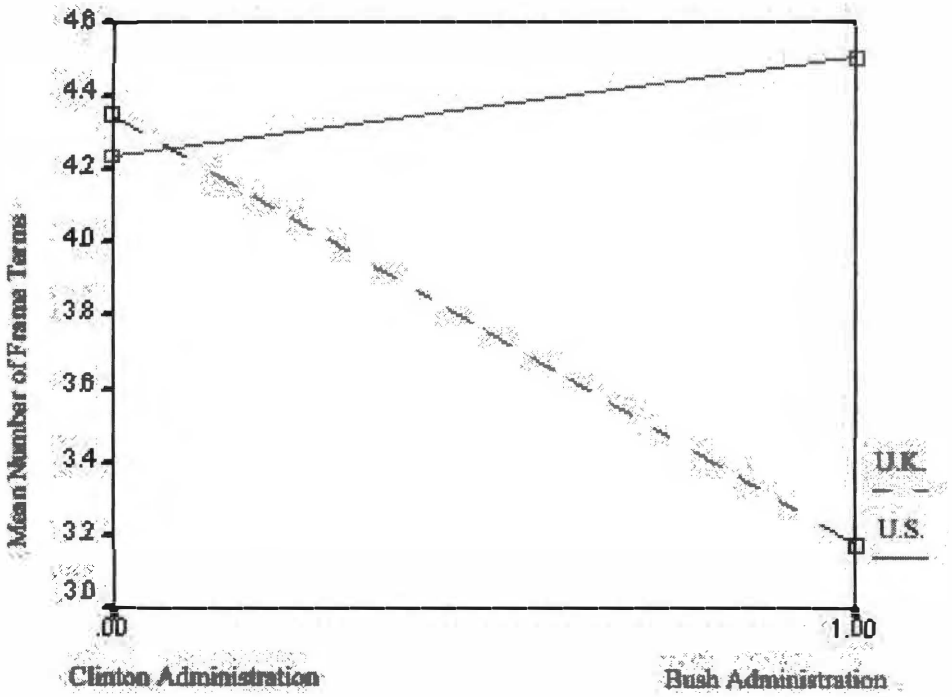


Figure 5.4. Economy Frame Term Means per Administration per Country

while decreasing in the United Kingdom from the Clinton administration to the Bush administration.

New Technology

This frame represents support for the Kyoto Protocol from new technology benefactors following proposals for new technologies rather than reliance on fossil fuels. This individual frame falls within the larger benefits master frame.

> An **alliance** of **energy efficiency companies** welcomes the **opportunities** provided by the **announcement** of a proposal for government **programs** to **budget** for **efficiency technology investments. Savings** and **waste reduction** result from **renewable energy power generation.** Energy **conservation** can also be achieved

through **building insulation** and **energy-efficient appliances.**

Table 5–5 provides SPSS output from the 2X2 ANOVA test on the religion frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is significant (0.05) for the new technology frame. Significant differences exist in new technology frame means for country of publication from the Clinton administration (U.S.=4.39; U.K.=3.74) to the Bush administration (U.S.=4.83; U.K.=2.9). Though significant, this result contradicts the hypothesis, which stated that supporting frames' would decline for in the United States and increase in the United Kingdom. In fact, the opposite is true. Figure 5.5 shows the new technology frame increasing in the United States, while decreasing in the United Kingdom from the Clinton administration to the Bush administration.

Conclusions

In the case of supporting frames for the Kyoto Protocol, it is obvious that the prominence news value affected the success of the supporting frames gaining media coverage. However, prominence did not affect framing in the hypothesized manner. Instead, supporting individual frames generally increased in the United States, while decreasing in the United Kingdom from the Clinton administration to the Bush administration. The lone exception regards the religion frame, which increased in the United Kingdom as predicted.

Table 5-5. New Technology Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: NEWTECH

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	3.7430	5.59989	467
	BUSH	2.9008	4.69573	252
	Total	3.4478	5.31249	719
U.S.	CLINTON	4.3876	6.61472	307
	BUSH	4.8288	7.01799	111
	Total	4.5048	6.71847	418
Total	CLINTON	3.9987	6.02700	774
	BUSH	3.4904	5.57191	363
	Total	3.8364	5.88786	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	427.267	3	142.422	4. 142	.006
Intercept	13689.037	1	13689.037	398.151	.000
Country of Publication	360.165	1	360.165	10.476	.001
Time	8.752	1	8.752	.255	.614
Country of Publication * Time	89.642	1	89.642	2.607	.107
Error	38954.305	1133	34.382		
Total	56116.000	1137			
Corrected Total	39381.573	1136			

a R Squared = .011 (Adjusted R Squared = .008)

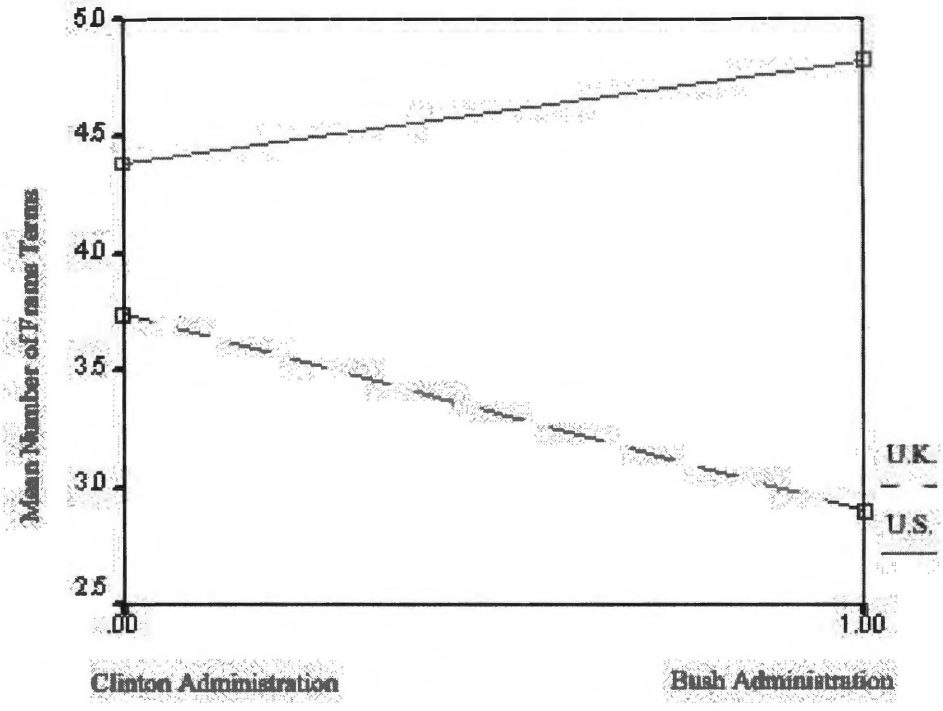


Figure 5.5. New Technology Frame Term Means per Administration per Country

By adding the mean totals for each individual frame in each separate country then dividing by two, it is possible to determine the average individual frame over time. In the United States, the disaster relief frame garnered the most coverage over time (mean=7.25), followed by industrial nations (4.73), new technology (4.61), economy (4.37) and religion (2.81). In the United Kingdom, the disaster relief frame also garnered the most coverage (mean=4.9), followed by industrial nations (3.89), economy (3.77), new technology (3.32) and religion (2.3). In both countries, the supporting master frame of responsibility garnered more coverage than benefits.

5. Opposing Frames

The SPSS dendogram in Appendix F represents frames opposing the Kyoto Protocol. At first glance, the frame clusters clearly represent opposing stakeholders' positions on the global climate change issue.

Master Frames

As previously noted, master frames interpret events and experiences for the general public (Snow *et. al.*, 1986, p. 246), in essence determining what elements of an issue are discussed or dismissed. The dendogram indicates two master frames, adverse effects and questionable science, dominated the discussion from those opposing the Kyoto Protocol. The adverse effects master frame consists of "business" and "consumers." The questionable science master frame consists of "unfinished science," "weather" and "activist science."

Individual Frames

As previously stated, it is necessary to examine frame clusters from the SPSS dendograms in the context of the news releases to make sure the words co-occurred in a meaningful way. The dendogram identifies five individual frames, given the names "business," "consumers," "unfinished science," "weather" and "activist science." To verify the individual frames, the top five articles containing high frequencies of each set of the frame terms were examined.

6. News Value Hypothesis with Opposing Frames

As previously stated, the literature review suggests media report issues from a frame provided by prominent government officials due to the news value of prominence. As with supporting frames, it is reasonable to assume that U.S. prestige press coverage during the presidential terms will provide changes in the frames used to characterize the global climate change issue, i.e. as the presidency changes, media coverage will reflect this change in coverage of the Kyoto Protocol by following the presidential frame. It is also expected that U.K. prestige press coverage (representing the European Union) should change toward supporting the Kyoto Protocol to reflect a position of solidarity concerning global climate change once President Bush decided not to ratify the international document.

> **H1.b. Time Period will interact with Country of Publication such that the mean number of opposing frame terms will increase in U.S. papers from T1 (Clinton presidency) to T2 (Bush presidency), while the mean number of opposing frame terms will decrease in U.K. papers from T1 (Clinton presidency) to T2 (Bush presidency).**

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. The tests analyzed for mean differences in topic the percentage of coded words coded for each topic, with time and country serving as the independent variables and topic categories serving as the dependent variables. If the hypothesis 1b is correct, a disordinal interaction should occur between time period (horizontal axis in plot) and country of publication (vertical axis)

such that opposing frames will increase in U.S. media, but decrease in U.K. media over time.

7. Individual Opposing Frame Analysis

For each individual frame, the analysis provides a general description of each frame; a constructed paragraph describing the frame using terms in the context they appeared in the stakeholders' texts; and a table of SPSS output and conclusions from the statistical analysis.

Business

This frame represents contempt for the Kyoto Protocol because of the possible adverse effects on business. This individual frame falls within the larger adverse effect master frame.

> It **exempts** developing nations from **regulatory restrictions** and **mandates** that ultimately would **harm** American business and **workers**. The administration should **defend jobs** rather than **exempt** possible competitors from **requirements**. **Concerned nonprofit** business advocates and experts at a Senate **briefing** pointed to the Hagel-Byrd **resolution** to maintain the **treaty** should never be ratified, as its **signing** is just another costly way of feeding the **bureaucrats**.

Table 5-6 provides SPSS output from the 2X2 ANOVA test on the business frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of

Table 5-6. Business Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: BUSINESS

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	.7709	1.57399	467
	BUSH	1.3849	2.05275	252
	Total	.9861	1.77959	719
U.S.	CLINTON	3.1531	4.15697	307
	BUSH	3.3514	3.06786	111
	Total	3.2057	3.89500	418
Total	CLINTON	1.7158	3.11352	774
	BUSH	1.9862	2.56998	363
	Total	1.8021	2.95245	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1367.226	3	455.742	60.497	.000
Intercept	4081.419	1	4081.419	541.782	.000
Country of Publication	1029.104	1	1029.104	136.607	.000
Time	35.907	1	35.907	4.766	.029
Country of Publication * Time	9.408	1	9.408	1.249	.264
Error	8535.248	1133	7.533		
Total	13595.000	1137			
Corrected Total	9902.475	1136			

a R Squared = .138 (Adjusted R Squared = .136)

publication is not significant (0.13). Without significance, there is not sufficient reason to examine differences in means as the hypothesis is not supported.

Consumer

This frame represents contempt for the Kyoto Protocol because of the possible adverse effects on consumers. This individual frame falls within the larger adverse effect master frame.

> A new **study** indicates if the protocol were **implemented**, **families** would suffer from **higher prices** for **heating** and increases on taxes per **gallon** for **motor fuels**, which would contribute to increases in **unemployment** rates. This **approach** to emissions **control** would be an **economic** disaster, with more than a **billion** dollar increase in prices for products, as no single alternative energy can **replace** coal to generate electricity and sustain economic growth.

Table 5-7 provides SPSS output from the 2X2 ANOVA test on the business frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.44). Without significance, there is not sufficient reason to examine the difference in means as the hypothesis is not supported.

Unfinished Science

This frame represents contempt for the Kyoto Protocol due to insufficient scientific evidence. This individual frame falls within the larger questionable science master frame.

Table 5-7. Consumer Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: CONSUMER

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	1.2184	1.77713	467
	BUSH	.9683	1.54578	252
	Total	1.1307	1.70274	719
U.S.	CLINTON	2.8958	3.38618	307
	BUSH	2.5946	4.05503	111
	Total	2.8158	3.57342	418
Total	CLINTON	1.8837	2.66779	774
	BUSH	1.4656	2.68633	363
	Total	1.7502	2.67965	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	768.174	3	256.058	39.263	.000
Intercept	3207.283	1	3207.283	491.800	.000
Country of Publication	593.950	1	593.950	91.075	.000
Time	16.542	1	16.542	2.536	.112
Country of Publication * Time	.142	1	.142	.022	.883
Error	7388.889	1133	6.522		
Total	11640.000	1137			
Corrected Total	8157.062	1136			

a R Squared.= .094 (Adjusted R Squared.= .092)

> Although the IPCC Climate Change Report provides a good compilation of climate information, the **so-called** Policymakers' Summary invariably tends to overstate and to leave out the caveats. A doctor of **physics** states policy should be **based** on **sound science.** The **following** points indicate the **research** of climate change's **impact** on earth is **unfinished:**
>
> 1. Researchers **discovered** an anti-correlation between global **temperature** and **ocean** levels.
> 2. New evidence indicates an **airline traffic effect** on climate.
> 3. There have been **temperature variations** in recorded history that produced no apparent ill effects.
> 4. A **meteorologist** found **temperature data** impacted by land-based heat-island effects.

Table 5–8 provides SPSS output from the 2X2 ANOVA test on the unfinished science frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.24). Without significance, there is not sufficient reason to examine the difference in means as the hypothesis is not supported.

Weather

This frame represents contempt for the Kyoto Protocol because of current weather deviations. This individual frame falls within the larger questionable science master frame.

> If the earth **warmed** as it did during the **optimum** of the **medieval** period, food production from **farmers** would **increase** because of longer growing seasons and shorter **winter.** Other **factors** to consider from the **studies** of **predictions** of a **warmer** earth include more polar **ice** with **fewer** floods and droughts. An **analyst** notes it is likely that the earth will warm no more than 2 degrees **Celsius** in the next century. **Analysis shows** the costs of decreasing **CO2** emissions would be more than solving the problem of

Table 5-8. Unfinished Science Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: Unfinished Science

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	2.3704	3.31757	467
	BUSH	2.0357	3.01039	252
	Total	2.2531	3.21511	719
U.S.	CLINTON	4.2182	5.32732	307
	BUSH	4.2973	6.41531	111
	Total	4.2392	5.62882	418
Total	CLINTON	3.1034	4.32295	774
	BUSH	2.7273	4.45853	363
	Total	2.9833	4.36825	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1061.525	3	353.842	19.447	.000
Intercept	9086.369	1	9086.369	499.383	.000
Country of Publication	918.972	1	918.972	50.506	.000
Time	3.557	1	3.557	.196	.658
Country of Publication * Time	9.318	1	9.318	.512	.474
Error	20615.158	1133	18.195		
Total	31796.000	1137			
Corrected Total	21676.682	1136			

a R Squared.= .049 (Adjusted R Squared.= .046)

> clean drinking water and sanitation, the **latter** of which would avoid nearly 2 million deaths per year. **Third World inhabitants** would rather be helped immediately than in the future.

Table 5–9 provides SPSS output from the 2X2 ANOVA test on the weather frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.36). Without significance, there is not sufficient reason to examine differences in means as the hypothesis is not supported.

Activist Science

This frame represents contempt for the Kyoto Protocol because of activists trying to use science to make public policy. This individual frame falls within the larger questionable science master frame.

> There is no conclusive **evidence** to support the **theory** that **mankind** is destroying the world through global **warming**. Political **activists** calling themselves **experts reported man-made** causes for climate change in an effort to **punish** the United States. Yet this **theory** is **not** based on **scientific** data, but on computer models (in the 70s they called it global **cooling** and said we were headed for another **"Little Ice Age"** with widespread **famine**). Another **ice age** is inevitable due to the earth's path around the **sun**. More **snow** will increase ice **caps** and lower the world's sea levels.

Table 5–10 provides SPSS output from the 2X2 ANOVA test on the activist science frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.28). Without significance, there is not sufficient

Table 5-9. Weather Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variablea WEATHER

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	2.5974	4.13514	467
	BUSH	1.6190	3.45571	252
	Total	2.2545	3.93584	719
U.S.	CLINTON	3.6026	6.46345	307
	BUSH	2.8739	8.72209	111
	Total	3.4091	7.12934	418
Total	CLINTON	2.9961	5.20461	774
	BUSH	2.0028	5.63312	363
	Total	2.6790	5.36271	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	552.330	3	184.110	6.495	.000
Intercept	6222.238	1	6222.238	219.500	.000
Country of Publication	277.951	1	277.951	9.805	.002
Time	158.590	1	158.590	5.595	.018
Country of Publication * Time	3.392	1	3.392	.120	.729
Error	32117.498	1133	28.347		
Total	40830.000	1137			
Corrected Total	32669.828	1136			

a R Squareda= .017 (Adjusted R Squareda= .014)

Table 5-10. Activist Science Frame by Time and Country of Publication

Descriptive Statistics

Dependent Variable: Activist Science

COUNTRY OF PUBLICATION	TIME	Mean	Std. Deviation	N
U.K.	CLINTON	3.8565	4.55048	467
	BUSH	3.9802	4.04797	252
	Total	3.8999	4.37847	719
U.S.	CLINTON	6.3322	6.79439	307
	BUSH	6.0360	5.63258	111
	Total	6.2536	6.50090	418
Total	CLINTON	4.8385	5.67681	774
	BUSH	4.6088	4.67994	363
	Total	4.7652	5.37766	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1474. 046	3	491. 349	17. 742	. 000
Intercept	22216. 083	1	22216. 083	802. 174	. 000
Country of Publication	1117.e514	1	1117. 514	40.351	. 000
Time	1. 621	1	1. 621	. 059	. 809
Country of Publication *eTime	9.e592	1	9.e592	. 346	. 556
Error	31378.e255	1133	27.e695		
Total	58670.000	1137			
Corrected Total	32852. 301	1136			

a R Squared = .045 (Adjusted R Squared = .042)

reason to examine the difference in means as the hypothesis is not supported.

Conclusions

In the case of opposing frames against the Kyoto Protocol, the prominence news value did not have a significant affect on the success of the opposing frames gaining media coverage. The lack of significant interactions did not allow for comparison of means. Though opposing frames gained some mention within media coverage, they did not have the dominance exhibited by the supporting frames.

8. Visualizing the Frames

To understand the relationship between the frames, it is helpful to view the frame clusters in three-dimensional space. Using the master search list of multiple frames (see Appendix G), VBPro's Coder analyzed both U.S. and U.K. newspaper texts. The coded output file was submitted to VBMap to determine the spatial dimensions of issue frames found through multidimensional scaling techniques. Eigenvectors from this procedure provide Cartesian coordinates (in the form of x, y, and z axes), which allow the researcher to plot a visual representation of the relative distance between frames. Table

Table 5-11. Eigenvectors for Three-Dimensional Map of Individual Frames

Frames	Eigenvector (X,Y,Z)	Frames	Eigenvector (X,Y,Z)
$PRO	0.529, 0.273, -0.134	ECONOMY	0.310, 0.320, 0.172
$ANTI	-0.513, -0.235, -0.131	BUSINESS	-0.446, 0.267, -0.193
RELIGION	0.299, 0.197, 0.088	CONSUMER	-0.279, 0.225, 0.101
NEW TECH	0.248, 0.434, 0.127	UNFINISHED	-0.300, -0.166, 0.310
RELIEF	0.371, 0.156, 0.152	WEATHER	-0.162, -0.294, 0.580
INDUSTRIAL	0.364, 0.094, 0.113	ACTIVIST	-0.011, -0.230, 0.278

5-11 provides the eigenvectors as generated by VBMap.

In this three-dimensional mapping of plot coordinates, the average position and relative size of the frame clusters are visible (Figure 5-6). Terms cluster if they co-occur and disperse if they are far apart (Miller, 1997, p. 370). Miller and Riechert (1997c) note that clustered terms are interpreted as the themes or frames in the texts (pp. 2-3), which Miller (1997) said tend to be exclusively used by one or another of the stakeholders (p. 368). The map suggests that of the several issues involved in the Kyoto Protocol debate, the supporting frames dominated the issue as they are near the center of the map. These issues are located close together and rather distantly from the opposing frames, which are spaced farther apart, indicating distinctive arguments from diverse stakeholder groups.

Media Routines

As previously stated in the literature review, journalists use media routines to ease the newsgathering process. Stakeholders attempt to take advantage of media routines to have their frame on an issue presented to the public. They must first gain access to the media, i.e. in the case of global climate change, they must gain access into the prestige press.

1. Finding the Stakeholders

Gatekeeping literature suggests not everyone makes it into the media as journalists use the routine to which stakeholders (and frames) are actually worthy of public attention. To find stakeholder positions, stakeholder names were taken from both

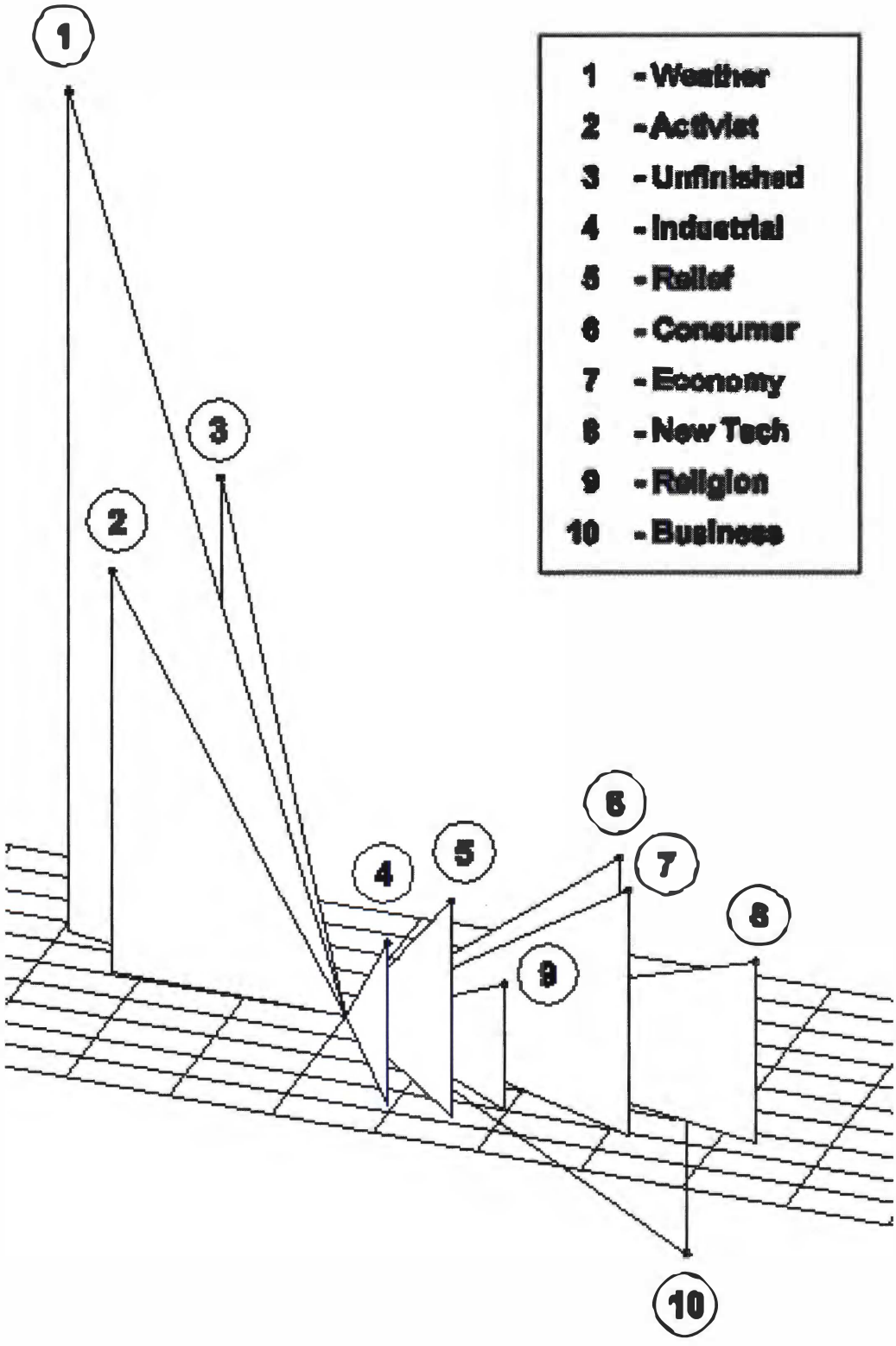


Figure 5.6. Three-Dimensional Rendering of Stakeholder Frames

stakeholder texts and the given stakeholders in Appendix A, then broken into seven groups: pro, anti, Bush administration, Clinton administration, European Union, other world government and science (see Appendix H).

A word search of the news text provided multiple versions of the same name, as well as misspellings of people's and companies' names by the media. In some cases, different reporters named individuals by nicknames or by their full name (e.g. George W. Bush), requiring a search of multiple versions of the same person. Courtesy titles (e.g. Mr., Ms., Dr., CEO, Gen.) were not linked in the search as different news organizations handled them differently. However, President and Vice-President occurring in the names of American politicians were left as some articles began with "President Clinton said today . . . " and never actually mentioned the president's full name.

Outside of the previous circumstance, this search only accounted for full names of individuals. Though they may be quoted multiple times within an article, second reference quotations use last names or pronouns. Though it might be interesting to note the frequency of the quotes, this test examined if the source appeared within the article to balance the president's position. This also alleviated the problem formed by mentions of President Bush the elder and President Bush the younger. Only the younger's name was linked, causing VBPro to skip over mentions of the elder.

Though many stakeholders attempt to enter the discussion, gatekeeping ensures that fewer are able to actually get in. The president, however, has automatic entry due to his newsworthiness as a prominent person. Therefore, it's interesting to note what groups actually made it into prestige press coverage, as well as it will indicate how well they actually did. Though all of the stakeholders from the stakeholder texts are listed in

Appendix A, only those making the prestige press are listed in the later portion of Appendix H. This provides evidence of the media routine of gatekeeping.

2. Testing Stakeholder Hypotheses

Non-Governmental Stakeholders

Supporting Stakeholders

The media routines hypothesis examines the effect of sourcing on the success of stakeholders entering the mediated discussion concerning an issue. Miller and Riechert's (2001) "Spiral of Opportunity" theory suggests stakeholders articulate positions when they sense an opportunity to win converts, and become reticent if they sense the message will fall on deaf ears (p. 109). By subdividing the time period under consideration as previously detailed (p. 79), it should be possible to examine events that may have triggered the spiral of opportunity. As previously noted, media norms of competing positions suggest differences in stakeholders used for balance during the different presidential administrations (Gamson & Modigliani, pp.6 –7; Anderson, p. 49). According to the Spiral of Opportunity, opposing stakeholders should take advantage of President Clinton's impeachment proceedings to present their arguments in the media. As no administration change occurred in Britain during the time period under consideration, stakeholder positions should remain approximately the same during the Clinton administration.

> **H2a: Time Period will interact with Country of Publication such that the mean number of supporting stakeholders will decrease in U.S. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) then increase to T3 (Bush presidency), while the mean**

number of supporting stakeholders will remain constant in U.K. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) then increase to T3 (Bush presidency).

Statistical tests were performed to investigate and identify differences between country and across time in coverage of the stakeholders. A 2X2 ANOVA was conducted using SPSS General Linear Model for both the supporting and opposing sets of stakeholders. If the second hypothesis is correct, an ordinal interaction should occur between Time Period and Country of Publication such that the supporting stakeholders decrease in U.S. papers when Clinton is impeached, then increase when Bush is elected; in U.K. papers, the supporting stakeholders will remain steady during the Clinton administration then increase during the Bush administration. In other words, the print media will balance the administration viewpoint with other sides. In addition, the spiral of opportunity implies that during the times stakeholders feel the administrations position is vulnerable, they will increase efforts to change the frame of the debate to their favor.

Table 5–12 provides SPSS output from the 2X2 ANOVA test on the supporting stakeholder frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.19). Without significance, there is not sufficient reason to examine the difference in means as the hypothesis is not supported.

Table 5-12. Supporting Stakeholder Position by Time and Country of Publication

Descriptive Statistics
Dependent Variable: Supporting Stakeholders

TIME	Country of Publication	Mean	Std. Deviation	N
Kyoto Conference	U.K.	.3574	.87700	235
	U.S.	.7613	1.31876	222
	Total	.5536	1.13065	457
Lame-Duck	U.K.	.2586	.65294	232
	U.S.	.9059	1.70869	85
	Total	.4322	1.08177	317
Bush Presidency	U.K.	.3571	.96111	252
	U.S.	.8468	1.40258	111
	Total	.5069	1.13548	363
Total	U.K.	.3255	.84432	719
	U.S.	.8134	1.42557	418
	Total	.5048	1.11891	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	65.919(a)	5	13.184	10.994	.000
Intercept	321.605	1	321.605	268.181	.000
TIME	.341	2	.170	.142	.868
Country of Publication	62.784	1	62.784	52.355	.000
TIME * Country of Publication	2.386	2	1.193	. 995	.370
Error	1356.305	1131	1.199		
Total	1712.000	1137			
Corrected Total	1422.223	1136			

a R Squareda=a 046 (Adjusted R Squareda=a 042)

Opposing Stakeholders

Table 5–13 provides SPSS output from the 2X2 ANOVA test on the opposing stakeholder frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis. The interaction between time and country of publication is not significant (0.4). Without significance, there is not sufficient reason to examine the difference in means as the hypothesis is not supported.

Governmental Stakeholders

As previously mentioned, international politics provides additional stakeholder positions to consider. If the European Union became concerned as the United States first refused to submit the Kyoto Protocol to the U.S. Senate, then refused to ratify the protocol, they would be used as a competing frame against the presidential positions; i.e. the U.S. president would be balanced by stakeholders within the European Union. With Bush's attack on the Kyoto protocol, the conflicts between the United States and European Union should cause supporting EU stakeholder viewpoints to increase during the Bush administration and opposing stakeholder viewpoints to decrease. Increased use of EU positions will be more marked in U.K. papers as Britain is a member of the European Union, as they attempt to pass the protocol without U.S. help.

> **H2b: Time Period will interact with Country of Publication such that the mean number of European Union stakeholders will increase in U.S. and U.K. papers from T1 (Kyoto Conference) to T2 (lame-duck presidency) to T3 (Bush presidency).**

A 2X2 ANOVA with fixed effects will confirm or reject the one-tailed hypothesis

Table 5-13. Opposing Stakeholder Position by Time and Country of Publication

Descriptive Statistics
Dependent Variable: Opposing Stakeholders

TIME	Country of Publication	Mean	Std. Deviation	N
Kyoto Conference	U.K.	.3319	1.19133	235
	U.S.	.7342	1.77377	222
	Total	.5274	1.51448	457
Lame-Duck	U.K.	.3362	1.17657	232
	U.S.	.7765	2.15681	85
	Total	.4543	1.51217	317
Bush Presidency	U.K.	.4683	2.19084	252
	U.S.	.7207	2.36709	111
	Total	.5455	2.24593	363
Total	U.K.	.3811	1.60933	719
	U.S.	.7392	2.02062	418
	Total	.5128	1.77920	1137

Test of Between Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	37.017(a)	5	7.403	2.353	.039
Intercept	299.959	1	299.959	95.321	.000
TIME	.694	2	.347	.110	.896
Country of Publication	31.713	1	31.713	10.078	.002
TIME * Country of Publication	1.487	2	.743	.236	.790
Error	3559.048	1131	3.147		
Total	3895.000	1137			
Corrected Total	3596.065	1136			

a R Squared=e 010 (Adjusted R Squared=e 006)

depending on the pattern of means of the dependent variable and the significance level associated with the interaction of the independent variables. If correct, an ordinal interaction should occur between Time Period and Country of Publication such that European Union stakeholders will increase in both U.S. and U.K. papers over time, with a more marked increase in the U.K. as European leaders vent their anger over Bush's decision. Table 5–14 provides SPSS output from the 2X2 ANOVA test on the supporting stakeholder frame. As the output lists significance levels for a two-tailed hypothesis, it is necessary to divide by two for a one-tailed hypothesis.

The interaction between time and country of publication is significant (0.00) for the European Union stakeholders. Significant differences exist in European Union stakeholders means for country of publication from the Kyoto Protocol (U.S.=0.04; U.K.=0.43) to the lame-duck presidency (U.S.=0.14; U.K.=0.48) to the Bush administration (U.S.=0.23; U.K.=1.0). This supports the hypothesis and can be seen in Figure 5.7.

This analysis indicates support for previous research, which maintained that the international issue played more of a part in the Kyoto Protocol than the actual issue of global climate change. The spiral of opportunity is evidenced here as EU leaders sensed the opportunity to persuade the world to ratify the Kyoto Protocol without the help of the United States, thus filling the vacuum left by the Bush administration on the international global climate change issue.

Table 5.14. European Union Position by Time and Country of Publication

Descriptive Statistics
Dependent Variable: European Union

TIME	Country of Publication	Mean	Std. Deviation	N
Kyoto Conference	U.K.	.4340	.79455	235
	U.S.	.0405	.23911	222
	Total	.2429	.62485	457
Lame-Duck	U.K.	.4828	.88257	232
	U.S.	.1412	.63906	85
	Total	.3912	.83722	317
Bush Presidency	U.K.	1.0000	1.39149	252
	U.S.	.2252	.62791	111
	Total	.7631	1.26100	363
Total	U.K.	.6481	1.09568	719
	U.S.	.1100	.47209	418
	Total	.4503	.95287	1137

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	127.473	5	25.495	31.898	.000
Intercept	142.806	1	142.806	178.671	.000
TIME	27.023	2	13.511	16.905	.000
Country of Publication	60.289	1	60.289	75.431	.000
TIME * Country of Publication	8.671	2	4.336	5.424	.005
Error	903.969	1131	.799		
Total	1262.000	1137			
Corrected Total	1031.442	1136			

a R Squared= .124 (Adjusted R Squared= .120)

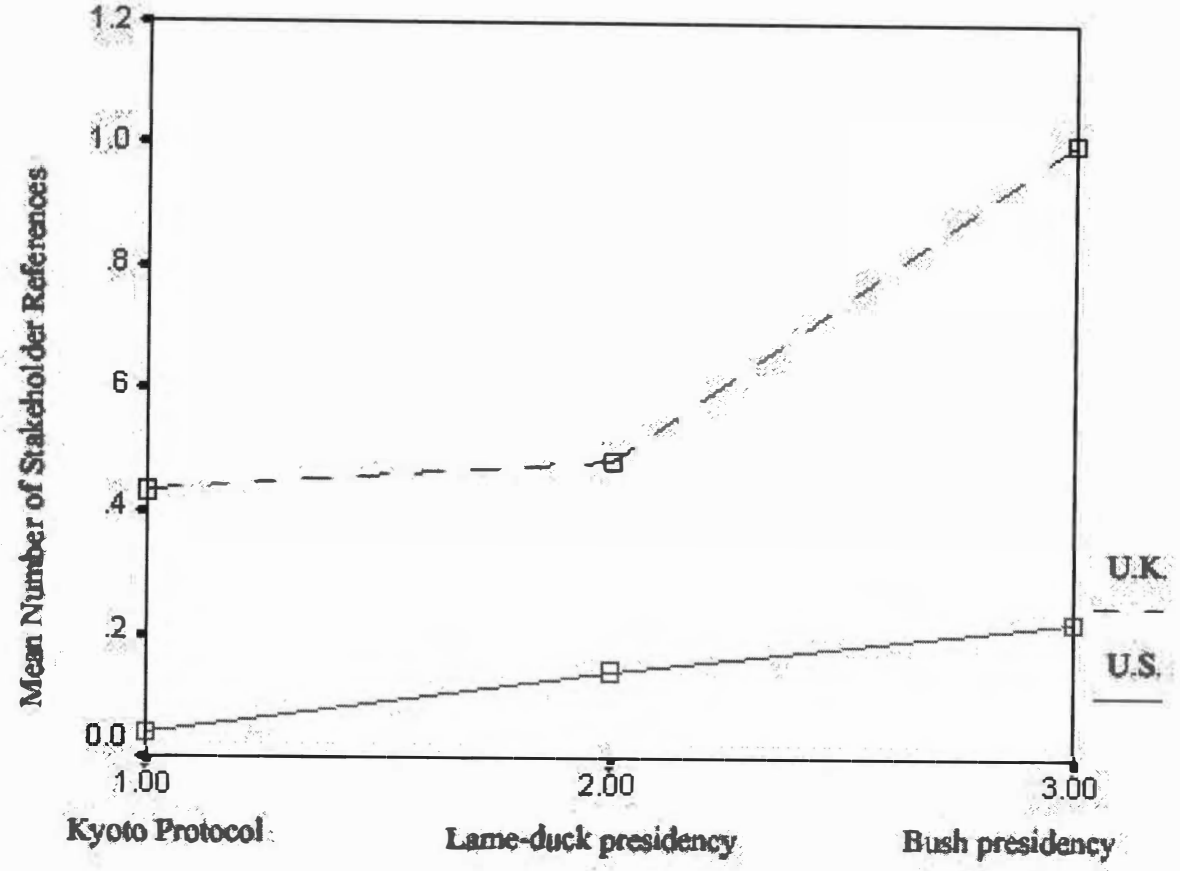


Figure 5.7. E.U. Stakeholder Means per Administration per Country

Conclusions

Media routines did not produce a significant affect on the success of the supporting or opposing stakeholders gaining media coverage other than the obvious role of gatekeeping. The lack of significant interactions did not allow for comparison of means. Though supporting and opposing stakeholders gained some mention within media coverage, they did not provide a competing position over the three portions of the U.S. administration. This study did not find evidence of supporting or opposing stakeholders taking advantage of the spiral of opportunity to get their viewpoints heard. The fact that no significant differences occurred between the use of supporting and opposing stakeholders indicates media did a good job in balancing stakeholder positions overall without worrying about balancing the presidential position with other stakeholders.

However, media routines produced a significant affect on the success of governmental stakeholders gaining media coverage, supporting the hypothesis that journalists balanced the position of the U.S. president with European Union stakeholders. Yet this balance reflects an international flavoring as U.S. papers only doubled their use of EU stakeholders while U.K. papers increased their use of EU stakeholders by a factor of approximately 2.5 times. This provides support for the spiral of opportunity in that European Union members took the opportunity to lead the charge against global climate change after the United States backed out of a commitment to a plan it originally helped set up during the first Bush administration; i.e. the EU filled the void left after the second Bush administration refused to ratify the Kyoto Protocol.

3. Visualizing Stakeholder Positions

To understand the relationship between the stakeholders, it is helpful to view the frame clusters in three-dimensional space. As with the individual frames, the stakeholder list (Appendix H) was used in VBPro's Coder to code both U.S. and U.K. newspaper texts. Eigenvectors from VBMap provided Cartesian coordinates. Terms cluster if they co-occur and disperse if they are far apart (Miller, 1997, p. 370). Table 5-15 provides the eigenvectors as generated by VBMap.

A three-dimensional mapping of plot coordinates indicates the average position and relative size of the frame clusters (Figure 5-8). The mapping confirms the positions previously described. On the bottom plane, governmental positions concerning the Kyoto Protocol show the European Union, the Clinton administration and other world governmental frames on the same page, if not the exact position, in regards to the protocol. These positions are opposed on the top plane by anti, pro and scientific frames, but not enough to be significantly different. However, the Bush administration position is shown to be the exact opposite of the EU position, and also different to the previous Clinton administration position.

Table 5-15. Eigenvectors for Three-Dimensional Map of Stakeholder Positions

Stakeholder Position	Eigenvector (X,Y,Z)		
Science	0.01	-0.38	-0.15
Bush	0.48	0.09	-0.42
Clinton	-0.50	0.32	0.07
European Union	0.49	0.24	0.28
Other World Gov	0.31	0.51	0.12
Anti	-0.19	-0.26	-0.43
Pro	-0.28	-0.02	-0.40

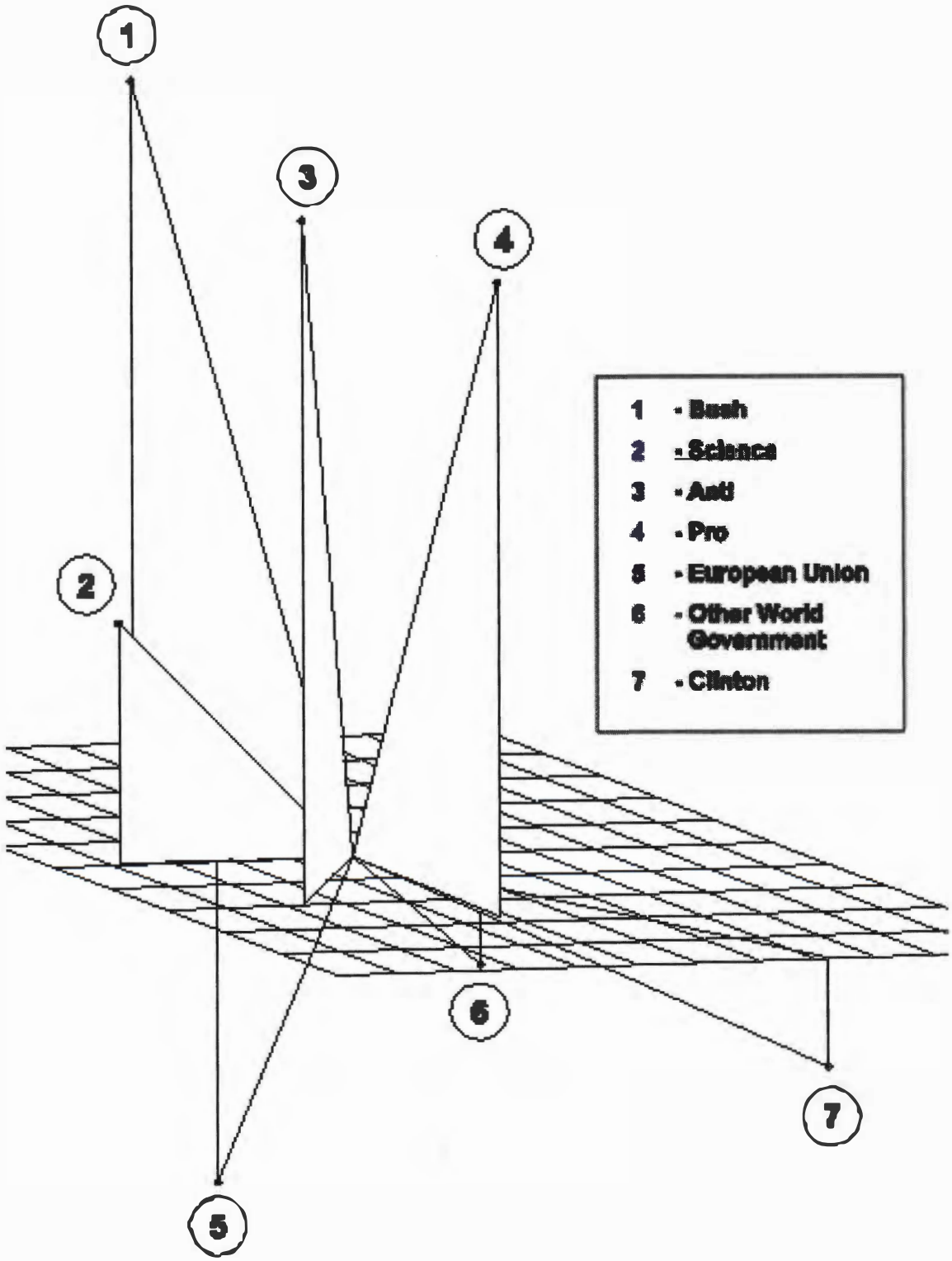


Figure 5.8. Three-Dimensional Rendering of Stakeholder Positions

Historical

The preceding analyses focused on frames and stakeholders as evidenced through quantitative measures, which provides insight into the actual language used by stakeholders and their success at affecting the frame. Qualitative analysis provides additional insight, by stepping back from the actual language for a larger view of the issue's frames as presented in U.S. and U.K. prestige press news coverage, as well as in stakeholder commentary. The following historical analysis intends to answer questions such as: What events did the media actually cover? How did news values affect the coverage? Who comprised the actual sources in that coverage? How did the frame change across time in the U.S. prestige press as compared to the U.K. press? What coverage did stakeholder frames receive? How did coverage differ from the intentions of the stakeholder?

1. Stakeholders in the News

Reading each article helped construct a timeline of events as covered by each country's prestige press. These timelines can be found in Appendices I-P, separated according to stakeholder positions of government, science, business, and SMOs. Some timelines contain identical articles due to multiple stakeholder involvement, e.g. Clinton meeting with business leaders and scientists would fall in three separate timelines: government, science and business. This occurred for nine U.S. articles, one of which appeared in three categories, and 15 U.K. articles in the time periods previously used, i.e.

1. Kyoto conference – the period from January 1997 until Dec. 14, 1998.
2. Lame-duck presidency – the period from Dec. 15, 1998 to Jan. 20, 2001.

3. Bush presidency – the period from Jan. 20 – Sept. 11, 2001.

The first two time periods roughly equal two years, while the final time period represents a little more than seven months. Table 5-16 shows the differences in days of news coverage by time period in each country. Though multiple events may have occurred on the same day (e.g. the Kyoto Protocol agreement required multiple articles with differing angles of coverage by the media), it is only counted as a day's coverage (Dec. 11, 1997).

Table 5-16 provides interesting trends in the coverage of the Kyoto Protocol. Totaling the rows provides the cumulative days of coverage within a time period, while totaling the columns provide the days of coverage for a stakeholder. Overall, governmental stakeholders received the most prestige-press coverage in both countries, followed by science, business and SMOs. During the period surrounding the Kyoto

Table 5-16. Days of Coverage by Stakeholder Source by Time and Country

US	Government	Science	Business	SMOs	Total
T1	48	22	14	9	93
T2	17	28	11	5	61
T3	24	8	2	3	37
Total Days	89	58	27	17	191
UK					
T1	44	32	16	8	100
T2	36	48	17	8	109
T3	54	14	12	9	89
Total Days	134	94	45	25	298

conference (T1), U.S. prestige-press coverage of the differing stakeholders slightly trailed that of the U.K. prestige press. Though the lame-duck presidency period (T2) represents roughly the same time as the previous period, U.S. coverage waned compared to U.K. coverage, as the British press nearly doubled the American coverage. The trend of more U.K. coverage continued in the Bush presidency (T3), with more than double the coverage of stakeholders. Table 5-16 indicates differences in coverage of stakeholders over time:

- Government stakeholders received more coverage than any other group, but U.K. prestige press had 1.5 times more overall coverage than the U.S. prestige press. The master frame of political actions dominated overall coverage of the Kyoto Protocol during the first and third time periods. During the first period, this frame discussed efforts to build the protocol and the immediate reaction to those efforts. Government coverage waned during the second time period, though not nearly as much in Britain as in the United States. Bush's decision to reject the protocol returned the master frame to political actions during the third time period. While the third time period represents a little more than eight months compared to the nearly two years of the first two periods, the days of U.S. coverage exceeded the second time period by seven days and accounted for half of the first time period's days of coverage. U.K. coverage during this period represents more than half of the two previous periods combined.
- Science stakeholders received the second largest amount of coverage of the stakeholder groups. This group set the frame on the Kyoto issue

during the lame-duck presidency period, as both U.S. and U.K. coverage of science exceeded that of government during the second time period. The master frame of climate change impacts dominated the news during this period. Science received less coverage in both countries during the third period, as the frame shifted back to the political nature of the issue.

- Business coverage continuously declined in the U.S. press, but U.K. business coverage increased, in part due to the introduction of a climate-change levy in Britain as part of that country's efforts to meet its Kyoto obligations.
- SMOs received the least coverage of any stakeholder position. U.S. coverage dropped in half from the first to second period, though recovering somewhat during the shortened third period, when SMOs received more press than business stakeholders. U.K. coverage of SMOs stayed even from the first to second period, while surpassing the previous periods during the shortened third period.

The differences in coverage between the countries can be understood by the nature of news coverage. Overall, U.S. coverage of government, business and SMOS suffered during Clinton's impeachment and the aftermath. Government and SMOs coverage rose precipitously in the third period due to the contention caused by Bush's position on the protocol. The difference is more remarkable as U.K. coverage remained steady through the first two periods (while switching the primary stakeholders). But Bush's decision, and E.U. efforts to counter it, precipitously raised the profile of the issue during the last time period. The trend of more U.K. coverage overall can also be

explained as Britain began implementing elements of the protocol and the reaction to those implementations. Meanwhile, the United States did little to implement its protocol commitments.

While Table 5-16 provides a look at overall coverage of stakeholder positions, the effect of news values on stakeholder coverage can be ascertained by directly looking at the texts. Counting the number of articles given to each news value provides one way of determining the primary manner in which stakeholders were portrayed in the news. Some articles contained multiple news values, e.g. an article about Clinton's discussion with industry leaders concerning protocol targets contains the news values of prominence and impact. When tallying the number of articles, this article would be placed in both categories.

Government

Prestige-press coverage of government is summarized for both the United States (Appendix I) and Britain (Appendix J). During the Kyoto Conference period, U.S. prestige-press focused primarily on the news value of prominence (35 articles), with other coverage given to the angles of conflict (15), impact (6), currency (6) and the unusual (2). U.S. coverage featured the Clinton administration's position on the Kyoto Protocol, while secondarily noting Senate opposition to the treaty. While also giving prominence the majority of its coverage during this period (24 articles), the U.K. prestige press gave as much or more coverage to conflict (14), impact (10), currency (11) and proximity (2) to describe the issue. British press covered the Clinton administration's position and the conflict from world nations criticizing the United States. With the

protocol's creation, U.K. coverage shifted somewhat to possible impacts with a proximity angle, as well as continued conflict over the U.S. position.

During the lame-duck presidency period, U.S. media continued to center its coverage on prominence (10 articles) and conflict (8), with scant coverage given to currency (4) and impact (1). The U.S. prestige-press seemed more enamored with the conflicts between the presidency and the Senate, and the U.S. position compared with the international position, than with possible impacts to the U.S. economy. Besides having more coverage than the U.S. media during the second period, the U.K prestige press focused on conflict (14 articles), impact (9) and currency (9), with less focus on prominence (8). The difference in coverage can be attributed to the addition of proximity when describing impacts to the British economy, and conflict between government and business over the proposed climate-change levy to aid in Britain's achieving its protocol targets. On the international level, conflicts between the United States and other nations over implementing the protocol dominated the news.

During the final period, U.S. media continued to focus on prominence (25 articles) and conflict (12), while paying little attention to impact (2). The conflict created by Bush's position on the Kyoto Protocol temporarily brought the scientific reasoning behind the treaty into question, but the focus remained on Senate contentions that developing countries would not be included and the protocol's possible harm to the U.S. economy. After international governments ratified the protocol without the United States, U.S. media concentrated on proposals to bring American interests back to the international community. In Britain, prestige-press coverage focused on prominence (40 articles) and conflict (22), while also using angles of currency (14) and impact (7). The

international scene dominated coverage while media focused on Bush's decision to renege on the Kyoto Protocol, and the European Union's decision to push forward without U.S. assistance. On the national scene, the climate-change levy continued to provide stories concerning the impact to the U.K. economy.

Overall, news values influenced coverage of government in both the United States and Britain. Prominence and conflict provided the frame when discussing governmental positions on the Kyoto Protocol. On an international level, the U.S. presidents and the U.K. prime minister affected the issue's frame as the prestige press immediately considered their actions to be news. The U.S. prestige press rarely attempted to frame the issue as more than an international political conflict and the conflict between the presidency and the Senate. While the U.K. prestige press framed the issue as an international political conflict, it additionally used impact to explain how British business would absorb a tax to help the U.K. government meet its Kyoto commitments.

Science

Prestige-press coverage of science is summarized for both the United States (Appendix K) and Britain (Appendix L). During the Kyoto Conference period, U.S. prestige-press focused primarily on impact (17 articles), with other coverage given to conflict (5), unusualness (5), prominence (2) and currency (1). U.K. prestige press also focused on impact (26 articles), while occasionally delving into conflict (4), currency (2), prominence and the unusual (1 each). Both the U.S. and U.K. media used scientists to report record-breaking warmer temperatures, the earlier arrival of Spring, the shrinking of the Antarctic ice cap, the position that savings in energy expenses would offset economic

costs incurred by fighting global warming, and the linking of volcanic activity, catalytic converters and pollution to climate change. U.K. media additionally focused on melting glaciers, the destruction of the coral reefs, and expected property damage related to weather extremes caused by global warming. Both countries' prestige-press relayed scientists predictions of negative effects on human health, increases in global warming, and threats of localized cooling, expanding deserts and submerged coastal lands, while providing hope that localized reactions to threats would help determine how much actual damage would occur. U.K. media also noted predictions of negative health effects and possible extinction of some animal species due to global warming.

During the lame-duck presidency period, U.S. media continued to center its coverage on impact (19 articles), with conflict (6) and currency (5) providing more coverage than prominence and the unusual (1 each). In the United States, scientists blamed climate change for record-breaking temperatures, loss of grasslands, winter warming in the Northern Hemisphere, declining sea-ice thickness, and possible increases in coastal erosion, drought, fires and floods. While reports indicated that humans play a significant role in climate change, conflict arose over the possible effects to human health, though one report predicted increased respiratory problems due to a doubling of ragweed pollen from warmer temperatures. U.K. prestige-press coverage featuring impact (43) more than doubled the U.S. articles during this period, while it also examined currency (7), the unusual (5), and prominence (1). In the U.K., scientists predicted climate change would increase droughts, hurricanes, food and water shortages, disease, rainforest and coral-reef destruction, flooding, wildfires, landslides, storm surges, shifts in breeding and hunting ranges for animals and insects, and the possible extinction of

some species. Both U.S. and U.K. prestige-press used scientists during this period to report that some climate change effects are inevitable due to global warming.

During the final period, U.S. media maintained its focus on impact (7 articles) and currency (2). Reporters used scientists to tell the public that poor countries would bear the brunt of climate consequences, but also suggested that pollution reduction would reduce global warming, improve health and save lives. Again, U.K. media doubled the articles given to impact (15), while also covering currency (2), prominence and conflict (1 each). U.K. media reported scientists predicting unprecedented social disruptions, increased diseases and species loss, and the bleaching and possible destruction of the great reefs of the Pacific and Indian Oceans and the Caribbean and the Red Seas. U.K. media also reported scientists linking global warming to fossil-fuel consumption by humans.

News values influenced coverage of science in both the United States and Britain. Prestige-press in both countries primarily used the news value of impact when framing science stories, focusing on both actual impacts reported in scientific findings and possible impacts found in scientific predictions. The U.K. media's increased coverage of this angle compared to the U.S. press allowed for more predictions of disastrous consequences if global climate change is not slowed. Both countries' media used scientists to say climate change is real with some inevitable effects, though they also gave hope that localized efforts could help reduce those effects. Scientific information reported in the news could be said to have influenced public policy as it provided issues for political figures to argue in relation to the protocol.

Business

Prestige-press coverage of business is summarized for both the United States (Appendix M) and Britain (Appendix N). During the Kyoto Conference period, U.S. prestige-press focused primarily on conflict (9 articles), with other coverage given to the unusual (5), impact (3), prominence (2) and currency (1). British Petroleum's break from the oil industry, claiming it's unwise and potentially dangerous to ignore global warming, represents both conflict and the unusual as the oil industry's Global Climate Coalition reigned as the primary antagonist against the Kyoto Protocol. Business and industry leaders lobbied against the protocol, claiming it would disrupt the U.S. economy by increasing energy prices and destroying jobs, and voiced objections to its proposed restrictions as unrealistic. Soon after Royal Dutch/Shell left the Global Climate Coalition, the Pew Center on Climate Change initiated a moderate business voice of companies formerly critical of the protocol into the proceedings. While the U.K. prestige-press also covered these events, the British media focused on impact (8 articles), while also examining conflict (6), the unusual (5), currency and prominence (1 each). Business interests blamed climate change for a water supply crisis and proposed higher insurance premiums, while blaming protocol commitments for higher transport costs, lower UK competitiveness and the predicted the end of European Union coal production by 2010. A leaked report revealed the American Petroleum Institute planned to recruit independent scientists to dispute scientific evidence of global warming.

During the lame-duck presidency period, U.S. media continued to examine conflict (5 articles), while also covering impact (3), the unusual (2) and currency (1). Dissension within the Global Climate Coalition led to Ford Motor Co. leaving the group

in December 1999, followed by DaimlerChrysler in January 2000, and Texaco in February 2000, the latter of which launched a program to explore reducing emissions. U.K. prestige-press coverage turned to conflict (14 articles) and impact (9). This can be attributed to debate over the proposed climate-change levy that would help the U.K. meet its protocol commitments, and the possible impacts to British industry.

During the final period, U.S. media coverage examined the unusual (2 articles), impact and prominence (1 each). Soon after semiconductor manufacturers agreed to voluntary reductions of perflourocompounds, Ford acknowledged the role of the auto industry in global warming. U.K. media continued coverage of impact (7) and conflict (4), while also covering the unusual (2) and currency (1). While noting the impact of the climate-change levy that began in April, possible impacts due to climate change garnered more coverage as insurance companies and pension funds, as well as farmers and landowners, faced the issue.

News values influenced coverage of business in both the United States and Britain. Prestige-press in both countries primarily used the news values of impact and conflict when framing business stories, noting industries aversion to mandated emissions control and the economical impact to businesses from the protocol. While business stakeholders took a lower profile in the third time period due to the breakup of the Global Climate Coalition, their concerns seemed to convince Bush to denounce the protocol and appoint one of their own. Andrew H. Card, the president and CEO of the American Automobile Manufacturers Association, became President Bush's White House chief of staff. U.S. media may have refrained from writing about business concerns once the White House echoed those concerns. U.K. prestige-press also framed business stories in

light of opposition to the climate-change levy, which provided a proximity news value to an international story.

Social Movement Organizations

Prestige-press coverage of social movement organizations is summarized for both the United States (Appendix O) and Britain (Appendix P). During the Kyoto Conference period, U.S. prestige-press focused on the unusual (4 articles), with other coverage given to conflict (2), impact (2) and prominence (1). U.S. media covered SMOs scaling a building in Los Angeles to protest artic drilling, and called SMOs "sideshows in a global warming carnival" during the Kyoto conference. After urging Clinton to lead the global warming fight, SMOs attacked his proposals as inadequate. Though SMOs provided information about global warming to conference members, the U.S. prestige-press cast SMOs against business stakeholders for a conflict angle during the conference. Prior to Clinton's impeachment proceedings, American religious groups banded together to support the Kyoto Protocol. Across the ocean, the U.K. prestige press focused on impact (6 articles), while also examining conflict (3) and the unusual (2). U.K. media covered SMOs noting global warming impacts, including water and food shortages, and threats to tourism and species habitat and survival. SMOs also gained coverage for campaigns against greenhouse-gas emitting air conditioners and the fuel tax exemption for airlines from the Kyoto Protocol.

During the lame-duck presidency period, U.S. media relied on impact and the unusual (2 articles each), while also covering conflict and currency (1 each). SMOs sponsored research detailing possible global warming effects to New York and on species

preservation. But the U.S. prestige press cast SMOs as combative when SMOs criticized the Clinton administration for inaction on global warming, as well as unusual when SMOs built a sand barrier outside a climate change conference to symbolize the dangers of global warming. U.K. media increased coverage of impact (6 articles) while also delving into conflict, currency and the unusual (1 each). SMO-funded studies claimed global warming threatened a third of the world's habitat as well as British holiday destinations and its bird population, increased the possibility of natural disasters and water shortages in California, and contributed to the cod being placed on the endangered species list.

During the final period, U.S. media coverage turned to SMOs even less than the "silent" business stakeholders, while focusing on conflict (2 articles) and the unusual (1). A coalition of religious groups urged Bush to reconsider his stance on the Kyoto Protocol or risk alienating a faith-based movement to protect the environment, while a international poll found Britons, French, Italians and Germans overwhelmingly opposed Bush's decision. Just prior to September 11, environmental lawyers explored the possibility of suing the U.S. government or corporations to reduce greenhouse gas emissions. U.K. media turned its focus to conflict (6), while also covering impact (2) and prominence (2). SMOs criticized the European Union for failing to prepare legal groundwork for ratification of the protocol, then threatened boycotts of oil companies and other accused architects of the Bush administration's climate change policy.

News values influenced coverage of SMOs, yet the prestige-press in the United States and Britain framed the stakeholders differently by the news values chosen when writing about SMOs. U.S. media tended to frame SMO stakeholders as unusual and

combative, when mentioning them at all. In essence, U.S. media de-legitimized SMOs voices in the Kyoto debate by portraying them as outside the norm. On the other hand, U.K. media relied on SMOs to provide information on the possible impacts of global warming to supplement that of scientific stakeholders. By doing this, the U.K. prestige press depicted SMOs as part of the solution rather than part of the problem.

Summary

Prestige-press reliance on media routines affected stakeholder impacts on the framing of the Kyoto Protocol. In line with previous research, media primarily used governmental positions as the authoritative voices when painting the Kyoto Protocol as a political issue. For the little time that global warming effects became the master frame, scientific stakeholders dominated coverage, only to lose ground when Bush questioned the science behind the protocol and denounced it as "fatally flawed." Media also used business and SMOs stakeholders to a lesser extent, though these voices as well as government suffered in the United States during the aftermath of the Clinton impeachment proceedings.

News values also influenced coverage of stakeholders in both the United States and Britain. Prominent governmental leaders and international conflict proved to be the primary story of the Kyoto Protocol, with scientific stakeholders predicting global warming's impact, and business interests and SMOs presenting their interpretations of the treaty's effectiveness. While declining U.S. media coverage during the lame-duck presidency can most likely be attributed to the Clinton impeachment proceedings, the lack of U.S. effort to implement substantial emission's targets due to the Senate's refusal

to ratify the treaty contributed to a lack of prestige-press coverage during the second time period.

Scientific coverage influenced public policy as it provided issues for political figures to argue in relation to the protocol. The U.K. prestige-press put a face on global warming by reporting on impacts to species other than humans. Prestige-press in both countries primarily used the news values of impact and conflict when framing business stories, noting industries aversion to mandated emissions control and the economical impact to businesses from the protocol. A national tax on British business provided a proximity angle for the U.K. media. U.S. media portrayed SMOs as part of the problem, while U.K. media depicted SMOs as part of the solution.

2. Stakeholder Efforts

An analysis of letters to the editor, commentary and op/eds provides the opportunity to see how stakeholders attempted to affect the frame. Reading each position piece helped construct a timeline of stakeholder and media comment on the issue. When considering stakeholder texts attempting to garner media (e.g. letters to the editor, opinion pieces, etc.), the author of the piece determined the category placement. Individual letters not fitting one of the categories were discarded. These timelines can be found in Appendices Q-Z, separated according to stakeholder positions of government, science, business, SMOs, and media. Stakeholder attempts to manipulate the frame are discussed separately from media coverage as editorials, analyses and letters to the editor are supplemental to actual media coverage, appearing in sections labeled as Op/Ed,

Commentary, Viewpoints, etc. The average reader should understand that these positions do not represent a balanced point of view. The times periods follow:

1. Kyoto conference – the period from January 1997 until Dec. 14, 1998.
2. Lame-duck presidency – the period from Dec.el5, 1998 to Jan. 20, 2001.
3. Bush presidency – the period from Jan. 20 – Sept. 11, 2001.

The first two time periods are roughly equal to two years, while the final time period represents a little more than seven months. Table 5-17 shows the differences in use of stakeholder position pieces by time period in each country. The letters A, B, and C in the table represent the position pieces of commentary and op/ed, letters to the editor, and news releases, i.e. A=commentary & Op/Ed, B=letters, C=release.

Table 5-17. Position Piece by Stakeholder Source by Time and Country

	Government				Science				Business				SMOs				Totals			
US	A	B	C		A	B	C		A	B	C		A	B	C		A	B	C	
T1	6	5	5		8	10	8		3	4	57		0	7	6		17	26	76	
T2	1	3	1		2	3	1		1	0	10		0	3	12		4	9	24	
T3	1	1	1		1	3	1		5	2	1		0	1	2		7	7	5	
Total	8	9	7	(24)	11	16	10	(37)	9	6	68	(85)	0	11	20	(31)	28	42	105	
UK																				
T1	5	3	*		2	6	*		1	3	*		1	7	*		9	19	*	
T2	2	4	*		0	13	*		5	7	*		1	7	*		8	31	*	
T3	4	4	*		3	7	*		4	7	*		3	4	*		14	22	*	
Total	11	11	*	(22)	5	26	*	(31)	10	17	*	(27)	5	18	*	(23)	31	72	*	

* News releases gathered from PR Newswire only appeared in the United States

Table 5-17 provides interesting trends in stakeholder attempts to frame the Kyoto Protocol issue. Totaling the rows provides the cumulative number of position pieces in a time period. Totaling the columns provides the number of each position piece per stakeholder. Total position pieces per stakeholder are noted in parentheses. U.S. stakeholders provided 119 position periods during the Kyoto conference, 37 during the lame-duck presidency, and 19 during the Bush presidency. U.K. stakeholders provided 38 position pieces during the Kyoto conference, 39 during the lame-duck presidency, and 36 during the Bush presidency. This parallels the pattern of prestige-press coverage in each country. A closer look at stakeholder position papers reveals how they attempted to frame the Kyoto Protocol.

Government

Government position pieces are summarized for both the United States (Appendix Q) and Britain (Appendix R). Table 5-17 indicates U.S. government stakeholders decreased their use of position pieces through the three periods. Stakeholder texts centered on the Clinton administration's position that an international treaty was needed; the Senate's position that the treaty would not be ratified due to the exclusion of developing countries and possible additional harm to the U.S. economy; and international governmental contentions that developed countries are destroying the environment, and must therefore take the lead in controlling emissions, as well as indignation over U.S. proposals and isolationist positions. Sen. Chuck Hagel used three letters and two commentaries to gain prestige-press coverage for his position that the protocol should not be signed if it would harm the US economy and if developing countries aren't held to the

same restrictions as industrialized countries. Hagel was also the first person to call the protocol "fatally flawed." Bush's subsequent use of the same language indicates Hagel found success using position pieces. News releases provided by U.S. government stakeholders did not produce any U.S. prestige-press coverage.

Table 5-17 indicates U.K. government stakeholders decreased use of position pieces from the first to second time periods, but increased usage in the shortened third time period. Stakeholder perspectives centered on the need for the international community to act on global warming for the sake of current and future generations, and the promise that the Kyoto Protocol offered as an initial step in the fight. Stakeholders also used the forum to continue pushing for the protocol's ratification despite the United States' refusal to participate. Their success is evident in the ratification of the protocol.

Science

Scientific position pieces are summarized for both the United States (Appendix S) and Britain (Appendix T). Table 5-17 indicates scientific position papers decreased in the U.S. over the three periods, but increased in Britain. They used both the U.S. and U.K. prestige press to contest climate change and the Kyoto Protocol. In the United States, one side claimed that the U.S. economy would be hobbled by energy taxes, a lack of scientific consensus existed on global warming, any global emissions treaty must include all nations, global warming might actually be good for the planet, and studies should focus on how humans could adapt to climate change. Others claimed global warming represents threats to human health, recommended immediate action, predicted that energy savings and the creation of new jobs would offset the costs incurred by

acting, and claimed a lack of U.S. commitment on the subject would tarnish the U.S. position as world leader. The sides also traded accusations that energy companies threatened the protocol, and media reports of warmer temperatures were designed to convince people of global warming. As previously noted, science is contentious by nature as scientists search for anomalies. This conflict provided Bush the opportunity to say the science on global climate change was uncertain, thereby affecting public policy.

Table 5-17 indicates scientists increased use of position pieces in Britain from the first to second time periods, and almost matched second-period coverage in the shortened third time period. Stakeholder perspectives on international issues claimed weather occurrences are symptomatic of rapid climate change, suggested the Kyoto Protocol represents a good starting point in stopping global warming, and chastised Bush's views as out-of-date. On a national level, pro-Kyoto sympathizers claimed an emissions trading system could achieve environmental goals without damaging competitiveness, criticized suggestions that nuclear power replace fossil fuels. They also claimed allowing economic growth to take precedence over environmental issues is a high-risk strategy in the long term, and Britain would stunt the growth of clean-energy industries of the future without the proposed climate-change levy. On the other side, stakeholders countered that global warming is a "necessary" myth for Europeans and a socio-political idea that legitimizes a "green" agenda, noted the world's climate has always changed, claimed the protocol would harm human living standards, charged that emissions cuts' actual effects on global warming are a myth, and suggested the world should invest in flexible development and a greater diversity of energy sources.

Global warming skeptics presented views at odds with the general consensus on global warming, adding an unusual element to the issue's coverage. Dr. Fred Singer, the president of the Science and Environmental Policy Project, used eight news releases and five letters in the United State in an attempt to affect the U.S. frame on global warming. Yet all eight news releases appeared in the first time period, along with three letters. The flurry of releases caused gained Singer notoriety as a global warming skeptic, and media used him as a source in articles by the *Los Angeles Times* (1997), *The New York Times* (1997, 2000), *Washington Post* (1998, 2000, 2001), and *USA Today* 2001). A protest initiated by Singer in 2001 garnered coverage in Britain's *Financial Times, The Independent, The Times,* and the *Guardian*. When Bush debated whether global warming was real, Singer did not waste time with news releases, but entered the prestige-press by writing letters to the editor. Philip Stott, a biogeography professor at the University of London and editor of the "Journal of Biogeography," did not have the luxury of news releases, but still managed to affect the frame with seven letters and two commentaries in the U.K. prestige-press, and one letter in the U.S. prestige-press. Stott also appeared as a source in articles appearing in *The Daily Telegraph* and *The Times* in 2001.

Business

Business position pieces are summarized for both the United States (Appendix U) and Britain (Appendix V). Table 5-17 indicates business position papers in the United States declined from the first to second periods, but increased in the third. Business stakeholders increased their chances of media coverage, as their use of news releases decreased and their use of commentary and letters increased. Though business produced

53 news releases in the first period, prestige-press news coverage indicates their primary success came when business stakeholders commented on the protocol after the Kyoto conference, and when the Pew Center on Global Climate Change enlisted businesses formerly against the protocol to join the Business Environmental Leadership Council, accept the protocol, and begin adopting reasonable policies, programs and transition strategies. News releases dropped during the second period, then letters and commentary overtook news releases in the final period. This coincides with a drop in business coverage in the Bush presidency. Yet business leaders successfully persuaded Bush to capitulate to industry concerns and reject the protocol.

Business leaders against the protocol used the U.S. prestige-press to promote their views that a global warming treaty based on inconclusive scientific evidence would cause economic decline. After the Kyoto conference, they claimed the protocol would not work, and suggested global warming would actually boost the U.S. economy. Yet others claimed smart businesses should embrace the protocol to keep Japan and the European Union from gaining a competitive advantage over American automakers. Once Bush abandoned the treaty, U.S. business leaders called for investments into research and development. Yet the Pew Center on Global Climate Change noted that rejecting the protocol harmed prospects of developing nations joining in the fight against global warming, and others claimed that serious strategies to combat climate change must work within the Kyoto system, though it required clarification for long-term investment decisions necessary for implementation.

Table 5-17 indicates business position papers in the U.K. prestige press increased from the first to the second period, and nearly matched second-period coverage in the

third period. Business stakeholders called for an international emissions trading system, while also calling for exemptions for some businesses after claiming the proposed climate-change levy would harm U.K. industry and raise energy prices. Some U.K. businessmen praised Bush's decision, railed against the British climate-change levy, and claimed nuclear power and clean-coal power stations offered the best solutions to help meet protocol commitments. Yet others suggested that developing countries sue the United States for global warming effects. Overall, U.K. industry successfully watered down the climate-change levy after continual haggling with the government in the U.K. prestige press.

Social Movement Organizations

SMO position pieces are summarized for both the United States (Appendix W) and Britain (Appendix X). Table 5-17 indicates SMO position papers in the United States increased from the first to second periods overall. Interestingly, the increase did not correspond to an increase in prestige-press coverage. This could be due to SMOs turning to news releases over letters when attempting to get into the prestige press. U.S. media treatment of SMOs as part of the problem is even evident in the opportunities given for expression, as U.S. prestige-press did not use SMOs for Op/Eds or commentary. In the letters that did get into the prestige press, SMOs claimed global warming would produce drastic effects including flooding, catastrophic weather events, and threats to national environmental treasures. They also claimed emissions trading would not help global warming, but attention should focus on policies and products to stop or slow the warming trend, as would be possible under the Kyoto Protocol's flexible,

market-based framework. SMOs also attacked Singer's credibility on global warming, noting he had not published any peer-reviewed scientific research, and that he had served as a consultant to businesses in the Global Climate Coalition. Union of Concerned Scientists' executive director Howard Ris was quoted verbatim from an Environmental Media Services news release in a *New York Times* article in response to Clinton's climate change speech in 1997, which may explain SMOs increased reliance on news releases during the second time period.

Table 5-17 indicates SMO position papers in U.K. prestige-press newspapers remained steady during the first two periods, then increased during the Bush presidency as U.K. media turned to SMOs as often as science stakeholders for commentary purposes. SMOs urged British governments to translate targets into policy, and criticized the United States for not doing so. They claimed the European Union had responsibility to ensure the U.S. fossil-fuel lobby did not derail the Kyoto negotiation, while calling for tougher targets. After the protocol's creation, SMOs claimed emissions-reduction can be good for business and human health, demanded Britain stand firm in implementing a climate-change levy, and insisted industrialized nations owed the world for increased extreme weather damage caused by global warming, while noting developing countries may have a liability case against developed nations. SMOs encouraged Blair to build international consensus on the protocol, insisted it could succeed without U.S. involvement, and alleged Bush distorted science and reneged on commitments made by his father, while claiming skeptics work with a bad economic model that overestimates costs of action and underestimates costs of inaction. SMOs helped affect public policy by insisting on the passage of the protocol when it seemed that U.S. policy would destroy it.

Summary

While media reliance on routines and news values emphasize some views to the exclusion of others, stakeholders can directly present their side of the issue with minimal editing via letters to the editor and commentary pieces, which produced more "bang for the buck" than news releases. U.S. business and science stakeholders turned away from news releases, while SMOs in the United States embraced them and missed on an opportunity to affect the issue's frame in the prestige-press. Stakeholders successfully altered public policy by actively seeking inclusion in media coverage of the Kyoto Protocol debate. A U.S. Senator used media to introduce the pronounce the protocol "fatally flawed." Global warming skeptics helped provide the appearance of uncertainty among science stakeholders, which Bush used when mimicking Hagel's terminology and capitulating to industry concerns. U.K. government stakeholders convinced the European Union and other nations to implement the protocol without U.S. assistance. On a national level, U.K. businesses successfully watered down the climate-change levy after voicing their displeasure with the energy tax. While SMOs in the United States received scant opportunity to affect the issue's frame, U.K. prestige-press presented SMOs as a credible voice in the climate-change talks.

3. Media Comment

Necessity provides the primary news value for editorials, as media attempt to summarize an issue, offer an assessment, and suggest alternatives to stakeholders. In doing this, they frame the issue's importance while attempting to act as a "disinterested

Table 5-18. Editorials by Intended Audience by Time and Country

US	Government	Science	Business	SMOs	Media	Total
T1	19	0	0	2	1	22
T2	7	0	0	0	0	7
T3	5	0	0	0	0	5
Total Editorials	31	0	0	2	1	36
UK						
T1	14	0	3	0	1	18
T2	16	0	0	0	2	18
T3	20	0	1	0	0	21
Total Editorials	50	0	4	0	3	57

observer" in the proceedings. Media comment is summarized for both the United States (Appendix Y) and Britain (Appendix Z). Reading each commentary helped determine which stakeholder it addressed. Table 5-18 provides the breakdown of the editorials by intended audience for each country. Time is broken into the three periods previously discussed, i.e. the Kyoto Conference, the lame-duck presidency, and the Bush presidency. Totaling the rows provides the cumulative number of editorials in a time period. Totaling the columns provides the number of editorials addressed to each stakeholder.

Table 5-18 indicates media primarily addressed the government, while occasionally addressing other stakeholders, including media. During the period surrounding the Kyoto conference (T1), the U.S. prestige press engaged the government over the issue, while taking time to also give time to SMOs and media. Yet U.S. editorials dropped by more than half during the lame-duck presidency, while experiencing a slight upswing in the Bush presidency. U.K. prestige-press produced

identical numbers of editorials on the issue during the first and second periods, then produced an explosion of editorials during the shortened third period. While U.K. media commented less than their U.S. counterparts during the first period, they doubled U.S. comment in the second period and more than quadrupled the comment in the third period.

U.S. prestige press editorials primarily focused on the unusual impacts caused by global climate change and the future implications, Clinton's problem with convincing Congress to ratify the international treaty, the conflict between U.S. and E.U. policies, and Bush's decision to withdraw from the protocol and its implications. One editorial chastised Texas media for not blaming global warming as well as El Nino for a deadly heat wave. SMOs also received media attention, as one claimed environmentalists were right to campaign at the Kyoto talks, while another claimed activists are inflexible and intolerant, enforcing the frame of SMOs as unusual and combative. U.S. prestige press did not seem to have a noticeable impact on public policy, as they offered more of an assessment of events and criticisms of positions.

U.K. prestige press editorials chastised the United States for its inaction on global climate change and prodded the U.S. government to stand firm at the Kyoto conference to commit to an international treaty. While praising the creation of the Kyoto Protocol, editorials also addressed problems with the proposed emissions-trading plan and political constraints. During the first period, U.K. media chastised media inaccuracies, and challenged businesses to counterbalance governmental impotence on the environment, while noting that the protocol made emissions-reduction legally binding. On a national level, editorials chastised radio announcers for claiming links between weather occurrences and global warming, and claimed the climate change levy represents a stupid

tax. After severe weather hit Britain in 2000, editorials pushed for ratification of the protocol, though some claimed global warming represented a flood myth for the current generation. The failure of talks at The Hague prompted criticism of American policy, and ignited calls for the rebuilding of international consensus on the issue. U.K. editorials called Bush's decision to reject the Kyoto Protocol "a catastrophic error," portrayed him as "bad for the world's environment," claimed Bush turned America into a "pariah," and suggested the world cut off funding that financed the U.S. deficit. After venting anger towards Bush, British media influenced the framing of the issue by encouraging other nations to ratify the treaty without U.S. participation, and called the United States irrelevant when other industrialized nations ratified the treaty. Yet soon thereafter, editorials claimed that future negotiations had to include the United States after noting that implementing the protocol did not lessen the political divide between the European and the United States. Overall, U.K. prestige press had more of an impact than the U.S. prestige press on framing the issue with editorials.

CHAPTER VI.

DISCUSSION AND IMPLICATIONS

This study combined a quantitative computerized content analysis with a qualitative historical analysis to gain a better understanding of the framing process and how it relates to the discussion and formation of public policy. Quantitative analysis detailed the actual wording used in discussion of the issue, while qualitative analysis provided a broader overview of media framing of stakeholder groups. The Kyoto Protocol provided a contentious international issue with multiple stakeholders attempting to affect the framing of the issue, which allowed comparisons between the American and British prestige-press.

Discussion of Findings

1. Frames and Master Frames

In this study, computerized content analysis revealed two supporting master frames, responsibility and benefits, that dominated stakeholder discussion of the Kyoto Protocol and global change in the time period under consideration. The responsibility master frame primarily consists of the individual frames named "disaster relief" and "industrial nations," while the benefits master frame primarily consists of the individual frames named "economy" and "new technology." The individual frame named "religion" mixes the responsibility and benefits master frames, which can be understood as the sacred argument for a secular issue. Two opposing master frames, adverse effects and questionable science, emerged from opposing stakeholder texts, but did not significantly

affect discussion within the media. The adverse effects master frame consists of "business" and "consumers," while the questionable science master frame consists of "unfinished science," "weather" and "activist science."

By examining frames in the context of master frames, it is easier to understand why some issues are covered and others dismissed. In the case of global climate change, it is obvious that supporting stakeholders wishing to garner media coverage needed to speak of responsibility or benefits to even be heard. Opposing stakeholders focused on adverse effects and questionable science, though they did not enjoy the coverage given to supporting stakeholder frames. Without taking master frames into account, it would be hard to understand how industrial nations and disaster relief could be considered to have very much in common. Yet when viewed through the lens of responsibility, it is obvious that industrial nations have a responsibility to the world in not only providing relief to other nations dealing with disasters, but in also providing leadership in combating climatic changes that may lead to those disasters.

2. Using VBPro

The analysis reaffirmed the premise that VBPro, VBMap and hierarchical cluster analysis techniques allow the researcher to quantify and visually examine individual frames. Yet this study also exhibits that the process allows researchers to quantify and identify master frames as well. This is a significant finding of the research. As previously mentioned, the process explains through visualization how seemingly disparate issues contain common themes that allow the examination of multiple frames as

part of a larger whole (the master frame). This would be helpful, for example, in studying different groups that came together in protests against the war in Iraq.

Evidence of Snow, Rochford, Worden and Benford's frame bridging can be noticed in the dendogram provided in Appendix E, i.e. the religion frame links the supporting master frames of responsibility and benefits, which are ideologically congruent but structurally unconnected frames. Using dendograms in future analysis can provide a visual representation of this type of occurrence.

3. News Values and Media Routines

In the case of news values affecting media framing of issues, it is obvious that the news value of prominence played an important part in the framing of global climate change, even if not in the predicted manner. This leads to the problem of why significance occurred in the manner it appeared. The first hypothesis was based on the premise that media coverage would follow the presidential position. Had this been true, coverage would have emphasized viewpoints similar to those held by the presidents. Prominence affected media coverage of supporting stakeholder frames, though not in the hypothesized manner – the exact opposite turned out to be the case.

The supporting frame positions actually increased in frequency in American papers from the Clinton presidency to the Bush presidency though it was hypothesized that supporting frames would decrease as Bush took over the presidency. This might be due to the second proposition, where media routines balanced the presidential position. When examining three time periods rather than two, it is obvious that prominence affects issue coverage by the number of articles written per period. The prominence value

dictated coverage of the issue by the media in that 457 articles appeared during time 1 (introduction of Kyoto Protocol), then decreased to 317 articles in time 2 (Lame-duck presidency), then increased to 363 articles in time 3 (Bush presidency) as the news values of impact and conflict coincided with the prominence value to increase the attractiveness of the Kyoto Protocol story.

This seems to give credence to the proposition of balancing coverage in American media between the president's position and other positions. Yet if this were true, then opposing positions would be expected to decrease from the Clinton presidency to the Bush presidency. However, none of the opposing frames showed significant interactions between time and country. This could indicate that stakeholders with the opposing frame believed their position was already under consideration by the new administration, especially since the president and CEO of the American Automobile Manufacturers Association, Andrew H. Card, became President Bush's White House chief of staff.

The British media's decrease in coverage of most of the Kyoto frames might be linked to solidarity within the European Union concerning Kyoto, but it is not necessarily solidarity of a supporting or opposing frame as defined in this study. More likely, the frame amongst members of the European Union had little to do with global warming but pertained more to the unilateralist position that many saw the United States taking with the rejection of the Kyoto Protocol. This leads to the second idea that media routines overrode the initial aspect of coverage due to news values.

As evidenced by those stakeholders not entering the prestige press, gatekeeping came into play. For example, stakeholders attempting to massage the frame to include information about house insulation were effectively excluded from prestige-press

coverage. Though they had a position on the issue, it was not deemed newsworthy enough to affect the master frame.

A historical analysis elaborates on the process. Prestige-press reliance on media routines affected stakeholder impacts on the framing of the Kyoto Protocol. In line with previous research, media primarily used governmental positions as the authoritative voices when setting the master frame for the Kyoto Protocol as an international political conflict. The master frames detected by quantitative analysis describe the arguments used in this conflict. For the little time that global warming effects became the master frame, scientific stakeholders dominated coverage, only to lose ground when Bush questioned the science behind the protocol and denounced it as "fatally flawed." Media also used business and SMOs stakeholders to a lesser extent, though these voices as well as government suffered in the United States during the aftermath of the Clinton impeachment proceedings.

News values caused the prestige press to frame government stakeholders in the Kyoto Protocol as prominent leaders involved in international conflict. Media framed scientific stakeholders providing predictions of global warming's impact to the earth's population. Prestige-press in both countries primarily used the news values of impact and conflict when framing business stories, noting industries aversion to mandated emissions control and the economical impact to businesses from the protocol. A national tax on British business provided a proximity angle for the U.K. media. U.S. media portrayed SMOs as unusual and combative, while U.K. media depicted SMOs as sources for additional information on the impacts caused by global climate change.

While media reliance on routines and news values emphasize some views to the exclusion of others, stakeholders directly presented their side of the issue with minimal editing via letters to the editor and commentary pieces, which produced more "bang for the buck" than news releases. U.S. business and science stakeholders turned away from news releases, while SMOs in the United States embraced them and missed on an opportunity to affect the issue's frame in the prestige-press. Stakeholders successfully altered public policy by actively seeking inclusion in media coverage of the Kyoto Protocol debate. A U.S. Senator used media to introduce the pronounce the protocol "fatally flawed." Global warming skeptics helped provide the appearance of uncertainty among science stakeholders, which Bush used when mimicking Hagel's terminology and capitulating to industry concerns. U.K. government stakeholders convinced the European Union and other nations to implement the protocol without U.S. assistance. On a national level, U.K. businesses successfully watered down the climate-change levy after voicing their displeasure with the energy tax. While SMOs in the United States received scant opportunity to affect the issue's frame, U.K. prestige-press presented SMOs as a credible voice in the climate-change talks.

While media commented on the proceedings, the U.S. prestige press did not have a noticeable impact on public policy, as they offered more of an assessment of events and criticisms of positions. The U.K. prestige press had more of an impact than the U.S. prestige press on framing the issue, when they encouraged other nations to ratify the treaty without U.S. participation, and called the United States irrelevant when other industrialized nations ratified the treaty.

4. Limitations

This study was limited by the focus on prestige press, as many media outlets do not proscribe to the standards set by the prestige press. It's likely that stakeholder texts gathered additional coverage outside of the prestige press, else the stakeholders would not pay for the service of distribution.

A second limitation exists due to a lack of news releases from British organizations. While PR Newswire provided a good example of U.S. stakeholder involvement on the issue, no evidence exists that British media had access to these same articles. Future studies should find British examples of news releases as well.

A third limitation concerns the choice of key words used to gather the texts. As previously noted, guided searches required that the term "Kyoto" OR "Global Warming" OR "Climate Change" had to be in the headline or lead paragraph. When considering the international political angle of the issue, it is likely that many articles headlines and lead paragraphs focused on elements other than these. Future studies concerning this issue might also use key words including "Protocol" and "Treaty" to gather additional texts.

A final limitation may have been the issue of the Kyoto Protocol itself. Science and business stakeholders disagreed amongst themselves, while U.S. media trivialized (if not de-legitimized) SMOs by portraying them as radical troublemakers. Differences in overall prestige-press coverage in the countries, if by nothing more than the amount of coverage, may explain why Joe American never became too concerned about what happened with the Kyoto Protocol, where differences between positions are not as noticeable as absolute differences on abortion or gun control.

Implication of Findings

1. Theoretical

This study began as an opportunity to synthesize framing literature in communications and sociology in the hopes of providing the reader with a better understanding of the framing process, and ultimately the communication process. Communication theory provides sociologists a look into how news values and media routines affect the framing of issues. Sociology provides communication theorists an explanation of how and why stakeholders attempt to frame issues to garner media coverage, as well as the idea and opportunity to examine master frames as well as frames. As previously noted, master frames interpret events and experiences for the general public (Snow *et. al.*, 1986, p. 246), in essence determining what elements of an issue are discussed or dismissed.

Examining both U.S. and U.K. press fulfills the call for a cross-cultural comparison of an international environmental issue (Brossard, Shanahan & McComas, p. B2-18). By examining stakeholder success in balancing the master frame, this study tests a derivative of the Spiral of Opportunity theory, thus fulfilling a call for such research by Miller & Riechert (2001). In this study, the European Union took the opportunity to fill the void left by the United States for world leadership on the environmental concern of global climate change.

2. Methodological

As well as benefiting communication theorists in broadening the search for frames, the study benefits sociologists by showing how frames and master frames can be identified through the VBPro content analysis program. The study fulfilled a need in the SMO literature by examining competitive relationships among social movement organizations, governmental agencies, non-movement organizations and the media in an empirical analysis. The study shows that master frames are not just something to discuss; they can be quantified and found through examination of media and stakeholder texts. Using VBPro, VBMap and hierarchical cluster analysis techniques allow the master frames to show up in dendograms for evidence that anyone can see. The techniques also illuminate individual frames, which can be tracked to note the success or failure in garnering media coverage. The analysis of media and stakeholder texts illuminates interactions between stakeholders and non-elites, alleviating Benford's (1997) concern (p. 421). This study should also alleviate McAdam, McCarthy and Zald's (1996b) concern that "studying political systems and various kinds of organization is inherently easier than trying to observe the social construction and dissemination of new ideas" (p. 6).

3. Practical

Journalists and stakeholders in government, science, business and social movement organizations will benefit from the explanation of how news values and media routines lead to the acceptance or rejection of issue frames, as well as the legitimization

of regular sources and the possible de-legitimization of those outside of the media routine. Previous analyses have not indicated how news values and media routines contribute to the resulting master frame. Yet it has been shown that both can affect the framing of an issue. By exposing the predetermined framing of issues, hopefully this study will help journalists acknowledge the inadequacies of the current modus operandi and spur them to seek new ways to present a balanced news product. As for stakeholders, knowledge is power. By knowing what journalists are looking for, stakeholders can improve their messages to insure successful transmission to the audiences they want to reach. If they cannot garner press through press releases or staged events, stakeholders can always write letters to the editor – the easiest way to get in the paper. This allows the stakeholder to choose how the issue (and even the stakeholder) will be framed in print rather than allowing the media to set the frame.

As shown in this study, framing affects public policy debate and formulation. In the case of the Kyoto Protocol, stakeholders intentionally influenced the issue's frame through wording choice while media intentionally or unintentionally framed the issue through their use of media routines and news values. Knowledge of both types of framing can be useful when preparing to campaign for changes. As the Kyoto Protocol becomes an active issue again near the end of 2003, with Russia and China leading developing nations away from protocol ratification, future studies could use this study in a comparison of frames used in the differing time periods.

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Appendices

Appendix A. Cleaning the Texts

Before analysis, texts are cleaned for the VBPro formatter. A word processor's "find and replace" function makes this easy.

1. Punctuation

Initially, remove or replace square brackets [ ] with parentheses ( ) as the program disregards any information within brackets. The program uses the pound sign # to indicate case identification numbers (e.g. #007). The program also requires that spaced ellipses ". . . " be converted to the solid style "..." so that extra sentences are not counted.

Additional punctuation changes clean the text for the alphabetizer function. First, add an additional space after the open parenthetical (and before the close parenthetical). Then add an additional space before and after a dash. Finally change all hyphens – to an underscore_.

When examining British and American texts, spelling differences between British English and American English should be removed for the VBPro text analyzer, e.g. –our (e.g. honor, honour), -ll (e.g. traveler, traveler), among others.

One other change made "per cent" and the sign % into the word percent on all texts.

2. Linking Words

Understanding the select function's output is made easier by linking words that commonly occur together, e.g. when examining the select function's output from select, words like "South" appear without an immediately apparent reason. Realizing it indicates a region and then linking terms using the word as a direction allows the researcher to directly examine relevant terminology used by each side.

What terms should be linked? Link words meaningful to the issue at hand (e.g. United States becomes United_States). A literature review provides ideas for some terminology. By reading press releases, letters to the editor and opinion columns, it is easy to determine the "pro" and "anti" sides, thus comprehending the issue while jotting down reoccurring words for a cleaning list. Some words were chosen from simply thinking of possible derivatives, then checking those against the text.

Once the text changes, subsequent compound words must use the previously linked words before adding the rest of the replacement. (Using the previous example, subsequent references must use United_States rather than attempting to link the words United and States together again, e.g. United_States Congress becomes United_States_Congress). Also, U.S. becomes US to make the British and American newspaper style the same.

In cases where individuals have titles, link the title to the person's full name *and* last name in order to gather all references to the individual. For example, George W. Bush appears in text as "George W Bush", "President George W. Bush," and "President Bush."

Occasionally the text has an extra space between the words (notice the space around "extra" in this sentence) due to line breaks. This can cause the "find and replace" function to miss a term. To fix this problem, search for the two words with one space between them and link the words. Then run a second search with two spaces between the two words, and link those in the same fashion.

The following lists originate from stakeholder texts.

Places

Northern Hemisphere
Southern Hemisphere
Eastern Seaboard
East Coast
Gulf Coast
West Coast
New England
North Atlantic
Pacific Northwest
Upper Midwest
North America
South America
Central America
Latin America
United States
United Kingdom
Middle East
Saudi Arabia
West Germany
East Germany
Eastern Germany
Eastern bloc
Eastern Europe
Western Europe
European Union
Soviet Union
New Guinea
New Zealand
Nova Scotia
Northern Africa
North Africa
South Africa
Sub-Saharan Africa
Southeast Asia
North Korea
South Korea
New Jersey
New York
New Hampshire
New Mexico
North Carolina
North Dakota
Rhode Island
South Carolina
South Dakota
West Virginia
Northern California
Southern California
New York City
New Orleans
Los Angeles
San Francisco
Washington, D. C.
Kyoto, Japan
Bonn, Germany
Sao Paulo, Brazil
Mexico City
Rio de Janeiro
Buenos Aires
The Hague
The Hague, Netherlands
Costa Rica
National Park
Glacier National Park
Blue Ridge Mountains
British Isles
Chesapeake Bay
East Anglia
English Channel
Great Barrier Reef
Gulf of Mexico
Irish Republic
North Pole
Solomon Islands
West Nile
Baltic Sea
Black Sea
North Sea
Indian Ocean
Atlantic Ocean
Pacific Ocean
Southern Ocean
National Wildlife Arctic Refuge

Elements of Issue

developed country
developed countries
developed nation
developed world
developing country
developing countries
developing nation
developing world
industrial country
industrial countries
industrial nation
industrial world
industrialized country
industrialized countries
industrialized nation
industrialized world
Third World
CO 2 (became CO2)
CO2 emission
CO2 trading
carbon dioxide
carbon dioxide emission
emission control
emissions control

emissions reduction
emission reduction
emission target
emissions target
greenhouse gas
greenhouse emission
greenhouse gas emission
greenhouse effect
greenhouse theory
greenhouse warming
global warming
global cooling
global climate
Global Climate change
climate change
fossil fuel
fossil fuel emission
nitrous oxide
clean development
clean development mechanism
emission credit
emissions credit
emissions credit plan
emission credit plan
emission trading
emissions trading
emissions trading mechanism
emission trading mechanism
carbon sequestration
carbon sink
metric ton
ice age
Little Ice_Age
sea level
surface temperature
water supply
water vapor
ice cap
polar region
glacial melting
thermal expansion
heat island
heat island effect
urban heat island effect
forest fire
heat wave
climate model
computer model
power plant
nuclear power
nuclear plant
nuclear energy
solar energy
solar power
solar cell
wind power
wind turbine
gas turbine
natural gas
fuel cell
hydrogen fuel cell
coal power
coal mine
coal mining
carbon tax
energy tax
climate tax
climate levy
Climate Change levy
research and development
energy efficiency
energy efficient
renewable energy
renewable energy resource
insufficient evidence
fatal flaw
fatally flawed
junk science
weak science
questionable science
scientific consensus
airline traffic
air travel
ice particles
cosmhole theory
sport utility vehicle
sports utility vehicle
motor fuel
job loss
higher price
American consumer
American job
national security
Clean Air Act
air pollution
sulfur dioxide
coral reefs
Gulf Stream
weather balloon
weather satellite
Hurricane Georges
Hurricane Mitch
El Nino
La Nina
Corporate Average Fuel Economy
Lisbon Declaration
Leipzig Declaration
Heidelberg Appeal
Oregon Petition
North Atlantic Oscillation
Renewable Obligation Certificate
The Energy and Climate Policy Act of 1999
The Climate Change Energy Policy Response Act

Conference Titles

Climate Change Initiative
Climate Change Report
Climate Change Summit
Climate Change Treaty
Global Climate Treaty
Global Climate Initiative
Global _Climate policy
Climate policy
Climate Conference
Climate Protocol
Climate Treaty
Conference on Climate Change
Global Warming Accord
Global Warming Treaty
Global Warming conference
international Global Warming conference
Kyoto Global Warming agreement
Kyoto Treaty
Kyoto Treaty for Climate Change
Kyoto Treaty on Climate Change
Kyoto Treaty on Global Climate Change
Kyoto Accord (accord)
Kyoto Climate Change Protocol
Kyoto Climate Change Convention
Kyoto Climate Change Treaty
Kyoto Climate Conference
Kyoto Climate Summit
Kyoto Conference
Kyoto Compromise
Kyoto deal
Kyoto Pact
Kyoto Protocol
Kyoto Protocol on Global Climate Change
Kyoto Protocol on Climate Change

Kyoto Protocol on Global Warming
Panel on Climate Change
Intergovernmental Panel on Climate Change
International Panel on Climate Change
United Nations Intergovernmental Panel on Climate Change
United Nations Conference on Climate Change
United Nations Climate Treaty
U.N. Global Climate Treaty
U.N. Climate Treaty
Convention on Climate Change
Framework Convention on Climate Change
U.N. Framework Convention on Climate Change
United Nations Framework Convention on Climate Change
Summit on Global Climate Change
Bonn compromise
Buenos Aires Climate Conference
Conference of Parties
Conference of the Parties
Conference of the Parties to the Climate Change Convention
Earth Summit
environmental summit
Global Climate Change Roundtable
Rio Treaty
Rio Earth Summit
UN Climate Conference

Research

American Association for the Advancement of Science
Center for Health and the Global Environment
Centers for Disease Control
Center for Disease Control and Prevention
Climate Research Institute
Climate Research Unit
Climatic Research Unit
Danish Society of Environmental and Energy Journalists
Economic and Social Research Council
Environmental Change Research Center
Environmental Change Institute
Environmental Change Unit
German Society of Environmental Geologists
Goddard Institute for Space Studies
Goddard Institute of Space Studies
Goddard Space Flight Center
Hadley Center
Hadley Center for Climate Change Prediction and Research
Hadley Center for Climate Change
Hadley Center for Climate Prediction
Hadley Center for Climate Prediction and Research
Joint Program on the Science and Policy of Global Change
Marshall Space Flight Center
National Academy of Science
National Academy of Sciences
National Research Council
Natural Environment Research Council
Public Agenda
Soil Conservation Research
Monterey Bay Research Institute
National Oceanic and Atmospheric Administration
National Oceanographic and Atmospheric Administration
National Institute of Water and Atmospheric Research
Ocean and Atmosphere Administration
National Climatic Data Center
National Climate Data Center
World Climate Research Programme
UN Environment Programme
United Nations Environment Programme
Climate Impacts Programme
Climate Prediction Center
Climate Research Unit
Climatic Research Unit
Tyndall Center for Climate Change
Tyndall Center for Climate Change Research
National Weather Service
Weather Satellite Service
National Weather Satellite Service
Desert Research Institute
Byrd Polar Research Center
World Glacier Monitoring Service
World Meteorological Organization
World Meteorological Office
US Global Climate Change Research Programme
US Global Change Research Program

Titles

Chief Executive Officer
Executive Director
Senior Fellow
Senior Associate
senior scientist
Vice President
Secretary of the Interior
Secretary of Energy
Prime Minister
Deputy Prime Minister
Secretary of State
Undersecretary of State
House Democratic Leader
Secretary General
National Security Adviser
press secretary

Commerce Secretary
Environment Secretary
Treasury Secretary
Interior Secretary
Defense Secretary

U.S. Government

Administration official
Capitol Hill
federal government
White House
White House official
Department of Energy
State Department
Energy Department
House of Representatives
United States Congress
United States Senate
US Ambassador
US Congress
Congress of the United States
US House of Representatives
US Senate
US delegate
US delegates
US delegation
US diplomat
US diplomats
US government
US legislators
US negotiator
US negotiators
US official
US officials

U.S. Administrations

Clinton Administration
Clinton Administration officials
Clinton White House
US President Bill Clinton
President Bill Clinton
President Clinton
Bill Clinton
Vice President Al Gore
Vice President Gore
Al Gore
Clinton Gore administration
Secretary of State Madeleine K Albright
Secretary of State Madeleine Albright
Secretary of State Albright
Press Secretary Michael D McCurry
Press Secretary Mike McCurry
Treasury Secretary Robert E Rubin
Treasury Secretary Robert Rubin
Interior Secretary Bruce Babbitt
Interior Secretary Babbitt

Energy Secretary
Senate Majority Leader
Environment Commissioner
Environment Minister
Public opinion

US president
US representative
US representative
Army Corps of Engineers
Building America
Building America Program
Central Intelligence Agency
Chamber of Commerce
Climate Challenge Program
Economic, Business and Agricultural Affairs
Energy and Natural Resources Committee
Energy Information Administration
Defense Department
Environmental Protection Agency
Environment and Public Works Committee
Federal Energy Management Program
Federal Energy Productivity Task Force
Global Environmental Agency
National Highway Traffic Safety Administration
Oceans and International Environmental and Scientific Affairs
Office of Global Climate Change
President's Council
President's Council on Environmental Quality
Council on Environmental Quality
President's Council on Science Technology
President's Council on Sustainable Development
Global Change Research Program
Steam Partnership Program
White House Climate Change Task Force

Bruce Babbitt
Energy Secretary Federico Pena
Federico Pena
J. Brian Atwood
Brian Atwood
Roger Ballentine
Ian Bowles
Carol M. Browner
Carol Browner
Stuart E. Eizenstat
Stuart Eizenstat
Mark Hambley
Melinda L. Kimble
Melinda Kimble
Frank E. Loy
Frank Loy
Katherine McGinty
Kathleen A. McGinty
Kathleen McGinty
Katie McGinty
David B. Sandalow
David Sandalow

Todd Stern
Lawrence H. Summers
Lawrence Summers
Gene Sperling
Timothy E. Wirth
Timothy Wirth
Tim Wirth
Janet L. Yellen
Janet Yellen
Bush Administration
Bush Administration officials
Bush White House
US President George W Bush
President George W Bush
President George Bush
President Bush
George W Bush
George Bush
Toxic Texan
Vice President Richard Cheney
Vice President Dick Cheney
Vice President Cheney
Richard Cheney
Dick Cheney
Secretary of State Colin L Powell
Secretary of State Colin Powell
Secretary of State Powell
Colin L Powell
Colin Powell
Gen Colin L Powell
Gen Powell
National Security Adviser Condoleezza Rice
Condoleezza Rice
Commerce Secretary Don Evans
Don Evans
Treasury Secretary Paul H O'Neill
Treasury Secretary Paul O'Neill
Paul O'Neill
Interior Secretary Gale A Norton
Interior Secretary Gale Norton
Defense Secretary Donald Rumsfeld
Energy Secretary Spencer Abraham
Energy Secretary Abraham
Press Secretary Ari Fleischer
Ari Fleischer
Richard Armitage
Andrew H Card Jr
Andrew Card
Andy Card
Paula J Dobriansky
Paula Dobriansky
Dobriansky
Marc Grossman
Scott McClellan
Christine Todd Whitman
Christine Whitman
Christie Whitman

U.K. Government

Department of Trade and Industry
Departments of Environment, Transport and Regions
House of Commons
House of Lords
Meteorological Office
Met Office
Office for National Statistics
Prime Minister's Policy Unit
Royal Commission
Royal Commission on Environmental Pollution

U.K. Administration

Prime Minister Tony Blair
Tony Blair
Margaret Thatcher
Maggie Thatcher
Deputy Prime Minister John Prescott
John Prescott
Environment Minister Michael Meacher
Michael Meacher
Chancellor Gordon Brown
Gordon Brown
Margaret Beckett
Stephen Byers
Robin Cook
John Gummer
Elliot Morley
Elliott Morley
Archie Norman
Lord Whitty

International Government

European Commission
European Parliament
Umbrella Group
United Nations
World Bank
World Trade Organization
Global Environment Facility
UN Environment Programme

International Government Administrations

European Commission
President Romano Prodi
Romano Prodi
Environment Commissioner Margot Wallstrom
Margot Wallstrom
(different spellings of same name)
Environment Commissioner Margot Wallstroem
Ritt Bjerregaard
Peter Jorgensen

United Nations
Secretary General Kofi Annan
Kofi Annan
Michael Zammit Cutajar
Zammit Cutajar

United Nations Environment Program
Klaus Topfer, former German Environment Minister
Pekka Haavisto, former Finnish Environment Ministe

European Union Governmental Administrations

France
President Jacques Chirac
President Chirac
Prime Minister Lionel Jospin
Lionel Jospin
Environment Minister Dominique Voynet
Dominique Voynet

Germany
(different spellings of same name)
Chancellor Gerhard Schroeder
Gerhard Schroeder
Chancellor Gerhard Schroder
Gerhard Schroder
Chancellor Helmut Kohl
Prime Minister Helmut Kohl
Helmut Kohl
Environment Minister Jurgen Trittin
Jurgen Trittin
Environment Minister Juergen Trittin
Juergen Trittin
Environment Minister Angela Merkel
Angela Merkel

Italy
Prime Minister Silvio Berlusconi
Silvio Berlusconi
Valareo Calzolaio

Spain
Prime Minister Jose Maria Aznar
Prime Minister Aznar
Jose Maria Aznar
President Jose Aznar

Ireland
Noel Dempsey

Sweden
Prime Minister Goeran Persson
Prime Minister Goran Persson
Goran Persson
Environment Minister Kjell Larsson
Environment Minister Margot Wallstrom
Lena Hjelm-Wallen

Netherlands
Environment Minister Jan Pronk
Jan Pronk

Denmark
Svend Auken

Other World Governmental Administrations

Argentina
Carlos Menem
Menem
Maria Julia Alsogaray
Alsogaray

Canada
Jean Chretien
Herb Gray
David Anderson
Anderson

Russia
Vladimir V. Putin
Vladimir Putin
Boris Yeltsin

Australia
John Howard
Tim Fisher
Robert Hill

Japan
Junichiro Koizumi
Ryutaro Hashimoto
Yoshiro Mori
Yoriko Kawaguchi
Hiroshi Oki

Norway
Siri Bjerke

New Zealand
Jenny Shipley

India
Inder Kumar Gujral

Nauru
Ludwig Keke

Tuvalu
Bikenibeu Paeniu

Maldives
Abdullahi Majeed

Opposing Stakeholders

Acton Institute
AFL -CIO Executive Council
Alexis de Tocqueville Institution
Aluminum Federation
American Automobile Manufacturers Association
American Corn Growers Association
American Council for Capital Formation
American Council on Science and Health
American Farm Bureau Federation
American Electric Power
American Enterprise Institute
American Geophysical Union
American Highway Users Alliance
American Institute for Aeronautics and Astronautics
American Legislative Exchange Council
American Life League
American Petroleum Institute
Associated Petroleum Industries
Association of Electricity Producers
Atlantic Richfield Company
Atlantic Richfield
Atlas Economic Research Foundation
auto industry
automobile industry
Big Oil
British Association of Colliery Management
Brookings Institution
Brunner Mond Group
Business Council of Alabama
Business and Industry Advisory Committee
Business Roundtable
car industry
Carlyle Group
Cato Institute
Center for Privatization
Center for Security Policy
Champion International
Chemical Manufacturers' Association
Chrysler Corporation
Climate Council
Committee for a Constructive Tomorrow
Committee to Preserve American Security and Sovereignty
Community Forum on Global Climate Change
Competitive Enterprise Institute
Confederation of British Industry
Conference on the Atmospheric Effects of Aviation
Consumer Alert
Consumers Energy
Cooler Heads Coalition
Council on Foreign Relations
DaimlerChrysler
Detroit Edison
Eastman Chemical Company
EarthWise Development Group
Edison Electric Institute
Empower America
Energy Institute
Energy Market and Policy Analysis
Environmental Change Institute
Environmental Conservation Organization
Environmental and Energy Study Institute
European Space Agency
ExxonMobil
fossil fuel industry
Frontiers of Freedom
General Motors
Global Climate Coalition
Global Climate Information Project
Global Energy Network International
Graphical Paper Media Union
Greater Cleveland Growth Association
Heartland Institute
Hoover Institution
Hudson Institute
Institute of Directors
Institute for Economic Affairs
Institute of Economic Affairs
Institute for International Economics
International Chamber of Commerce
International Natural Gas Association
International Organization of Employers
George C Marshall Institute
Michigan Chamber
Michigan Chamber of Commerce
Michigan Climate Change Coalition
Michigan Department of Environmental Quality
Michigan Farm Bureau

Michigan Global Climate Change Coalition
Michigan Manufacturers Association
Michigan Teamsters
Motor Equipment Manufacturers Association
National Association of Counties
National Assn of Manufacturers
National Association of Manufacturers
Natl Center for Policy Analysis
National Center for Policy Analysis
National Consumer Coalition
National Federation of Independent Business
National Mining Association
National Rural Electric Cooperative Association
New England Electric System
oil industry
Oregon Institute of Science and Medicine
Organization of Petroleum Exporting Countries
Pacific Research Institute
Partnership for a New Generation of Vehicles
Peabody Energy
Peabody Holding Company
People for the West
petroleum industry
Phillips Petroleum Co
Population Environment Balance
Republican National Committee
Resource Data International, Inc.
Resources for the Future
Royal Institute for International Affairs
Royal Institute of International Affairs
Royal Society
Science and Environmental Policy Project
Scripps Institution of Oceanography
Small Business Survival Committee
Society for Environmental Truth
Society of Motor Manufacturers and Traders
South Carolina Black Chamber of Commerce
Supporters Of Nuclear Energy
Texas Citizens for a Sound Economy
Texas Farm Bureau
United Auto Workers
United Mine Workers
United Mine Workers of America
US Chamber of Commerce
US Geological Survey
The US Institute of Peace
United States Council for International Business
Virginia Institute for Public Policy
warmingearth. com
Western Fuels Association
Western Fuels Assn
Western Fuels
Wharton Business School
Wharton Econometric Forecasting Associates
World Life League

Supporting Stakeholde rs

Air Products and Chemicals
Alliance for Affordable Energy
Alliance of Small Island States
Alliance to Save Energy
Allied Business Intelligence
American Council for an Energy Efficient Economy
American Economic Association
Association of Small Island States
Association for the Conservation of Energy
Baxter International
Braid Consulting
British Government Panel on Sustainable Development
British Petroleum
British Wind Energy Association
Business Council for Sustainable Energy
Business Environmental Leadership Council
CalStart
Campaign ExxonMobil
Center for Building Science
Center for Clean Air Policy
Center for Corporate Environmental Management
Center for Science in the Public Interest
CH2M HILL
Cities for Climate Protection
Climate Action Network
Climate Network Europe
DeepTech International
DuPont (Du Pont became DuPont)
Eco Defence
EmC Emission Control
ENRON Corporation
ENRON Corp
ENVORK
Energy Conversion Devices
Energy for Sustainable Development
Energy Resources International
Entergy Corporation
Environmental Defense
Environmental Defense Fund
Environmental and Energy Study Institute
Environmental Media Services
Environmental Resources Trust
Ford Motor Company
Forum for the Future
Friends of the Earth
Fuel Cells 2000
Future Forests
Geneva Assn.
Global Commons Institute
Global Greens
GLOBE International
GLOBE Council
Going for Green
Greater New Orleans Foundation
Green Alliance
Greenpeace USA
Greenpeace International

Greenpeace Climate Campaign
Holnam Inc
Honeywell Inc.
Institute for Energy and Environmental Research
Institute for Public Policy Research
Insulation Manufacturers Association
Interfaith Climate Campaign
Interfaith Global Climate Change Campaign
Intercontinental Energy Corporation
International Climate Change Partnership
International Council for Local Environmental Initiatives
International Paper
International Paper Company
International Union for the Conservation of Nature
Ionic Fuel Technology
Johnson Controls Inc.
Kiko Network
The Lean Economy Initiative
Lockheed Martin
Malaysian Climate Change Group
The Mellman Group
National Association of Home Builders
National Environmental Trust
National Institute of Environmental Health Sciences
National Religious Partnership for the Environment
The Nature Conservancy
Natural Resources Defense Council
New Economics Foundation
New England Canada Business Council
Niagara Mohawk
Niagara Mohawk Power Corp
North American Insulation Manufacturers Association
North Atlantic Marine Pipeline
North Atlantic Pipeline Partners
Northwest Energy Efficiency Council
Oxford Economic Research Associates
Ozone Action
Pacific Institute
Pacific Institute for Studies in Development, Environment & Security
Pacific Island Forum
Panel on Sustainable Development
Pennsylvania Council of Churches
Pew Center on Climate Change
Pew Center on Global Climate Change
Pew Charitable Trusts
Physicians For Social Responsibility
Policy Studies Institute
Polyisocyanurate Insulation Manufacturers Association
Public Service Electric and Gas Company
Reinsurance Association of America
Sierra Club
Solar Century
Sun Co
Suncor Energy
Tatham Offshore
Union of Concerned Scientists
United Technologies
US Generating Company
US Public Interest Research Group
Washington State Solar Energy Industry Association
Wilderness Society
The Wildlife Trusts
World Business Council on Sustainable Development
World Resource Institute
World Resources Institute
Worldwatch Institute
World Wide Fund for Nature
World Wildlife Fund
Yorkshire Coal Taskforce

Appendix B. Variables

1. Media

Information not in the document's body was bracketed for omission, though it may be hand-coded later. Each text was tagged with a case number, then coded for the following:

1. Country of Origin
    a. United States - $US
    b. United Kingdom - $UK
2. Name of Paper
    a. LA Times - $LAT
    b. NY Times - $NYT
    c. USA Today - $USA
    d. Wall Street Journal - $WSJ
    e. Washington Post - $WPO
    f. Financial Times - $FNT
    g. Guardian - $GRD
    h. Independent & Independent Sunday - $IND
    i. Observer - $OBS
    j. Daily Telegraph & Sunday Telegraph - $DST
    k. Times & Sunday Times - $TST
3. Presidential Period
    a. Bush - $B

b. Clinton

i. Kyoto conference - $C1

ii. Lame-duck president - $C2

4. Presidential source in lead paragraph

a. Bush source - $BS

b. Clinton source - $CS

5. Art or graphics - $GFX

2. Stakeholder

Stakeholder texts were cleaned and prepared for VBPro in the manner previously indicated for news articles. Each press release or opinion piece was tagged as a case, then coded for the following:

1. Country of Origin

a. United States - $US

b. United Kingdom - $UK

2. Name of Paper

a. LA Times - $LAT

b. NY Times - $NYT

c. USA Today - $USA

d. Wall Street Journal - $WSJ

e. Washington Post - $WPO

f. Financial Times - $FNT

g. Guardiana- $GRD

h. Independent & Independent Sunday - $IND

i. Observer - $OBS

j. Daily Telegraph & Sunday Telegraph - $DST

k. Times & Sunday Times - $TST

l. PR Newswire - $PRN

3. Presidential Period

   a. Bush - $B

   b. Clinton

      i. Kyoto conference - $C1

      ii. Lame-duck president - $C2

4. Type of Stakeholder Text

   a. Press Release - $PR

   b. Letter to the Editor - $LTE

   c. Opinion/Editorial - $OPN

5. Stakeholder position

   a. supporting Protocol - $PRO

   b. opposing Protocol - $ANTI

6. Art or graphics - $GFX

Appendix C. Differences in Frame Terminology via Select

1. Opposing (anti.alf)

Percentage of terms in file A, anti.alf, are greater than in file B, pro.alf.

	Word	Chi-Square	A%	B%	% Difference
1.	$ANTI	362.810	0.271	0.000	0.271
2.	TREATY	83.300	0.253	0.096	0.157
3.	SINGER	72.499	0.054	0.000	0.054
4.	MICHIGAN	64.547	0.051	0.001	0.050
5.	ACCORDING	62.688	0.088	0.016	0.072
6.	SAID	52.754	0.224	0.102	0.122
7.	TEMPERATURE	47.179	0.115	0.037	0.078
8.	SBSC	46.819	0.035	0.000	0.035
9.	PRICES	37.903	0.073	0.019	0.054
10.	OHIO	36.246	0.027	0.000	0.027
11.	$PR	34.249	0.086	0.028	0.057
12.	$PRN	34.249	0.086	0.028	0.057
13.	SCIENCE AND ENVIRO	31.715	0.024	0.000	0.024
14.	WORKERS	31.354	0.028	0.001	0.027
15.	SENATE	29.915	0.102	0.041	0.061
16.	RESOLUTION	27.617	0.038	0.007	0.032
17.	CH	27.184	0.020	0.000	0.020
18.	EXEMPT	27.106	0.027	0.002	0.025
19.	VIRGINIA	26.893	0.023	0.001	0.022
20.	EVIDENCE	26.530	0.072	0.025	0.047
21.	INCREASE	26.428	0.116	0.054	0.062
22.	IMPLEMENTED	25.649	0.026	0.002	0.024
23.	USECONOMY	24.589	0.027	0.003	0.024
24.	DATA	24.497	0.046	0.012	0.034
25.	WINTER	24.253	0.034	0.006	0.028
26.	STOTT	23.942	0.023	0.001	0.021
27.	SCIENCE	23.812	0.126	0.064	0.063
28.	EFFECT	23.731	0.067	0.024	0.043
29.	KYOTO PROTOCOL	22.845	0.146	0.079	0.067
30.	CO2	22.680	0.055	0.018	0.037
31.	HARE	22.653	0.017	0.000	0.017
32.	FAMILIES	22.395	0.019	0.001	0.018
33.	KYOTO TREATY	22.036	0.061	0.022	0.039
34.	IMPACT	21.263	0.077	0.032	0.045
35.	MICHAELS	21.142	0.016	0.000	0.016
36.	SEPP	21.142	0.016	0.000	0.016
37.	PREDICTIONS	20.324	0.030	0.006	0.025
38.	IPCC	20.145	0.047	0.015	0.032
39.	BASED	20.059	0.059	0.022	0.037
40.	DISCOVERED	19.632	0.015	0.000	0.015
41.	KERRIGAN	19.632	0.015	0.000	0.015
42.	MICHIGAN CLIMATE C	19.632	0.015	0.000	0.015
43.	GLOBAL CLIMATE TRE	19.403	0.017	0.001	0.016
44.	SNOW	18.945	0.023	0.003	0.020
45.	STUDY	18.675	0.077	0.034	0.042
46.	WOULD	18.670	0.526	0.401	0.125
47.	WARM	18.572	0.030	0.007	0.024
48.	DR.	18.535	0.042	0.013	0.029
49.	SUN	18.175	0.024	0.004	0.020
50.	BRIEFING	18.070	0.018	0.001	0.017
51.	PERMITS	17.766	0.028	0.006	0.022
52.	PHILIP	16.825	0.023	0.004	0.019
53.	SENATOR	16.825	0.023	0.004	0.019
54.	CALIFORNIA	16.619	0.032	0.008	0.023
55.	MYTHS	16.612	0.012	0.000	0.012
56.	PHYSICS	16.612	0.012	0.000	0.012
57.	SMALL BUSINESS SUR	16.612	0.012	0.000	0.012
58.	CLEVELAND	16.420	0.015	0.001	0.014
59.	SIGNING	16.216	0.024	0.004	0.019

60. COUNCIL	16.177	0.020	0.003	0.017
61. FARMERS	16.177	0.020	0.003	0.017
62. CLINTON ADMINISTRA	16.172	0.058	0.024	0.034
63. BILLION	15.706	0.080	0.040	0.041
64. S FRED SINGER	15.609	0.018	0.002	0.016
65. PROTOCOL	15.273	0.062	0.028	0.034
66. USSENATE	15.165	0.016	0.001	0.014
67. API	15.101	0.011	0.000	0.011
68. BIOGEOGRAPHY	15.101	0.011	0.000	0.011
69. BOLIN	15.101	0.011	0.000	0.011
70. BUREAUCRATS	15.101	0.011	0.000	0.011
71. CMA	15.101	0.011	0.000	0.011
72. MICHIGAN CHAMBER	15.101	0.011	0.000	0.011
73. PROFESSOR	14.954	0.042	0.015	0.027
74. GALLON	14.894	0.027	0.007	0.020
75. ECONOMIC	14.891	0.180	0.117	0.063
76. HARM	14.572	0.035	0.011	0.024
77. CONTROL	14.420	0.058	0.025	0.032
78. HEATING	14.298	0.029	0.008	0.021
79. MAN MADE	14.298	0.029	0.008	0.021
80. FEWER	14.208	0.017	0.002	0.015
81. VARIATIONS	14.208	0.017	0.002	0.015
82. PER	14.169	0.089	0.048	0.041
83. INFORMATION	14.161	0.038	0.013	0.025
84. LITTLE ICE AGE	13.724	0.015	0.001	0.013
85. WEB	13.704	0.026	0.007	0.019
86. AAMA	13.591	0.010	0.000	0.010
87. BYRD HAGEL	13.591	0.010	0.000	0.010
88. METEOROLOGISTS	13.591	0.010	0.000	0.010
89. WARMER	13.515	0.034	0.011	0.023
90. REQUIREMENTS	13.460	0.018	0.003	0.015
91. $WSJ	13.449	0.012	0.001	0.012
92. S.	13.449	0.012	0.001	0.012
93. STUDIES	13.380	0.035	0.012	0.023
94. SHOWS	13.262	0.036	0.013	0.023
95. ICE AGE	12.863	0.019	0.004	0.015
96. JOBS	12.809	0.058	0.027	0.031
97. OCEAN	12.771	0.030	0.010	0.021
98. SITE	12.771	0.030	0.010	0.021
99. NOT	12.549	0.579	0.470	0.110
100. GLOBAL WARMING TRE	12.535	0.025	0.007	0.018
101. OPTIMUM	12.294	0.014	0.001	0.012
102. NOTED	12.276	0.026	0.007	0.018
103. STATED	12.276	0.026	0.007	0.018
104. TEN	12.125	0.017	0.003	0.014
105. AEP	12.081	0.009	0.000	0.009
106. BENFORD	12.081	0.009	0.000	0.009
107. BRANCH	12.081	0.009	0.000	0.009
108. DESCRIBES	12.081	0.009	0.000	0.009
109. KAREN KERRIGAN	12.081	0.009	0.000	0.009
110. PARISH	12.081	0.009	0.000	0.009
111. PLEASE	12.081	0.009	0.000	0.009
112. PROPONENTS	12.081	0.009	0.000	0.009
113. SCHNEIDER	12.081	0.009	0.000	0.009
114. FAIRFAX	11.971	0.011	0.001	0.011
115. GORE'S	11.971	0.011	0.001	0.011
116. MEDIEVAL	11.971	0.011	0.001	0.011
117. THEORY	11.659	0.023	0.006	0.017
118. SCIENTIFIC	11.449	0.073	0.040	0.034
119. FOOD	11.161	0.025	0.007	0.017
120. COOLING	11.143	0.019	0.004	0.015
121. EXPRESSED	10.810	0.016	0.003	0.013
122. SO CALLED	10.790	0.020	0.005	0.015
123. AIRLINE TRAFFIC	10.571	0.008	0.000	0.008
124. CELSIUS	10.571	0.008	0.000	0.008
125. DEAVENPORT	10.571	0.008	0.000	0.008
126. EIA	10.571	0.008	0.000	0.008
127. F	10.571	0.008	0.000	0.008
128. HIGHER PRICES	10.571	0.008	0.000	0.008

129. INHABITANTS	10.571	0.008	0.000	0.008
130. LATTER	10.571	0.008	0.000	0.008
131. MICHIGAN CHAMBER O	10.571	0.008	0.000	0.008
132. MINIMAL	10.571	0.008	0.000	0.008
133. NATIONAL CENTER FO	10.571	0.008	0.000	0.008
134. UNIVERSITY OF VIRG	10.571	0.008	0.000	0.008
135. VA.	10.571	0.008	0.000	0.008
136. WEFA	10.571	0.008	0.000	0.008
137. COUNTIES	10.498	0.010	0.001	0.009
138. NONPROFIT	10.498	0.010	0.001	0.009
139. SCIENCES	10.498	0.010	0.001	0.009
140. BECAUSE	10.490	0.142	0.095	0.047
141. FACTORS	10.317	0.017	0.004	0.013
142. REGULATORY	10.317	0.017	0.004	0.013
143. APPROACH	10.278	0.047	0.022	0.025
144. EXPERTS	10.247	0.035	0.014	0.021
145. FOLLOWING	10.247	0.035	0.014	0.021
146. J.	10.095	0.014	0.002	0.011
147. REPORTED	10.071	0.024	0.007	0.016
148. $US	9.926	0.163	0.113	0.050
149. CONCERNED	9.911	0.025	0.008	0.017
150. WARMING	9.699	0.122	0.080	0.042
151. RESEARCH	9.667	0.080	0.047	0.033
152. ACTIVISTS	9.518	0.015	0.003	0.012
153. MYTH	9.518	0.015	0.003	0.012
154. $C1	9.517	0.134	0.090	0.044
155. SOUND	9.509	0.029	0.011	0.018
156. CAPS	9.472	0.011	0.001	0.010
157. ICE	9.375	0.033	0.013	0.019
158. MEANINGFUL	9.372	0.020	0.006	0.014
159. RESTRICTIONS	9.081	0.016	0.004	0.012
160. ABC	9.061	0.007	0.000	0.007
161. CARD	9.061	0.007	0.000	0.007
162. CHRYSLER CORPORATI	9.061	0.007	0.000	0.007
163. CHUCK HAGEL	9.061	0.007	0.000	0.007
164. DEFEND	9.061	0.007	0.000	0.007
165. DIRECTORS	9.061	0.007	0.000	0.007
166. ENERGY INFORMATION	9.061	0.007	0.000	0.007
167. FAGAN	9.061	0.007	0.000	0.007
168. FAMINE	9.061	0.007	0.000	0.007
169. FARMER	9.061	0.007	0.000	0.007
170. FUNDAMENTALISTS	9.061	0.007	0.000	0.007
171. HARRIS	9.061	0.007	0.000	0.007
172. HTTP://WWW.HIS.COM	9.061	0.007	0.000	0.007
173. LAWSON	9.061	0.007	0.000	0.007
174. METEOROLOGIST	9.061	0.007	0.000	0.007
175. MICHIGAN'S	9.061	0.007	0.000	0.007
176. MOTOR FUELS	9.061	0.007	0.000	0.007
177. NCPA	9.061	0.007	0.000	0.007
178. ORIENTAL	9.061	0.007	0.000	0.007
179. PH.D.	9.061	0.007	0.000	0.007
180. PUNISH	9.061	0.007	0.000	0.007
181. RDI	9.061	0.007	0.000	0.007
182. ROY	9.061	0.007	0.000	0.007
183. SBSC'S	9.061	0.007	0.000	0.007
184. SEPP/	9.061	0.007	0.000	0.007
185. STOCKHOLM	9.061	0.007	0.000	0.007
186. THEORIES	9.061	0.007	0.000	0.007
187. UNEMPLOYMENT	9.061	0.007	0.000	0.007
188. UNFINISHED	9.061	0.007	0.000	0.007
189. USELECTRICITY	9.061	0.007	0.000	0.007
190. USENERGY	9.061	0.007	0.000	0.007
191. ANALYST	9.034	0.009	0.001	0.008
192. WARMED	9.034	0.009	0.001	0.008
193. THIRD WORLD	9.010	0.023	0.007	0.015
194. ADMINISTRATION'S	8.879	0.024	0.008	0.015
195. ANALYSIS	8.879	0.024	0.008	0.015
196. ADVANCE	8.763	0.012	0.002	0.010
197. EXEMPTS	8.763	0.012	0.002	0.010

198. MANDATES	8.763	0.012	0.002	0.010
199. MANKIND	8.763	0.012	0.002	0.010
200. REPLACE	8.763	0.012	0.002	0.010

2. Supporting (pro.alf)

Percentage of terms in file B, pro.alf, are greater than in File A, anti.alf.

Word	Chi-Square	A%	B%	% Difference
1. $PRO	210.223	0.000	0.237	-0.237
2. PERCENT	46.439	0.052	0.150	-0.098
3. US	42.605	0.251	0.418	-0.167
4. CAN	28.719	0.163	0.274	-0.111
5. CHALLENGE	27.789	0.003	0.040	-0.036
6. CLIMATE CHANGE	26.054	0.173	0.280	-0.108
7. COMPANIES	25.887	0.043	0.105	-0.063
8. OIL	25.340	0.040	0.099	-0.060
9. THEY	24.748	0.208	0.321	-0.113
10. FIRST	22.042	0.069	0.136	-0.067
11. LEADERSHIP	21.955	0.003	0.033	-0.030
12. ENERGY EFFICIENCY	20.820	0.011	0.047	-0.036
13. BIG	19.889	0.018	0.058	-0.040
14. ITS	19.692	0.206	0.304	-0.099
15. ENERGY	18.786	0.209	0.306	-0.097
16. MARKET	18.544	0.017	0.054	-0.037
17. CHURCH	17.341	0.001	0.022	-0.021
18. PEW CENTER	16.819	0.003	0.027	-0.024
19. REV.	15.895	0.000	0.018	-0.018
20. $OPN	15.018	0.049	0.095	-0.046
21. FOLLOW	14.912	0.003	0.025	-0.021
22. ACTION	14.857	0.061	0.111	-0.050
23. COMPANY	14.791	0.012	0.041	-0.029
24. RENEWABLE	14.319	0.010	0.037	-0.026
25. MAKING	13.977	0.014	0.042	-0.028
26. WORLD'S	13.845	0.049	0.093	-0.044
27. CLEAN	13.544	0.009	0.034	-0.025
28. UK	13.471	0.019	0.050	-0.031
29. TAKING	13.446	0.011	0.037	-0.026
30. EFFICIENCY	13.353	0.008	0.031	-0.024
31. ACT	12.835	0.020	0.051	-0.031
32. BUSH'S	12.607	0.007	0.028	-0.022
33. TARGET	12.371	0.025	0.057	-0.032
34. SYSTEMS	12.206	0.008	0.030	-0.022
35. COMMITMENT	12.106	0.012	0.037	-0.025
36. BUSINESS ENVIRONME	12.089	0.001	0.016	-0.015
37. GOD'S	11.921	0.000	0.013	-0.013
38. PROBLEM	11.854	0.071	0.118	-0.047
39. CONSERVATION	11.638	0.008	0.029	-0.021
40. KEEP	11.557	0.010	0.033	-0.023
41. RIDER	11.435	0.001	0.016	-0.015
42. BRITAIN	11.339	0.017	0.043	-0.026
43. BUSH	11.277	0.041	0.077	-0.036
44. SUMMIT	11.062	0.012	0.036	-0.023
45. TRANSPORT	10.756	0.009	0.030	-0.021
46. MUST	10.645	0.099	0.150	-0.051
47. BP	10.575	0.002	0.017	-0.015
48. CLEANER	10.527	0.003	0.019	-0.016
49. RICH	10.515	0.008	0.028	-0.020
50. BUT	10.277	0.364	0.453	-0.090
51. ENVIRONMENT	10.226	0.054	0.093	-0.039
52. REPUBLICANS	10.129	0.001	0.014	-0.013
53. THEIR	10.054	0.230	0.302	-0.072
54. EVER	9.952	0.010	0.031	-0.020
55. CHANGING	9.674	0.009	0.028	-0.019
56. SUSTAINABLE	9.412	0.008	0.026	-0.018

57.	BUILDING	9.386	0.005	0.020	-0.016
58.	INDUSTRIALIZED NAT	9.298	0.003	0.018	-0.015
59.	OZONE	9.298	0.003	0.018	-0.015
60.	DEMONSTRATE	9.272	0.000	0.010	-0.010
61.	MONTH	9.140	0.009	0.028	-0.019
62.	FUEL	9.056	0.037	0.068	-0.031
63.	OFF	8.903	0.025	0.051	-0.026
64.	THREAT	8.873	0.018	0.041	-0.023
65.	GENERATION	8.868	0.008	0.025	-0.018
66.	WIN	8.828	0.001	0.013	-0.012
67.	BEGINNING	8.795	0.005	0.019	-0.015
68.	POWER	8.762	0.046	0.079	-0.033
69.	CREATION	8.690	0.003	0.017	-0.014
70.	LAW	8.690	0.003	0.017	-0.014
71.	SAVINGS	8.690	0.003	0.017	-0.014
72.	DISASTERS	8.679	0.002	0.015	-0.013
73.	JAPAN	8.644	0.021	0.046	-0.024
74.	BATTLE	8.609	0.000	0.010	-0.010
75.	BRITISH PETROLEUM	8.609	0.000	0.010	-0.010
76.	EILEEN CLAUSSEN	8.609	0.000	0.010	-0.010
77.	JUSTICE	8.609	0.000	0.010	-0.010
78.	TOYOTA	8.609	0.000	0.010	-0.010
79.	TOGETHER	8.397	0.010	0.028	-0.018
80.	ALLIANCE	8.179	0.001	0.012	-0.011
81.	GAINS	8.179	0.001	0.012	-0.011
82.	INVESTING	8.179	0.001	0.012	-0.011
83.	ISLAND	8.179	0.001	0.012	-0.011
84.	BUDGET	8.085	0.003	0.016	-0.013
85.	PEW CENTER ON GLOB	8.085	0.003	0.016	-0.013
86.	PROGRAMS	8.066	0.017	0.038	-0.021
87.	STORM	8.053	0.002	0.014	-0.012
88.	TACKLE	8.053	0.002	0.014	-0.012
89.	LIKE	8.009	0.066	0.102	-0.036
90.	REDUCTION	7.985	0.038	0.067	-0.029
91.	LAYER	7.947	0.000	0.009	-0.009
92.	OFFSHORE	7.947	0.000	0.009	-0.009
93.	PEOPLE'S	7.947	0.000	0.009	-0.009
94.	PIPELINE	7.947	0.000	0.009	-0.009
95.	RUSSELL JONES	7.947	0.000	0.009	-0.009
96.	WASTE	7.830	0.006	0.020	-0.015
97.	$NYT	7.799	0.008	0.024	-0.016
98.	BRITISH	7.799	0.008	0.024	-0.016
99.	FAITH	7.630	0.005	0.018	-0.013
100.	TAKE	7.604	0.070	0.106	-0.036
101.	HE	7.462	0.150	0.200	-0.050
102.	$IND	7.392	0.010	0.027	-0.017
103.	CUTS	7.353	0.023	0.045	-0.022
104.	WORLD	7.313	0.176	0.230	-0.053
105.	BOYCOTT	7.285	0.000	0.008	-0.008
106.	BREAK	7.285	0.000	0.008	-0.008
107.	CFCS	7.285	0.000	0.008	-0.008
108.	COMPANY'S	7.285	0.000	0.008	-0.008
109.	PERMITTED	7.285	0.000	0.008	-0.008
110.	UNPRECEDENTED	7.285	0.000	0.008	-0.008
111.	WEAVER	7.285	0.000	0.008	-0.008
112.	BILL	7.272	0.006	0.019	-0.014
113.	SHIFT	7.272	0.006	0.019	-0.014
114.	EUROPEANS	7.186	0.017	0.037	-0.020
115.	FOSSIL FUEL EMISSI	7.055	0.005	0.017	-0.013
116.	INVESTMENTS	7.055	0.005	0.017	-0.013
117.	RIO	7.055	0.005	0.017	-0.013
118.	MR.	6.991	0.087	0.125	-0.038
119.	WANT	6.985	0.021	0.043	-0.021
120.	WE	6.970	0.436	0.515	-0.079
121.	YOU	6.952	0.060	0.092	-0.032
122.	ANNOUNCEMENT	6.887	0.001	0.010	-0.009
123.	CLAUSSEN	6.887	0.001	0.010	-0.009
124.	HIMSELF	6.887	0.001	0.010	-0.009
125.	INSURERS	6.887	0.001	0.010	-0.009

126. STEP	6.822	0.016	0.034	-0.019
127. FRIENDS OF THE EAR	6.812	0.002	0.013	-0.010
128. URGENT	6.812	0.002	0.013	-0.010
129. MAIN	6.759	0.011	0.028	-0.016
130. WORKING	6.759	0.011	0.028	-0.016
131. OPPORTUNITIES	6.758	0.008	0.022	-0.015
132. THINK	6.701	0.018	0.037	-0.019
133. END	6.655	0.019	0.039	-0.020
134. RESPONSIBILITY	6.641	0.012	0.029	-0.017
135. ALLIANCE TO SAVE E	6.622	0.000	0.007	-0.007
136. BANNED	6.622	0.000	0.007	-0.007
137. CLIMATE CHANGE CAM	6.622	0.000	0.007	-0.007
138. COMBATING	6.622	0.000	0.007	-0.007
139. GLOBAL CLIMATE	6.622	0.000	0.007	-0.007
140. PEW CENTER'S	6.622	0.000	0.007	-0.007
141. SIGNS	6.622	0.000	0.007	-0.007
142. WWF	6.622	0.000	0.007	-0.007
143. OWN	6.611	0.037	0.063	-0.026
144. START	6.563	0.023	0.043	-0.021
145. DIFFICULT	6.542	0.014	0.031	-0.017
146. REST	6.532	0.025	0.046	-0.022
147. BE	6.473	0.763	0.863	-0.100
148. GETTING	6.459	0.007	0.020	-0.013
149. MECHANISMS	6.459	0.007	0.020	-0.013
150. NEW	6.422	0.137	0.181	-0.044
151. TECHNOLOGY	6.261	0.036	0.061	-0.024
152. DIRTY	6.245	0.001	0.010	-0.009
153. FIGHTING	6.245	0.001	0.010	-0.009
154. INSULATION	6.245	0.001	0.010	-0.009
155. LOW LYING	6.245	0.001	0.010	-0.009
156. INDUSTRY	6.219	0.069	0.101	-0.032
157. LOBBY	6.199	0.002	0.012	-0.010
158. REPRESENT	6.199	0.002	0.012	-0.010
159. LIFE	6.196	0.021	0.041	-0.020
160. LONGER	6.184	0.012	0.028	-0.016
161. ENERGY EFFICIENT	6.180	0.006	0.018	-0.012
162. IMMEDIATE	6.180	0.006	0.018	-0.012
163. THOUGHT	6.180	0.006	0.018	-0.012
164. PROCESS	6.179	0.023	0.043	-0.020
165. SECOND	6.166	0.024	0.044	-0.020
166. LEAST	6.156	0.026	0.047	-0.021
167. ACCEPT	6.098	0.014	0.030	-0.016
168. HIS	6.075	0.116	0.156	-0.040
169. APPLIANCES	5.960	0.000	0.007	-0.007
170. BISHOP	5.960	0.000	0.007	-0.007
171. BLAIR	5.960	0.000	0.007	-0.007
172. BRUSSELS	5.960	0.000	0.007	-0.007
173. CONTRACTS	5.960	0.000	0.007	-0.007
174. DOE	5.960	0.000	0.007	-0.007
175. DRAFT	5.960	0.000	0.007	-0.007
176. ENTERGY	5.960	0.000	0.007	-0.007
177. FORTUNE	5.960	0.000	0.007	-0.007
178. FREIGHT	5.960	0.000	0.007	-0.007
179. INSISTS	5.960	0.000	0.007	-0.007
180. LIFESTYLE	5.960	0.000	0.007	-0.007
181. NADER	5.960	0.000	0.007	-0.007
182. PHILADELPHIA	5.960	0.000	0.007	-0.007
183. STEWARDS	5.960	0.000	0.007	-0.007
184. STRATEGIES	5.960	0.000	0.007	-0.007
185. STRIKE	5.960	0.000	0.007	-0.007
186. SYNOD	5.960	0.000	0.007	-0.007
187. TAXPAYERS	5.960	0.000	0.007	-0.007
188. WON	5.960	0.000	0.007	-0.007
189. RIGHT	5.936	0.036	0.060	-0.024
190. MINISTER	5.929	0.005	0.016	-0.011
191. ENVIRONMENTAL	5.916	0.113	0.152	-0.039
192. COMMITTED	5.828	0.011	0.026	-0.015
193. STATES	5.812	0.021	0.040	-0.019
194. GREEN	5.793	0.025	0.045	-0.020

195. ABLE	5.737	0.012	0.028	-0.015
196. $GFX	5.722	0.003	0.013	-0.010
197. INCREASINGLY	5.722	0.003	0.013	-0.010
198. LIES	5.722	0.003	0.013	-0.010
199. ROUND	5.722	0.003	0.013	-0.010
200. TOMORROW	5.722	0.003	0.013	-0.010

Appendix D. Search Lists from Most Frequently Used Terminology

These two lists contain the top substantive words from each stakeholder group exclusive from other position, found through VBPro's select chi-square analysis (see Appendix C).

1. Opposing[9]

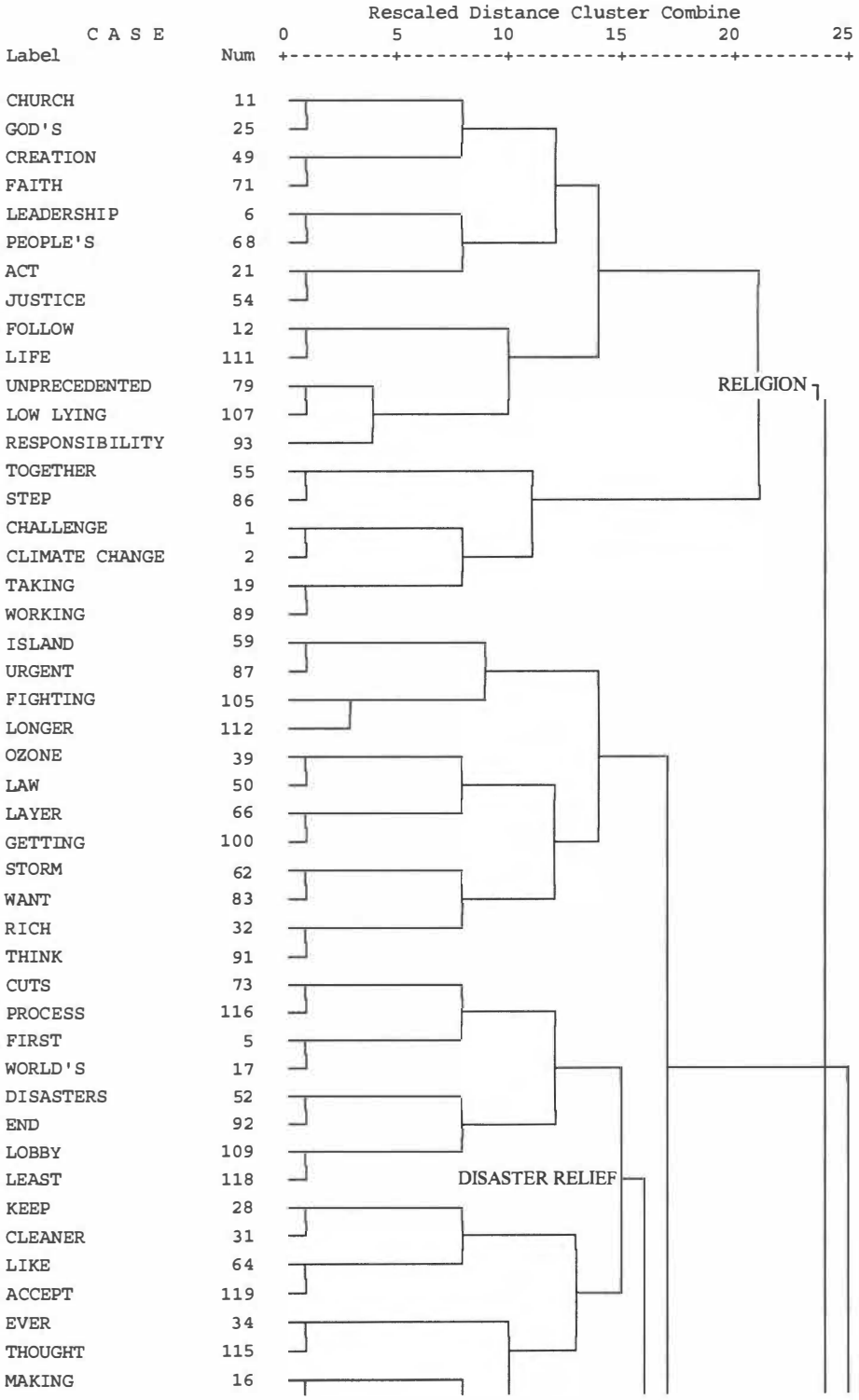
TREATY
RESOLUTION
IMPLEMENTED
EFFECT
PREDICTIONS
STUDY
PERMITS
FARMERS
GALLON
HEATING
INFORMATION
WARMER
ICE AGE
NOT
PLEASE
SCIENTIFIC
AIRLINE TRAFFIC
LATTER
FACTORS
FOLLOWING
RESEARCH
CAPS
CARD
FARMER
PUNISH
ANALYST
ADVANCE
REPLACE
TEMPERATURE
EXEMPT
DATA
CO2
BASED
WARM
MYTHS
BILLION
ECONOMIC
MAN MADE
LITTLE ICE AGE
REQUIREMENTS
JOBS
OPTIMUM
PROPONENTS
FOOD
CELSIUS
MINIMAL
REGULATORY
REPORTED
ACTIVISTS
ICE
DEFEND
FUNDAMENTALISTS
THEORIES
WARMED
EXEMPTS
PRICES
EVIDENCE
WINTER
FAMILIES
DISCOVERED
SUN
PHYSICS
BIOGEOGRAPHY
HARM
FEWER
WEB
STUDIES
OCEAN
BRANCH
MEDIEVAL
COOLING
HIGHER PRICES
NONPROFIT
APPROACH
CONCERNED
MYTH
MEANINGFUL
DIRECTORS
METEOROLOGIST
UNEMPLOYMENT
THIRD WORLD
MANDATES
WORKERS
INCREASE
SCIENCE
IMPACT
SNOW
BRIEFING
SIGNING
BUREAUCRATS
CONTROL
VARIATIONS
METEOROLOGISTS
SHOWS
SITE
DESCRIBES
THEORY
SO CALLED
INHABITANTS
SCIENCES
EXPERTS
WARMING
SOUND
RESTRICTIONS
FAMINE
MOTOR FUELS
UNFINISHED
ANALYSIS
MANKIND

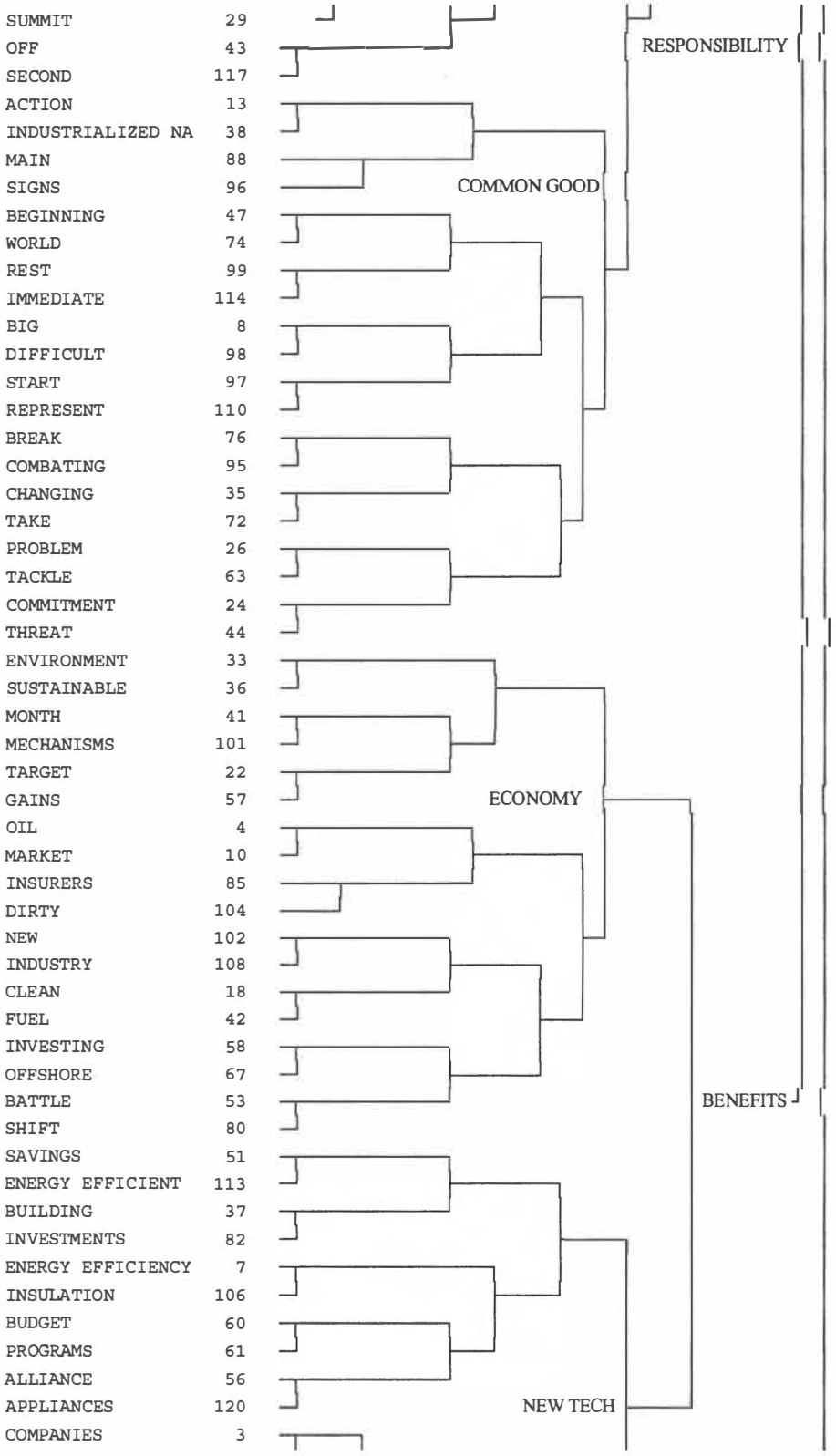
[9] The opposing stakeholders list only contained 109 possible terms after removing items indicated in Chapter 4.

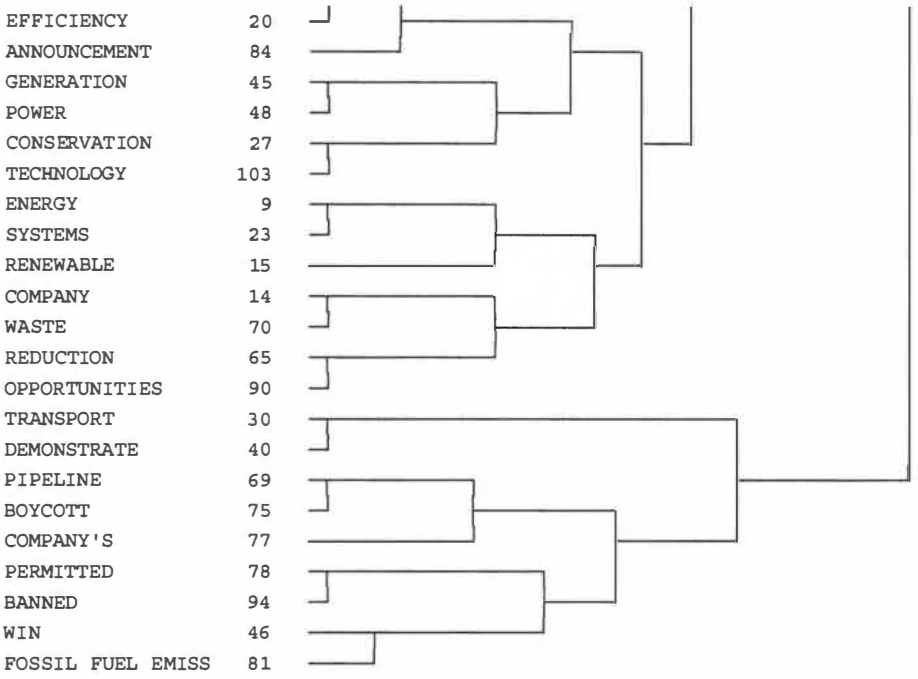
2. Supporting

CHALLENGE
FIRST
ENERGY
ACTION
WORLD'S
ACT
GOD'S
SUMMIT
ENVIRONMENT
BUILDING
FUEL
WIN
LAW
JUSTICE
INVESTING
STORM
LAYER
WASTE
WORLD
PERMITTED
WANT
URGENT
THINK
COMBATING
REST
TECHNOLOGY
LOW LYING
LIFE
THOUGHT
ACCEPT
FOSSIL FUEL EMISSIONS
CLIMATE CHANGE
LEADERSHIP
MARKET
COMPANY
CLEAN
TARGET
PROBLEM
TRANSPORT
EVER
OZONE
OFF
BEGINNING
SAVINGS
TOGETHER
ISLAND
TACKLE
OFFSHORE
FAITH
BOYCOTT
UNPRECEDENTED
ANNOUNCEMENT
MAIN
END
SIGNS
GETTING
DIRTY
INDUSTRY
LONGER
PROCESS
APPLIANCES
COMPANIES
ENERGY EFFICIENCY
CHURCH
RENEWABLE
TAKING
SYSTEMS
CONSERVATION
CLEANER
CHANGING
DEMONSTRATE
THREAT
POWER
DISASTERS
ALLIANCE
BUDGET
LIKE
PEOPLE'S
TAKE
BREAK
SHIFT
INSURERS
WORKING
RESPONSIBILITY
START
MECHANISMS
FIGHTING
LOBBY
ENERGY EFFICIENT
SECOND
INDUSTRIALIZED NATIONS
OIL
BIG
FOLLOW
MAKING
EFFICIENCY
COMMITMENT
KEEP
RICH
SUSTAINABLE
MONTH
GENERATION
CREATION
BATTLE
GAINS
PROGRAMS
REDUCTION
PIPELINE
CUTS
COMPANY'S
INVESTMENTS
STEP
OPPORTUNITIES
BANNED
DIFFICULT
NEW
INSULATION
REPRESENT
IMMEDIATE
LEAST

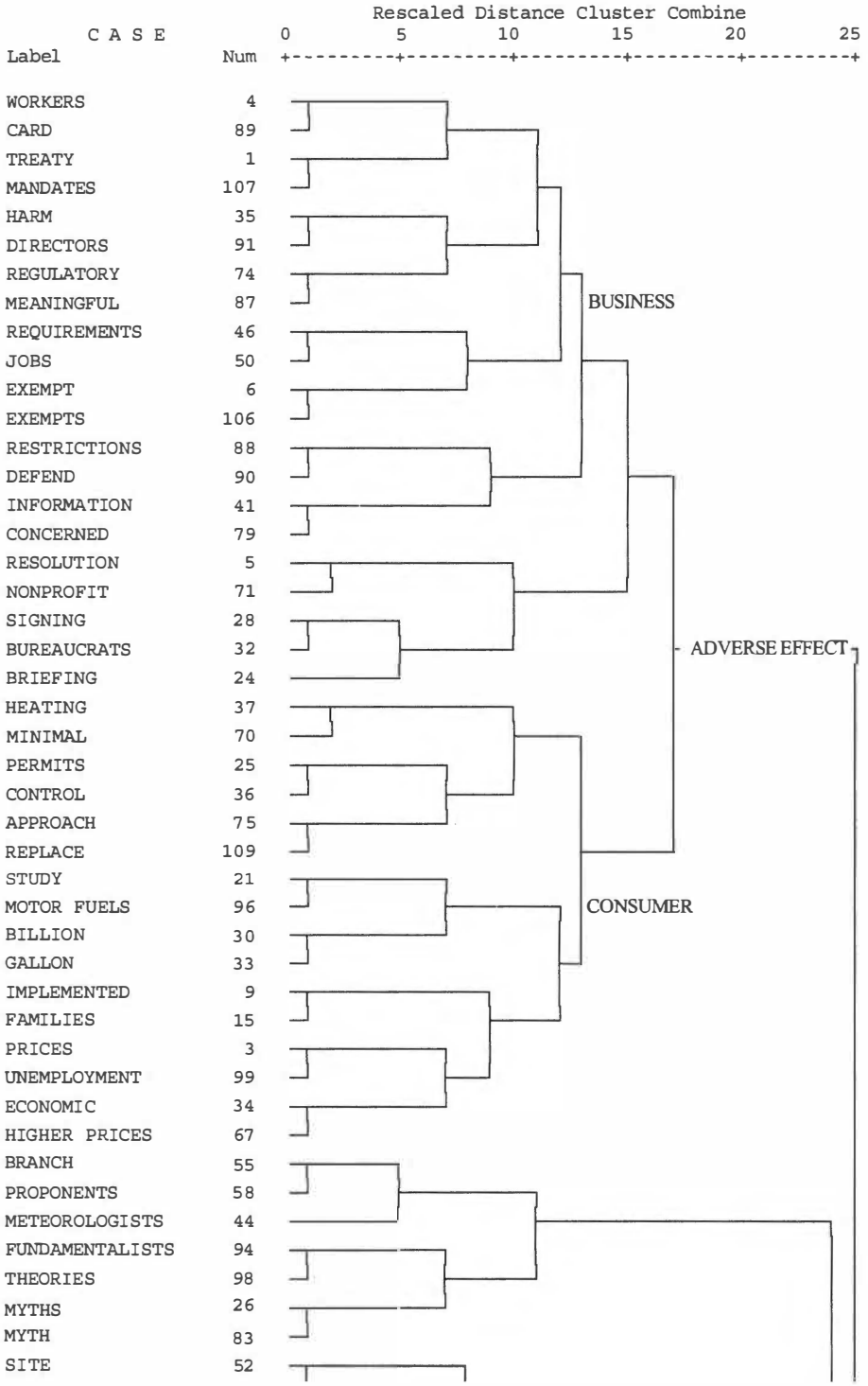
Appendix E. Supporting Kyoto Dendogram

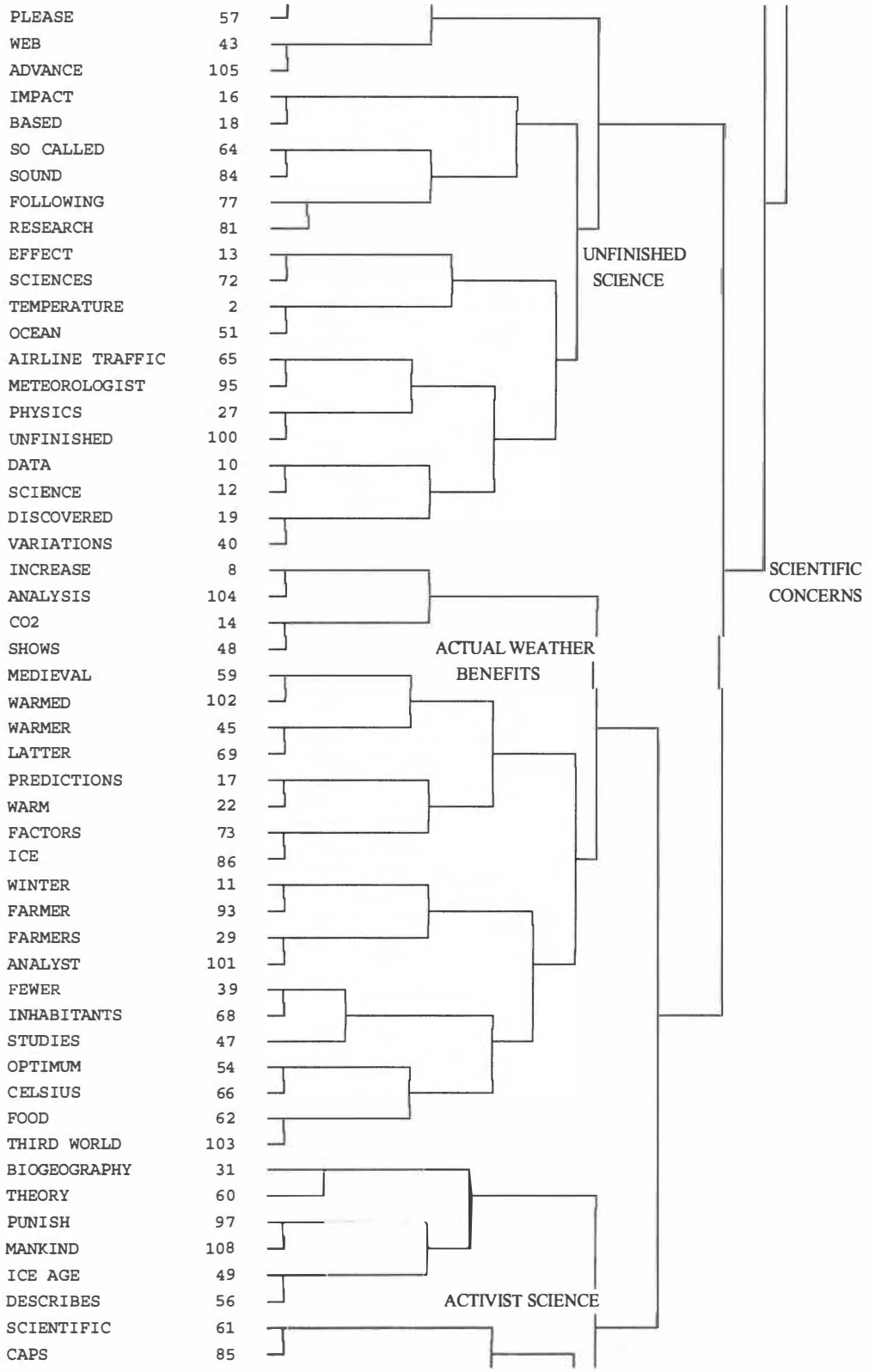


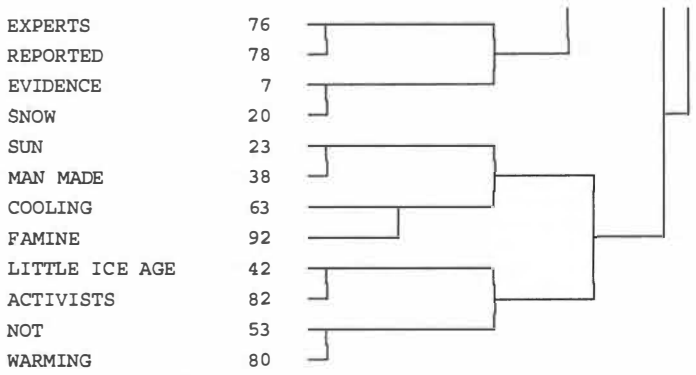

SUMMIT 29
OFF 43
SECOND 117
ACTION 13
INDUSTRIALIZED NA 38
MAIN 88
SIGNS 96
BEGINNING 47
WORLD 74
REST 99
IMMEDIATE 114
BIG 8
DIFFICULT 98
START 97
REPRESENT 110
BREAK 76
COMBATING 95
CHANGING 35
TAKE 72
PROBLEM 26
TACKLE 63
COMMITMENT 24
THREAT 44
ENVIRONMENT 33
SUSTAINABLE 36
MONTH 41
MECHANISMS 101
TARGET 22
GAINS 57
OIL 4
MARKET 10
INSURERS 85
DIRTY 104
NEW 102
INDUSTRY 108
CLEAN 18
FUEL 42
INVESTING 58
OFFSHORE 67
BATTLE 53
SHIFT 80
SAVINGS 51
ENERGY EFFICIENT 113
BUILDING 37
INVESTMENTS 82
ENERGY EFFICIENCY 7
INSULATION 106
BUDGET 60
PROGRAMS 61
ALLIANCE 56
APPLIANCES 120
COMPANIES 3
RESPONSIBILITY
COMMON GOOD
ECONOMY
BENEFITS
NEW TECH


EFFICIENCY 20
ANNOUNCEMENT 84
GENERATION 45
POWER 48
CONSERVATION 27
TECHNOLOGY 103
ENERGY 9
SYSTEMS 23
RENEWABLE 15
COMPANY 14
WASTE 70
REDUCTION 65
OPPORTUNITIES 90
TRANSPORT 30
DEMONSTRATE 40
PIPELINE 69
BOYCOTT 75
COMPANY'S 77
PERMITTED 78
BANNED 94
WIN 46
FOSSIL FUEL EMISS 81

Appendix F. Opposing Kyoto Dendogram




PLEASE 57
WEB 43
ADVANCE 105
IMPACT 16
BASED 18
SO CALLED 64
SOUND 84
FOLLOWING 77
RESEARCH 81
EFFECT 13
SCIENCES 72
TEMPERATURE 2
OCEAN 51
AIRLINE TRAFFIC 65
METEOROLOGIST 95
PHYSICS 27
UNFINISHED 100
DATA 10
SCIENCE 12
DISCOVERED 19
VARIATIONS 40
INCREASE 8
ANALYSIS 104
CO2 14
SHOWS 48
MEDIEVAL 59
WARMED 102
WARMER 45
LATTER 69
PREDICTIONS 17
WARM 22
FACTORS 73
ICE 86
WINTER 11
FARMER 93
FARMERS 29
ANALYST 101
FEWER 39
INHABITANTS 68
STUDIES 47
OPTIMUM 54
CELSIUS 66
FOOD 62
THIRD WORLD 103
BIOGEOGRAPHY 31
THEORY 60
PUNISH 97
MANKIND 108
ICE AGE 49
DESCRIBES 56
SCIENTIFIC 61
CAPS 85
UNFINISHED SCIENCE
ACTUAL WEATHER BENEFITS
ACTIVIST SCIENCE
SCIENTIFIC CONCERNS


EXPERTS 76
REPORTED 78
EVIDENCE 7
SNOW 20
SUN 23
MAN MADE 38
COOLING 63
FAMINE 92
LITTLE ICE AGE 42
ACTIVISTS 82
NOT 53
WARMING 80

Appendix G. Master Search List of Frames

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$PRO
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$ANTI
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$C1
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$C2
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$B
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$US
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$UK
><
STEP
TOGETHER
CREATION
CHURCH
GOD'S
JUSTICE
FAITH
RESPONSIBILITY
CLIMATE CHANGE
PEOPLE'S
ACT
FOLLOW
LIFE
UNPRECEDENTED
LOW LYING
CHALLENGE
TAKING
WORKING
><
INSULATION
SAVINGS
SYSTEMS
REDUCTION
INVESTMENTS
EFFICIENCY
PROGRAMS
ENERGY
EFFICIENCY
BUILDING
TECHNOLOGY
RENEWABLE
CHALLENGE
ENERGY EFFICIENT
BUDGET
ALLIANCE
APPLIANCES
COMPANIES
ANNOUNCEMENT
GENERATION
POWER
CONSERVATION
ENERGY
COMPANY
WASTE
OPPORTUNITIES
><
ISLAND
URGENT
FIGHTING
LONGER
OZONE
LAW
LAYER
GETTING
STORM
WANT
RICH
THINK
CUTS
PROCESS
FIRST
WORLD'S
DISASTERS
END
LOBBY
LEAST
KEEP
CLEANER
LIKE
ACCEPT
EVER
THOUGHT
MAKING
SUMMIT
OFF
SECOND
><
ACTION
INDUSTRIALIZED
NATIONS
MAIN
SIGNS
BEGINNING
WORLD
REST
IMMEDIATE
BIG
DIFFICULT
START
REPRESENT
BREAK
COMBATING
CHANGING
TAKE
PROBLEM
TACKLE
COMMITMENT
THREAT
><
ENVIRONMENT
SUSTAINABLE
MONTH
MECHANISMS
TARGET
GAINS
OIL
MARKET
INSURERS
DIRTY
NEW
INDUSTRY
CLEAN
FUEL
INVESTING

OFFSHORE
BATTLE
SHIFT
><
RESTRICTIONS
HARM
EXEMPT
EXEMPTS
REGULATORY
RESOLUTION
SIGNING
BUREAUCRATS
TREATY
BRIEFING
WORKERS
CARD
MANDATES
DIRECTORS
MEANINGFUL
REQUIREMENTS
JOBS
DEFEND
INFORMATION
CONCERNED
NONPROFIT
BRIEFING
><
HEATING
MINIMAL
PERMITS
CONTROL
APPROACH
REPLACE
STUDY
MOTOR FUELS
BILLION
GALLON
IMPLEMENTED

FAMILIES
PRICES
UNEMPLOYMENT
ECONOMIC
HIGHER PRICES
><
SITE
PLEASE
WEB
ADVANCE
IMPACT
BASED
SO CALLED
SOUND
FOLLOWING
RESEARCH
EFFECT
SCIENCES
TEMPERATURE
OCEAN
AIRLINE TRAFFIC
METEOROLOGIST
PHYSICS
UNFINISHED
DATA
SCIENCE
DISCOVERED
VARIATIONS
><
INCREASE
ANALYSIS
CO2
SHOWS
MEDIEVAL
WARMED
WARMER
LATTER
PREDICTIONS

WARM
FACTORS
ICE
WINTER
FARMER
FARMERS
ANALYST
FEWER
INHABITANTS
STUDIES
OPTIMUM
CELSIUS
FOOD
THIRD WORLD
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BIOGEOGRAPHY
THEORY
PUNISH
MANKIND
ICE AGE
DESCRIBES
SCIENTIFIC
CAPS
EXPERTS
REPORTED
EVIDENCE
SNOW
SUN
MAN MADE
COOLING
FAMINE
LITTLE ICE AGE
ACTIVISTS
NOT
WARMING
><

Appendix H. Search List of Stakeholders

><
$C1
><
$C2
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$B
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$US
><
$UK
><
American Association for the Advancement of Science
Center for Health and the Global Environment
Centers for Disease Control
Center for Disease Control and Prevention
Climate Research Institute
Climate Research Unit
Climatic Research Unit
Danish Society of Environmental and Energy Journalists
Economic and Social Research Council
Environmental Change Research Center
Environmental Change Institute
Environmental Change Unit
German Society of Environmental Geologists
Goddard Institute for Space Studies
Goddard Institute of Space Studies
Goddard Space Flight Center
Hadley Center
Hadley Center for Climate Change Prediction and Research
Hadley Center for Climate Change
Hadley Center for Climate Prediction
Hadley Center for Climate Prediction and Research
Joint Program on the Science and Policy of Global Change
Marshall Space Flight Center
National Academy of Science
National Academy of Sciences
National Aeronautics and Space Administration
National Research Council
Natural Environment Research Council
Public Agenda
Soil Conservation Research
Monterey Bay Research Institute
National Oceanic and Atmospheric Administration
National Oceanographic and Atmospheric Administration
National Institute of Water and Atmospheric Research
Ocean and Atmosphere Administration
National Climatic Data Center
National Climate Data Center
World Climate Research Programme
UN Environment Programme
United Nations Environment Programme
Climate Impacts Programme
Climate Prediction Center
Climate Research Unit
Climatic Research Unit
Tyndall Center for Climate Change
Tyndall Center for Climate Change Research
National Weather Service
Weather Satellite Service
National Weather Satellite Service
Desert Research Institute
Byrd Polar Research Center
World Glacier Monitoring Service
World Meteorological Organization
World Meteorological Office
US Global climate change Research Programme
US Global Change Research Program
><
Bush Administration
Bush Administration officials
Bush White House
US President George W Bush

President George W Bush
President George Bush
President Bush
George W Bush
George Bush
Vice President Richard Cheney
Vice President Dick Cheney
Vice President Cheney
Richard Cheney
Dick Cheney
Colin L Powell
Colin Powell
Condoleezza Rice
Don Evans
Paul H O'Neill
Paul O'Neill
Gale A Norton
Gale Norton
Donald Rumsfeld
Spencer Abraham
Ari Fleischer
Richard Armitage
Andrew H Card Jr
Andrew Card
Andy Card
Paula J Dobriansky
Paula Dobriansky
Marc Grossman
Scott McClellan
Christine Todd Whitman
Christine Whitman
Christie Whitman
><
Clinton Administration
Clinton Administration officials
Clinton White House
US President Bill Clinton
President Bill Clinton
President Clinton
Bill Clinton
Vice President Al Gore
Vice President Gore
Al Gore
Clinton Gore administration
Madeleine K Albright
Madeleine Albright
Michael D McCurry
Mike McCurry
Robert E Rubin
Robert Rubin
Bruce Babbitt
Federico Pena
J Brian Atwood
Brian Atwood
Roger Ballentine
Ian Bowles
Carol M Browner
Carol Browner
Stuart E Eizenstat
Stuart Eizenstat
Mark Hambley
Melinda L Kimble
Melinda Kimble
Frank E Loy
Frank Loy
Katherine McGinty
Kathleen A McGinty
Kathleen McGinty
Katie McGinty
McGinty
David B Sandalow
David Sandalow
Sandalow
Todd Stern
Lawrence H Summers
Lawrence Summers
Gene Sperling
Timothy E Wirth
Timothy Wirth
Tim Wirth
Janet L Yellen
Janet Yellen
><
Tony Blair
Margaret Thatcher
Maggie Thatcher
John Prescott
Michael Meacher
Gordon Brown
Margaret Beckett

Stephen Byers
Robin Cook
John Gummer
Elliot Morley
Elliott Morley
Archie Norman
Lord Whitty
Romano Prodi
Margot Wallstrom
Margot Wallstroem
Ritt Bjerregaard
Peter Jorgensen
Jacques Chirac
Lionel Jospin
Dominique Voynet
Gerhard Schroeder
Gerhard Schroder
Helmut Kohl
Juergen Trittin
Jurgen Trittin
Angela Merkel
Silvio Berlusconi
Valareo Calzolaio
Jose Maria Aznar
Jose Aznar
Noel Dempsey
Goeran Persson
Goran Persson
Kjell Larsson
Margot Wallstrom
Lena Hjelm Wallen
Jan Pronk
Svend Auken
><
Carlos Menem
Maria Julia Alsogaray
Jean Chretien
Herb Gray
David Anderson
Vladimir V Putin
Vladimir Putin
Boris Yeltsin
Junichiro Koizumi
Ryutaro Hashimoto
Yoshiro Mori
Yoriko Kawaguchi
Hiroshi Oki
Siri Bjerke
John Howard
Tim Fisher
Robert Hill
Jenny Shipley
Inder Kumar Gujral
Ludwig Keke
Bikenibeu Paeniu
Abdullahi Majeed
><
Acton Institute
AFLaCIO
Aluminum Federation
American Automobile Manufacturers Association
American Automobile Manufacturers Assn.
American Council for Capital Formation
American Farm Bureau Federation
American Electric Power
American Enterprise Institute
American Geophysical Union
American Petroleum Institute
Association of Electricity Producers
Atlantic Richfield Company
Atlantic Richfield
Atlas Economic Research Foundation
auto industry
automobile industry
Big Oil
Brookings Institution
Business Roundtable
car industry
Cato Institute
Chrysler
Climate Council
Committee for a Constructive Tomorrow
Competitive Enterprise Institute
Confederation of British Industry
Cooler Heads Coalition
Council on Foreign Relations
DaimlerChrysler
Edison Electric Institute

Environmental Change Institute
European Space Agency
Exxon
ExxonMobil
Esso
Ford
fossil fuel industry
Frontiers of Freedom
General Motors
Global Climate Coalition
Global Climate Information Project
Hoover Institution
Institute of Directors
Institute for Economic Affairs
International Chamber of Commerce
International Natural Gas Association
Mobil
National Assn of Manufacturers
National Association of Manufacturers
National Consumer Coalition
National Mining Association
oil industry
Oregon Institute of Science and Medicine
Organization of Petroleum Exporting Countries
Pacific Research Institute
Partnership for a New Generation of Vehicles
Peabody Energy
Republican National Committee
Resources for the Future
Royal Institute for International Affairs
Royal Institute of International Affairs
Royal Society
Science and Environmental Policy Project
Scripps Institution of Oceanography
United Auto Workers
United Mine Workers
United Mine Workers of America
US Chamber of Commerce
US Geological Survey
United States Council for International Business
Western Fuels Association
Western Fuels Assn
Western Fuels
><
Air Products and Chemicals
Alliance of Small Island States
Alliance to Save Energy
American Council for an Energy Efficient Economy
American Economic Association
Association of Small Island States
Baxter International
British Government Panel on Sustainable Development
British Petroleum
British Wind Energy Association
Business Council for Sustainable Energy
Business Environmental Leadership Council
Center for Clean Air Policy
Climate Action Network
DuPont
Eco Defence
ENRON Corporation
ENRON Corp
Energy Conversion Devices
Entergy
Environmental Defense
Environmental Defense Fund
Environmental Media Services
Ford Motor Company
Friends of the Earth
Future Forests
Global Commons Institute
Global Greens
GLOBE International
Going for Green
Green Alliance
Greenpeace
Greenpeace USA
Greenpeace International
Greenpeace Climate Campaign
Honeywell Inc.
Institute for Public Policy Research

International Climate Change Partnership
International Paper Company
International Union for the Conservation of Nature
Lockheed Martin
The Mellman Group
National Environmental Trust
National Religious Partnership for the Environment
Nature Conservancy
Natural Resources Defense Council
New Economics Foundation
Ozone Action
Pacific Institute for Studies in Development, Environment and Security
Pacific Island Forum
Panel on Sustainable Development
Pew Center on Climate Change
Pew Center on Global Climate Change
Pew Charitable Trusts
Physicians For Social Responsibility
Public Service Electric and Gas Company

Reinsurance Association of America
Sierra Club
Sunoco
Union of Concerned Scientists
United Technologies
US Generating Company
US Public Interest Research Group
Whirlpool
Wilderness Society
The Wildlife Trusts
World Business Council on Sustainable Development
World Resource Institute
World Resources Institute
Worldwatch Institute
World Wide Fund for Nature
World Wildlife Fund
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Appendix I. U.S. Prestige-Press Coverage of Government

1997

May 9 – In a speech at Costa Rica's Braulio Carrillo National Park, President Clinton praised the countries environmental policies and called for a reduction of greenhouse gases

June 20 – 61 U.S. Senators warn the Clinton administration that plans for a global warming treaty are in trouble unless developing nations, led by China, agree to mandatory emissions controls

June 26 – During Earth Summit +5, Clinton fails to set targets for greenhouse-gas reduction, but launches program intended to install 1 million solar panels on U.S. rooftops by 2010 and proposes (A) $1 billion in aid to help countries stop forestry and energy practices that contribute to global warming; (B) blocking U.S. assistance to foreign projects threatening tropical forests; and (C) promoting energy-technology research

June 27e- United Nation's Earth Summit +5 conference on global warming ends

July 15 – Clinton administration predicts that measures to combat global warming will have less dramatic effect on economy than that predicted by industries opposed to restraints on energy use

July 24 – Clinton claims global warming is real during a White House symposium with Nobel Prize laureates and other scientists, launches campaign to educate Americans about global warming; leading manufacturing representative tells House International Relations Committee to resist pressure to commit to binding targets to reduce greenhouse gases

Aug. 4 – Clinton meets with business leaders, calls for emission's limits; CEOs of utility, oil, gas, steel, chemical, manufacturing and financial service companies request more research

September – Vice President Gore claims global warming negatively affects Glacier National Park

Oct. 1 – Clinton meets with more than 100 weathermen from the nation's top 80 TV markets, provides National Oceanic and Atmospheric Administration data on global warming and requests help educating the public to its possible threats

Oct. 3 – CEOs from Ford, GM and Chrysler and the United Auto Workers president meet with Clinton to voice opposition to the proposed global warming treaty, which they claim would raise gasoline prices by 50 cents a gallon, boost the price of electricity by 20 percent and increase the cost of making automobiles

Oct. 6 – New Jersey environmentalists urge Clinton to lead the world in reducing greenhouse gases to help fight global warming; a White House conference on global warming featuring speeches by Clinton, Hillary Clinton and Gore attracts more than 100 business, political and religious leaders

Oct. 9 – Senior economic advisers present Clinton with options to limit initial steps against global warming until as late as 2030

Oct. 18 – Clinton hails Argentina's endorsement of U.S. approach of mandatory emissions limits to reduce climate change

Oct. 22 – During a speech with the National Geographic Society, Clinton announced plans to reward companies that reduce harmful emissions ahead of schedule, to encourage energy-efficiency with $ 5 billion in tax breaks and research and development, and to develop a trading system that would allow companies that reduce pollution to profit by selling their leftover emission allotments to others

Oct. 23 – Environmentalists, Congressional members, business groups and U.S. allies attack Clinton's proposal as either limited or "flawed"

Oct. 31 – Bonn climate sessions end after delegates and environmentalists attack the U.S. proposal for cutting emissions of greenhouse gases as too weak

Nov. 27 – Clinton administration vows to walk away from the upcoming Kyoto conference if a pact is not environmentally and economically feasible for the United States

Dec. 1– Kyoto talks begin; 45 US negotiators attend; U.S. receives silent response to opening statements; U.S. says emissions are at highest levels since talks began; Clinton announces plan to send Gore to talks; U.S. offers compromise to consider agreement setting different pollution limits for different industrialized countries

Dec. 2 – Senators Hagel, Joseph Lieberman (D-Conn.), John Chafee (R-R.I.) and Mike Enzi (R-Wyo.) lobby in Kyoto

Dec. 4 – Developing nations resist efforts from industrial countries to take early steps to slow climate change, insist industrial nations must take the first steps in controlling emissions since they caused global warming;

Dec. 5 – The immediate role to be played by developing countries threatens to split the Kyoto talks though an agreement on elements of limiting industrialized countries emissions begins to emerge

Dec. 6 – Media note intense lobbying during the Kyoto talks between energy companies in the Global Climate Coalition and environmental groups including Greenpeace, the World Wildlife Fund, the Climate Action Network and Friends of the Earth

Dec. 7 – Clinton tells US negotiators to compromise to put reasonable limits on pollutants that speed global warming, and to start a trading system allowing countries to buy and sell the right to emit certain pollutants

Dec. 8 – Gore flies to Japan for the Kyoto talks, vows flexibility in achieving emission restrictions in speech; speech criticized by some, leaves others confused about U.S. message; Gore meets with representatives of oil, coal and electric companies, then with representatives of environmental groups, assures both that he will respect their interests; Gore says Clinton Administration ready to override Senate opposition to global warming treaty

Dec. 9 – A dispute between the United States and the European Union over emissions trading threatens negotiations for a global warming treaty

Dec. 10 – Kyoto talks focus on proposal that would cut average emissions during the period 2005 through 2010 by 5 percent below the level of emissions in 1990, with different countries and groups of countries assigned different targets according to their economic profiles; top US and EU officials predict a historic treaty to combat global warming is near

Dec. 11 – Kyoto Protocol agreement reached, delegates agree to cut six major pollutants 6 to 8 percent below 1990 levels starting in 2008; U.S. Senate Republicans vow not to ratify treaty due to exclusion of developing countries, Senate Democrats suggest delaying the submission to the Senate for a ratification vote; policymakers and industry leaders indicate cuts needed to reach Kyoto targets may require a wide array of tools designed to reduce emissions caused by houses, factories, cars and consumption

Dec. 12 – The White House launches campaign to convince Senate of need to ratify Kyoto Protocol, notes previous environmental treaties have not wrecked the US economy

1998

Jan. 1 – A report notes an exemption from Kyoto treaty for U.N. multilateral operations and international transport, which would apply to military vessels headed toward overseas staging areas or participating in humanitarian operations

Feb. 1 – During weekly radio address, Clinton offers tax break plan to fight global warming, which would include tax credits for Americans who buy super-efficient cars and energy-saving devices for their homes, and for electric utilities that install high-technology generating equipment

Feb. 11 – In a meeting of the Senate Foreign Relations Committee, Hagel calls the Kyoto Protocol "unfair to the United States", while Stuart E. Eizenstat, the U.S. lead negotiator in Kyoto, defends the accord as an important step in combating global warming

Feb. 12 – House Science Committee Chairman F. James Sensenbrenner Jr. (R Wis.) calls the Kyoto Protocol "seriously flawed"

March 5 – The chairman of the President's Council of Economic Advisers predicts small costs in implementing the Kyoto Protocol

April 20 – The Environmental Protection Agency launches the Energy Star Labels Building Program in hopes of slowing global warming by reducing the amount of energy that office buildings consume

May 28 – The Environmental Protection Agency warns that catalytic converters have become a significant and growing cause of global warming

June 8 – Gore tells a White House gathering of scientists and reporters that global warming appears to magnify the effects of El Nino, citing evidence from the National Oceanic and Atmospheric Administration that indicates major El Nino events increased in frequency and severity over the previous two decades

June – global summit meeting in Bonn, Germany

July 10 – Clinton links global warming to wildfires in Florida

July 15 –Gore uses the announcement that June 1998 was the warmest on record to criticize Congress for blocking White House efforts to slow global warming. The director of the National Climatic Data Center notes that the first six months of 1998 eradicated the previous records for that month

July 24 – the U.S. House of Representatives defeats a proposal to stop government educational efforts on global warming

Aug. 2 – A study by the President's Council of Economic Advisers indicates U.S. costs of complying with Kyoto Treaty mandates for cutting carbon dioxide emissions can be reduced by 80 percent largely by relying on international emissions trading

Aug. 10 – The White House releases figures confirming that July 1998 was the world's hottest on record, including killer heat waves in Texas and Florida

Nov. 2 – Buenos Aires international conference on Climate Change begins; Argentina challenges fellow developing countries to adopt voluntary limits on emissions of the gases that cause global warming

Nov. 11 – Argentina becomes first developing country to adopt binding targets for controlling emissions, Kazakhstan, the Pacific island nations of Nauru and Niue also agree; U.S. cast as bad guy at conference

Nov. 12 – United States signs international global warming treaty, Eizenstat pledges to take new actions to cut greenhouse gas emissions

Nov. 13 – Negotiators struggle over shape and starting date for operating rules to enact Kyoto Protocol

Nov. 14e- 160 nations endorse pact on global warming compliance

Nov. 15 – Buenos Aires summit ends; delegates set the year 2000 as a deadline to create a global mechanism to police efforts to reduce emissions and to hold accountable nations that fail to comply; United States hails shift in developing nations' attitudes

1999

Jan. 25 – Clinton administration proposes $1 billion increase in spending and tax incentives to spur the development and use of more energy-efficient vehicles, homes, and heating and cooling equipment as part of efforts to control global warming

May 18 – The Clinton Administration accuses the European Union attempting to rewrite the Kyoto Protocol after EU members voted to cap the use of emissions trading to cut discharges of greenhouse gases.

June 14 – Clinton administration proposes postponing the international convention to complete the Kyoto Protocol until 2001 to avoid conflicting with the 2000 presidential race

Sept. 15 – Clinton calls for new efforts to halt global warming while speaking at New Zealand's International Antarctic Center

2000

April 22 – Earth Day 2000; Gore appears at Washington, D.C. rally, calls for elimination of internal-combustion engine; Clinton criticizes Congress for delaying action on global warming, calls for passage of legislation promoting clean and efficient energy

Aug. 1 – Clinton administration proposes that countries receive as much credit for using forests and fields to absorb carbon dioxide as they would for cutting emissions from smokestacks and tail pipes

Sept. 28 – Republican senators express doubt of Senate approval of Kyoto Protocol during a joint hearing of the Senate Foreign Relations Committee and the Energy and Natural Resources Committee

Oct. 25 – Intergovernmental Panel on Climate Change report issued to more than 100 governments concludes that humans play a significant role in climate change

Oct. 26 – Gore stresses environmental record on global warming during presidential campaign speech in Wisconsin

Nov. 13 – The U.N. Conference on Climate Change begins at The Hague, Netherlands; U.S. negotiators to push for trading credits over European objections

Nov. 19 – In a concession to the E.U., the U.S. agrees to cut back on the amount of credit it would receive for forest practices and farmland management that would absorb carbon dioxide

Nov. 21 – Europe accuses the United States of creating self-serving loopholes to help meet its targets to reduce greenhouse gas emissions, rejects idea of forest sinks as credit for cutting emissions

Nov. 23 – Conference leaders extend meeting until Nov. 25 in hopes of reaching an agreement, many countries blame United States for putting negotiations at risk of failure

Nov. 24 – The president of the U.N. convention proposes a compromise supplement that would limit international emissions trading and credits for forest practices and farmland management that would absorb carbon dioxide

Nov. 25e- Climate change conference collapses after U.S. and European Union ambassadors fail to agree to plan to reduce emissions; EU countries claim a proposed compromise would allow the United States to escape too much of its responsibility as the world's biggest polluter

Dec. 6 – U.S. officials meet in Ottawa, Canada, with ambassadors from Canada, Japan and the European Union in attempt to salvage Kyoto Protocol

2001

Jan. 17 – Intergovernmental Panel on Climate Change meets in Shanghai to work out details of an updated assessment on global warming

March 13 – In letter to Senate Republicans, President George Bush reneges on campaign pledge to curtail power plants carbon-dioxide emissions

March 27 – EPA administrator Christine Todd Whitman indicates the Bush administration has no interest in implementing the Kyoto Protocol

March 28 –Bush calls Kyoto Protocol unworkable, says it discriminates against the United States; Bush administration announces U.S. will develop other strategies to deal with the world's climate change

March 29 – Bush says supporting the Kyoto Protocol would only further damage the nation's slowing economy; a coalition of religious groups urge Bush to reconsider or risk alienating a faith-based movement committed to protecting the environment

March 30 – An international conference in Montreal ends after the United States refused to agree with a Latin-American proposal that industrialized countries reduce their emissions of the heat-trapping gases blamed for global warming

April 3 – Bush administration rejects EU officials' pleas to reconsider position on Kyoto Protocol, says it will develop alternative proposals that are less costly to the U.S. economy

April 6 – The U.S. Senate approves a bipartisan measure to restore $4.5 billion in funding for climate change programs over the coming decade that the Bush administration sought to cut

May 1 – Sen. John McCain (R-Ariz.) criticizes the Bush administration for not trying to fix the Kyoto Protocol and its mandatory pollution reductions to curb greenhouse gas emissions

June 6 – A panel report from the National Academy of Sciences requested by the White House reaffirms the mainstream scientific view that the earth's atmosphere is getting warmer and that human activity is largely responsible

June 7 – White House officials acknowledge climate change is a problem

June 9 – Bush administration announces changes to energy strategy prepared by a task force led by Vice President Cheney after criticism that it failed to account for global warming

June 11 – Bush calls Kyoto Protocol fatally flawed due to inconclusive scientific evidence and nonbonding targets for developing nations, says more research needed for workable strategy to combat global warming; announces a U.S. initiative to fund research and development of new technology to reduce greenhouse gas emissions

June 12e- European leaders reject Bush's call for more research on global warming; Bush faces criticism on maiden European tour for U.S. policies on missile defense, global warming and capital punishment

June 15 –Bush and EU leaders announce collaborative research on climate change, but EU officials plan to implement Kyoto Treaty despite U.S. stance

June 16 – Japan encourages Bush administration to support Kyoto Protocol, but hedges its own commitment in case the United States refuses

June 30 – During a summit at Camp David, Japanese Prime Minister Junichiro Koizumi indicates Japan won't pursue Kyoto Protocol without the U.S., pledges Japan's cooperation on alternative solutions

July 13 – Bush promo tes U.S. research on the relationship between greenhouse gases and climate changes

July 15 – British Prime Minister Tony Blair, French President Jacques Chirac and German Chancellor Gerhard Schroeder pressure United States to rethink its position on Kyoto Protocol

July 16 – U.N. Convention on Climate Change begins in Bonn, Germany; Bush administration officials reiterate opposition to Kyoto Protocol

July 23 – After a compromise between the European Union and Japan, more than 180 countries agree to implement the Kyoto Protocol without the United States

July 26 – Whitman indicates Bush administration has little interest in re-opening international global warming talks, preferring instead to focus on hemispheric and domestic measures to curb greenhouse gas emissions

Aug. 1 – The Senate Foreign Relations Committee unanimously approved a resolution instructing Bush to return to the bargaining table with specific proposals for either revising the Kyoto Protocol or negotiating a new binding agreement for reducing greenhouse gas emissions

Aug. 3 – Senators McCain and Joseph Lieberman (D-Conn.) co-sponsor legislation to cap greenhouse gas emissions and create a trading system to reward companies that do more than their share to combat climate change

Aug. 5 – White House Chief of Staff Andrew Card indicates Bush administration will present fresh proposals for revising a Global Warming Treaty when meeting with other environmental ministers in Morocco in October

Appendix J. U.K. Prestige-Press Coverage of Government

1997

Jan. 27 – The U.K. Department of Environment's Panel on Sustainable Development issues a report that warns ministers to devise new energy policies like taxing greenhouse-gas emissions that cause global warming

Feb. 19 – British Environment Secretary John Gummer attacks United States for failing to take action on climate change

March 3 – Environment Ministers from the 15 European Union states meet in Brussels, pledge to 10 percent cuts in greenhouse gas emissions between 2000 and 2010 to pressure the United States and Japan to back ambitious targets during the International Summit on Climate Change at Kyoto in December

March 26 – The Clinton administration's environmental adviser Kathleen McGinty indicates climate change poses a huge economic threat to the United States

June 23 – Earth Summit begins in New York

June 24 – U.S. under secretary for global affairs Tim Wirth accuses Britain of being smug over its achievements on tackling global warming while Gummer accuses U.S. President Clinton of rudeness for failing to be in New York

June 26 – Clinton pledges $ 1 billion at the Earth Summit to help developing countries to fight global warming, does not include specific targets for capping greenhouse gas emissions

June 28 – Earth Summit ends

Aug. 4 – Clinton meets with CEOs from U.S. oil, steel and power companies; urges business to look for profit when responding to ecological challenges like global warming; indicates preference for realistic, binding emissions limits compared to emissions trading

Sept. 18 – Australia comes under fire from Pacific island neighbors at the summit in the Cook Islands of the South Pacific Forum for refusing to reduce greenhouse gas emissions to below international targets; island nations claim global warming poses a bigger environmental threat to the Pacific than French nuclear tests

Sept. 19 – Wirth visits Saudi Arabia, pressures Saudi government to drop claims for compensation for lost oil revenues if an agreement to combat global warming is reached in the upcoming Kyoto talks

Sept. 30 – Clinton receives a petition signed by more than 1,500 of the world's leading scientists urging world leaders to immediate action to combat global warming; U.K. Prime Minister Tony Blair tells a Labor Party conference that Britain must hold a national debate on the problem of global warming leading to major policy moves on the issue, releases a report by the government's Chief Scientific Adviser, Sir Robert May, which signals that by the middle of the next century there will be twice as much carbon dioxide in the atmosphere as there was before the industrial revolution

Oct. 1 – The European Commission claims the EU is on track to reduce greenhouse-gas emissions to below 1990 levels by 2000; Clinton meets weather forecasters at White House

Oct. 6 – Clinton meets 200 business chiefs, politicians and scientists to determine U.S. climate-change policy, pledges U.S. support for realistic and binding international controls on emissions, insists developing countries must also control emissions

Oct. 13 – In a speech to a seminar at the Royal Institute for International Affairs in London, Britain's Minister of State at the Foreign Office presses for action on global warming

Oct. 22 – Clinton announces plans for moderate cuts in greenhouse gas emissions within 15 years, including a system of emissions-trading permits; Bonn talks begin

Oct. 23 – European Union and others criticize Clinton's proposal as "grossly inadequate"

Oct. 27 – Japan expresses confidence that the three major industrialized participants in the upcoming climate-change conference – the United States, Japan and the European Union – would eventually reach an agreement on limiting greenhouse-gas emissions

Oct. 29 – During questioning by the Commons' environment select committee, Deputy Prime Minister John Prescott says Britons must make major lifestyle changes to fight climate change, says U.K. may become colder if the Gulf Stream changes

Oct. 31e- More than 150 countries emerge deadlocked from 10 days of U.N. talks in Bonn aimed at curbing global warming

Nov. 12 – British Parliamentarians provide first details of how Britain could achieve efforts to reduce greenhouse gas emissions by 20 percent target through curbing energy waste and promoting renewable energy sources

Dec. 4 – Blair tells a summit of 25 business and trade union leaders to respond to the challenge of meeting agreements reached in Kyoto; Japan demands Britain and Germany make larger cuts in emissions than Japan and the United States

Dec. 7 – The European Union abandons its insistence that all countries agree a flat-rate emissions cut that individual EU members could collectively achieve through differentiated targets

Dec. 8 – U.S. Vice President Al Gore speaks at Kyoto conference, orders last-minute concessions from U.S. delegates

Dec. 11 – Conference members agree to a treaty to combat climate change

1998

March 4 – U.S. administration provides a modest estimate of costs of Kyoto Protocol to energy consumers, including gas increases of 3 to 4 percent and a rise of $70 to $100 in the average annual household energy bill

March 16 – Kyoto Protocol officially opened for signatures at U.N. headquarters; Argentina diplomat Raul Estrada-Oyuela claims the U.S. Congress' opposition to the Kyoto Protocol reflects ignorance and isolationism, warns of lack of progress for November conference in Buenos Aires

March 18 – Environment Minister Michael Meacher says a tax on companies' energy use would potentially curb waste and boost Britain's green technology industry; Chancellor Gordon Brown plans to decide

whether to institute the levy after an investigation by Sir Colin Marshall, president of the Confederation of British Industry

March 23 – The government's advisory committee on business and the environment recommend a carbon tax, subsidies for renewable energy and targets forcing every company to cut fuel waste in order to tackle climate change

March 31 – During talks with environmentalists near in Botswana's Chobe National Park, Clinton pledges support for an international treaty to monitor and combat desertification in Africa, but backs away from endorsing wider environmental treaties aimed at reducing global warming

April 15 – the Advisory Committee on Business and the Environment's paper on climate change argues that London could become a financial center for emissions trading, concludes a "carbon" tax on energy is needed to achieve ambitious cuts in greenhouse gas emissions

April 24 – the European Union announces it will sign the Kyoto Protocol on April 29

April 28 – Japan becomes first industrialized nation to formally sign the Kyoto Protocol

April 29 – The European Union, Canada, Monaco, Brazil and Norway formally sign the Kyoto Protocol

May 11 – Birmingham summit at the House of Commons begins, sponsored by GLOBE International, an association of parliamentarians from 100 countries

May 15 – G8 summit in Birmingham begins

June 5 – World Environment Day; Meacher launches integrated climate change study

June 16 – Britain suggests tougher greenhouse-gas emissions cuts for itself and poorer members of the EU in hopes of salvaging the Kyoto Protocol

June 17 – Britain clinches an accord among EU members meeting in Brussels on legally-binding national reductions in greenhouse gases needed to honor Europe's pledge to curb its share of the emissions causing global warming by 8 percent

Aug. 10 – The White House releases figures indicating July 1998 was the world's hottest month since record keeping began; Gore calls the data a clear indication of global warming

Oct. 26 – The U.K. government's consultation paper on global warming predicts higher costs, higher energy taxes and restrictions on personal movement due to adherence to Kyoto Protocol restrictions; Prescott publishes the range of policies aimed at limiting the UK's emissions of greenhouse gases, and the forecasts of their effects, calls for national debate on the subject

Nov. 2 – International negotiators meet in Buenos Aires to decide how to implement the Kyoto Protocol restrictions on greenhouse-gas emissions

Nov. 10 – Former State Department official Robert Reinstein, the chief U.S. negotiator on the UN's Framework Convention on Climate Change, which was signed at the Earth Summit in Rio de Janeiro, says the U.S. economy will not allow the United States to abide by emissions cuts promised in the Kyoto Protocol

Nov. 12 – Clinton signs the Kyoto Protocol; leaked documents indicate the World Bank plans to control an international carbon-trading market, prompting criticism of a conflict of interest with the bank's other role as a developer of fossil fuels

1999

March 10 – The British government announces a levy on the business use of energy, with offsetting cuts in employers' national insurance contributions and additional support for energy-efficiency schemes and renewable sources of energy. The proposed climate-change levy is expected to help Britain meet the greenhouse gas targets required by the Kyoto Protocol

April 14 – BP-Amoco and Esso clash over global warming evidence during meetings with the Commons' environment select committee, which met to investigate government strategy on meeting the Kyoto targets

June 13 – The official environmental body of the governments of the South Pacific reports that the islands Tebua Tarawa and Abanuea have sunk beneath the waves due to global warming

July 15 – British government announces a center to study climate change aiming to break down the barriers between environmental scientists, engineers and economists working on climate change

July 19 – Parliament's trade and industry committee criticizes the proposed industrial energy tax due to possible damage to struggling sectors of the economy

Oct. 26 – The U.K. Trade and Industry Department indicates emissions trading is part of government policy on pollution control, which would offset the impact of the proposed climate-change levy

Oct. 28 – Government insiders indicate Brown will soften the blow of the proposed climate-change levy by offering larger rebates for energy-intensive industries

Nov. 9 – Chancellor Brown redesigns the proposed climate change levy, exempts renewable sources of energy and combined heat and power

Nov. 26e- As Customs & Excise releases a draft of the bill on the climate change levy, tax experts claim the levy might affect fewer companies than expected

2000

Feb. 17 – The British government indicates likely action on the proposed climate-change levy after complaints from big industrial companies excluded from a discount deal in December 1999

March 9 – Prescott pledges to cut greenhouse gas emissions by almost 10 percent above the selected targets of the Kyoto Protocol, as well as committing to reducing carbon dioxide by a fifth by the year 2010, as a result of government measures including the proposed climate-change levy, voluntary agreements for car manufacturers to cut engine emissions and an obligation on electricity suppliers to deliver 10 percent of the UK's electricity from renewable sources by 2010

March 16 – U.S. Energy Department predicts global energy consumption will rise 121 percent in developing nations by 2020 under current policies, and China will pass the United States in carbon emissions between 2010 and 2020

March 20 – A Commons environment committee of MPs attacks the pounds 7M U.K. government publicity drive to prevent global warming and reduce greenhouse gases as ineffective

March 21 – The British government announces refinements to the proposed climate-change levy including: lowering the levy rate for liquid petroleum gas, adding to the list of technologies qualifying for enhanced capital allowances, setting aside part of the energy-efficiency fund for horticulture, introducing a 50 percent

discount on the levy for horticulture companies, and seeking a temporary exemption for natural gas in Northern Ireland

April 26 – During a speech to an international audience of industry and politicians in Washington, D.C., Prescott challenges the United States to tackle global warming problems and chastises U.S. politicians

May 2 – Tories attack details of the proposed climate change levy during the Finance Bill's committee hearings

May 16 – The United States and Central America agree to find a joint position with Canada and Mexico on climate change before the November international conference

June 16 – The Royal Commission on Environmental Pollution announces that Britain may need 46 nuclear-power stations to achieve a 60 percent cut in carbon-dioxide emissions needed by 2050

June 20 – British government announces plans to put 25 million pounds into green energy research projects such as offshore wind power as benefit of the proposed climate-change levy

July 21 – Frank Loy, U.S. under-secretary for global affairs, indicates the United States will be unable to meet Kyoto targets unless the EU allows unlimited trading in carbon credits

Aug. 2 – U.S. submission to United Nations contends the Kyoto Protocol must recognize forests and agricultural lands for abilities to absorb carbon dioxide, and thus credit countries for land management practices

Oct. 24 – In a speech to the Confederation of British Industry and the Green Alliance, Blair admits solutions do not measure up to climate change problems, calls for business to view environmental protection as a lucrative field

Oct. 30e- After the worst storm in a decade killed six Brits and left hundreds of millions of pounds worth of damage in its wake, Meacher blames global warming

Oct. 31 – Prescott orders a review of emergency services to cope with extreme weather conditions caused by global warming

Nov. 13e- The sixth meeting of the Conference of the Parties begins in The Hague

Nov. 17 – Britain's Labor party unveils program to combat climate change

Nov. 20 – France's Jacque Chirac urges United States to join effort in tackling global warming; U.S. negotiators slash demands by two-thirds for forests and farmland to be used as "sinks" to soak up CO2

Nov. 21 – During a speech at The Hague, Prescott uses sandbag to symbolize the threat of uncontrolled flooding and other environmental disasters that may arise from global warming; European Union rejects U.S. proposals to alter targets to reduce carbon dioxide

Nov. 23 – Alliance of Small Island States plea to developed countries at The Hague to help with the effects of global warming; a senior figure in the insurance industry warns conference participants that damage from climate-induced natural disasters could bankrupt the world by 2065

Nov. 24 – A spokesman for the U.K. government's pounds 25 million "Are you doing your bit?" campaign pleaded with people to use less water when making their 229 million daily cups of tea and coffee to help fight climate change

Nov. 25 – Climate change talks at The Hague fail; Prescott storms out when European delegates rejected a Prescott-brokered US proposal that would have allowed America a smaller cut in domestic emissions

Nov. 26 – Meacher defends Prescott, says climate change talks ran out of time

Nov. 27 – Prescott makes conciliatory statement about French Environment Minister Dominique Voynet over the failure in climate change talks

Dec. 14 – Clinton, speaking at Warwick University at the end of his three-day visit to Ireland and Britain, catalogues problems facing the world, including global-warming effects on developing countries

Dec. 18 – EU environment council meeting in Brussels attempts to rescue Kyoto Protocol, but United States and European Union fail to agree to terms for resuming negotiations in Oslo

Dec. 19 – The United Nations Convention to Combat Desertification attendees told the Sahara has crossed the Mediterranean and threatens to turn up to a third of southern Europe into desert; in a *Financial Times* comment and analysis, a former administrator of the US Environmental Protection Agency notes that painting the US as the perpetual monster of greenhouse-gas emissions does little to reverse climate change

2001

Jan. 24 – EU Environment Commissioner Margot Wallstrom unveils the EU's environmental plans to reduce global emissions by up to 40 percent by 2020 compared with 1990 levels, warns that she's concerned President-elect George W. Bush's administration might not push for a international agreement

Jan. 25 – The Tories party promises to abolish the proposed climate change levy in its election manifesto

Feb. 2 – Munich Re, the world's biggest reinsurer, tells the UN Environment Programme that the insurance bill for extreme weather events and rising sea levels will likely increase tenfold by 2050, making parts of the world uninsurable

Feb. 5 – More than 100 Environment Ministers meet in Nairobi to discuss climate change

March 2 – Environment Ministers from the Group of Eight industrialized nations gather in Trieste, meet for first time since The Hague climate change talks collapse

March 4 – Ministers from the G8 countries, which include the seven leading industrialized nations and Russia, pledge in Trieste to seek a deal on global warming at talks in Bonn in July; EPA administrator Christine Todd Whitman indicates the Bush administration needs time to assess its policy on the Kyoto Protocol

March 8 – EU environmental ministers arrive in Brussels to discuss strategy on achieving international agreement on the Kyoto Protocol

March 14 – Bush reneges on campaign promise to regulate power station emissions of carbon dioxide

March 20 – Charles Kennedy, the Liberal Democrat party leader, challenges Blair to tell Bush that the US administration's views on climate change are out of touch with the rest of the world

March 22 – U.S. National Security Adviser Condoleeza Rice tells EU ambassadors in Washington that the Kyoto Protocol process is "dead"

March 23 – U.S. administration official says the White House will be engaged on the climate change issue but will remain opposed to Kyoto Protocol; European Commission President Romano Prodi and Swedish

Prime Minister Goran Persson send a joint letter to Bush from the European Union summit in Stockholm urging continuing climate change talks

March 27 – Whitman defends Bush on ABC's "Good Morning America" even though he rejected her advice when he broke a campaign promise to seek carbon dioxide cuts from US power plants; a leaked memo dated March 6 from Whitman to Bush indicates concern within the EPA about Whitman's credibility

March 28 – White House spokesman Ari Fleischer says Bush will not implement the Kyoto Protocol, but will instead work with allies on a plan that will require developing nations to meet certain standards; Whitman says Bush is not interested in implementing the treaty because Congress would not ratify it; EU says action puts the treaty at great risk

March 29 – Bush says Kyoto Protocol would harm the U.S. economy and its workers, meets with German Chancellor Gerhard Schroder; Wallstrom warns that U.S. actions could have serious implications for its international and trade relations; Green Euro-MPs call on consumers to boycott US oil companies

March 30 – White House official says U.S. backs protocol's aims but not the plan, says U.S. will attend July 16 environment minister's meeting in Bonn; government sources say Britain will ratify the Kyoto Protocol despite the U.S. position

March 31 – EU Environment Ministers meeting in Kiruna, Sweden, announce they will ratify the Kyoto Protocol despite US objections

April 1 – U.K. climate change levy introduced; a letter signed by influential US and international figures, including former President Jimmy Carter, tells the Bush administration that the United States must develop an urgent plan to reduce its emissions of greenhouse gases

April 2 – A delegation led by Swedish Environment Minister Kjell Larsson tells the Bush Administration in Washington that there are no alternatives to Kyoto if the greenhouse gases thought to be behind the rapid rise in world temperatures are to be cut

April 3 – The Bush Administration rejects pleas to reconsider abandoning the Kyoto Protocol

April 4 – Blair pledges to press Bush toward signing the Kyoto Protocol; Prodi warns Bush that the European Union intends to honor the Kyoto Protocol

April 6 – The Bush Administration introduces guidelines for a new international global-warming agreement during a meeting with a Japanese delegation

April 8 – Prodi and Persson publish a column in a Swedish daily newspaper insisting neither the emissions targets nor the timeline for the Kyoto Protocol will be change, but indicate the European Union's willingness to negotiate some targets with the United States

April 10 – A cross-party committee of MPs launches a campaign to persuade Coca-Cola's customers around the world to strong-arm the global soft drinks company into backing the Kyoto Protocol

April 15 – Prescott says he will argue the case for the Kyoto Protocol with the United States; the chief executive of the UK Met Office accuse government ministers of undermining Britain's efforts to combat global warming by making simplistic and uninformed remarks about its impact

April 16 – U.K. Environment Department officials announce that Prescott had no scheduled meetings with any members of the US administration

April 19 – Prescott tells the United Nations that countries should redouble their efforts to reach an international agreement on climate change, "the greatest global environmental threat we face"

April 24 – Tory MPs condemn Prescott for diplomatic ineptitude for his handling of the climate change negotiations, call Bush the "Toxic Texan" and the "Fool on Capitol Hill" for reneging on the Kyoto Protocol

May 15 – The UK Office for National Statistics first evaluation of the climate change levy indicates it more than tripled the pace of cost increases in Britain's industry after its April introduction

May 16 – Environment Ministers in the Organization of Economic Cooperation and Development meet in Paris

June 1 – Italy's new Prime Minister Silvio Berlusconi's diplomats call for Europe to acknowledge that Kyoto is in effect dead without American support

June 6 – The Bush Administration promises to present proposals on controlling global warming to European leaders in Gothenburg, Sweden

June 7 – EU Environmental Ministers sign a commitment to pressing ahead with the 1997 Kyoto Protocol; Italy's coalition urges its EU partners to show flexibility towards new proposals from the United States

June 11 – A European Climate Change Programme report concludes sufficient potential cost-effective measures exist to cut emissions of greenhouse gases by twice the target set for the 15-nation EU under the Kyoto Protocol; Bush says Kyoto Protocol is "fatally flawed in fundamental ways" before leaving for Gothenburg summit, promises to work for a science-based response to climate change within the framework of the United Nations, and announces a large research initiative to explore unanswered questions about global warming

June 12 – The European Union sharply criticizes US proposals, insisting instead that industrialized countries should ratify the Kyoto agreement for cutting greenhouse gas emissions; Bush begins European visit with Spanish Prime Minister Jose Maria Aznar

June 14 – The EU reaffirms the determination of its member governments to ratify the Kyoto Protocol, but United States disagrees, rejects the protocol; both sides pledge to continue talks

June 21 – The Belgium Finance Minister states the need for the EU to make progress on energy taxation to meet its Kyoto Protocol objectives for reducing greenhouse gases

June 27 – Japan criticizes the EU proposal to salvage the Kyoto Protocol, insists that the treaty cannot work without American participation

June 28 – Delegates from 110 countries meet at The Hague for informal talks on the Kyoto Protocol

June 29 – Japan and Russia end discussions at The Hague by saying they want to continue with the Kyoto Protocol

July 2 – Blair and Japanese Prime Minister Junichiro Koizumi endorse the Kyoto Protocol as the appropriate framework for tackling climate change

July 6 – Schroder urges Koizumi to play a constructive role at the upcoming climate change talks in Bonn

July 9 – Japan rebuffs pressure from the European Union to ratify the Kyoto Protocol, insisting that US participation was essential

July 10 – EU and Japanese business leaders from more than 40 corporations urge the EU and Japan to join forces to bring the US back into the Kyoto process, calling for flexibility from all sides; Australia joins Japan in saying it will not back the Kyoto Protocol if it did not include the United States

July 11 – Wallstrom warns the US not to obstruct talks aimed at finalizing rules to implement the Kyoto Protocol

July 15 –Japan warns EU and other nations that the upcoming UN climate change conference in Bonn was unlikely to bridge the deep divide over the Kyoto Protocol between the US and other developed nations

July 17 – Bush reaffirms commitment to stance on Kyoto Protocol, tells BBC that no chance exists for European leaders to persuade him to compromise; Japan hints it will join other countries in ratifying Kyoto Protocol without United States' participation

July 18 e- Bush flies to London; a French official indicates little hope of bridging the divide between the EU and US over the Kyoto Protocol in the upcoming meeting of G8 leaders of industrialized nations at the Genoa summit, which coincides with the UN climate change conference in Bonn

July 19 – Bonn climate change conference begins

July 20 – New UK Energy Minister Brian Wilson releases plans to boost hydro-electricity generation to help meet climate change targets; Bert Mertz, co-chairman of the mitigation-working group of the UN Intergovernmental Panel on Climate Change, tells environment ministers in Bonn that five to 10 years' delay in cutting greenhouse-gas emissions could put the job of stabilizing the atmosphere beyond reach

July 23 – After a compromise between the European Union and Japan, 186 countries agree to implement the Kyoto Protocol without the United States

July 24 – US Secretary of State Colin Powell defends America's environmental record, says the White House did not shirk its responsibilities by refusing to ratify the Kyoto Treaty, suggests United States will have its own climate change proposals by October

July 25 – Climate Change Environment Secretary Margaret Beckett says the climate change treaty creates an opportunity rather than a threat for British industry

July 26 – Water UK tells an industry seminar on climate change that higher bills will be needed to combat the summer droughts and winter floods likely to become more common due to climate change

Aug. 14 – Britain launches a Pounds 215m emissions trading scheme to begin April 2002 that will allow companies to buy and sell unused allowances to emit carbon dioxide, the first comprehensive greenhouse-gas trading scheme in the world

Appendix K. U.S. Prestige-Press Coverage of Science

1997

Feb. 13 – A group of 2,100 economists sign a statement calling for international controls to prevent global warming, asserting that such controls would not harm Americans' standard of living and might improve the nation's economic productivity

March 7 – At a conference on climate change and health in Bethesda, Md., scientists predict that environmental effects of global warming could have a profound effect on human health by the middle of the next century

March 13 – National Center for Atmospheric Research scientists say satellite measurements indicate support for global warming; *Nature* journal reports that two scientists from the National Center for Atmospheric Research conclude that satellite temperature records used by skeptics to dispute global warming may not be reliable

March 16 – University of Southern California researchers conclude that local governments' reaction to possible threats of sea rise and beach erosion due to global warming will determine how much damage actually occurs within next 50 years.

March 20 – Columbia University researchers theorize that the Pacific Ocean may have slowed global warming, with a potentially unsettling effect on the weather

April 17 – *Nature* reports spring began eight days earlier than a decade previous

June 19 – More than 2,400 scientists sign a statement calling on the Clinton administration to take early domestic action on carbon dioxide and other pollutants that cause global warming

Aug. 29 – University of New Hampshire researchers conclude cold winds going over the North and South Pole are nearly identical to those during a global chill 400 years ago, raising the possibility that global warming effects may be worse than previously thought.

Sept. 3 – *Nature* reports Australian scientist's findings that Antarctic Ice Cap shrunk between 1950 and 1970

Sept. 25 – National Laboratories' study concludes that savings in energy expenses would offset economic costs incurred by fighting global warming; *Nature* reports on debate between experts surrounding the reliability of balloon and satellite temperature records

Sept. 29 – As the first detailed study of the possible local effects of global warming, an 18-month study released by United Nations' scientists concludes global warming could expand north Africa's desert, wipe out some mountain vegetation in Latin America and submerge 2 million to 5 million acres of coastal land in North America

Nov. 6 – *Geology* journal reports University of North Carolina researchers link volcanic activity to climate change in the Caribbean

Nov. 13 – *Science* magazine reports 10-year study of the Arctic provides evidence that pollution plays a significant role in increasing temperatures; U.S. government reports that global warming is expected to increase at a rate 25 percent faster than previously thought

Nov. 28 – *Science* reports that scientists at the Smithsonian Institution's National Museum of Natural History found no evidence of rapid evolutionary activity in humans due to climatic change, suggesting shifts to prolonged series of climate changes rather than a single shift

Dec. 1 – A group of scientists note the possible threat of localized cooling as part of global warming

1998

Jan. 8 – National Oceanic and Atmospheric Administration scientists report that 1997 was the warmest year on record, and the previous decade had nine of the 11 hottest years in the century

April 22 – National Academy of Sciences disassociates itself from Oregon Institute of Science and Medicine petition that calls for the government to reject the Kyoto Protocol

May 8 – *Science* reports that research suggests intergalactic dust may have contributed to climate change and even killed the dinosaurs

May 28 – The Environmental Protection Agency warns that catalytic converters have become a significant and growing cause of global warming

Aug. 13 – *Nature* reports that two scientists conclude that technical flaws in climate change measurement instruments account for supposed "global cooling" attributed to satellite temperature records used by skeptics to dispute global warming

Oct. 27 – In the Proceedings of the National Academy of Sciences, scientist James Hansen notes the scientific ignorance about many of the factors affecting the world's climate

November – *Science* reports new technique to show that greenhouse gases already influence the Earth's climate, concluding that the 20th century temperature record can only be explained by taking into account both the sun and greenhouse gases

1999

Jan. 14 – Colorado State University researchers blame climate change for loss of grass in Northeastern Colorado

Jan. 28 – American Geophysical Union warns of a "compelling basis for legitimate public concern" about human-induced climatic change in an official policy statement.

March 11 – *Nature* reports scientists finding evidence of a correlation between fluctuations in carbon-dioxide levels and prehistoric droughts and deserts

March 12 – *Science* reports scientists concluding that rising global temperature causes increases in carbon dioxide 400 to 1,000 years later, which contradicts the logic of greenhouse theories

June 3 – *Nature* reports that NASA scientists conclude global warming and the jet stream work together to cause winter warming in the Northern Hemisphere

June 29 – Environmental Defense Fund and Columbia University release report of possible effects to global warming to New York by the year 2100

June 30 – Preliminary analysis of Intergovernmental Panel on Climate Change data by the National Center for Atmospheric Research and released by the Pew Center on Global Climate Change suggests global warming and sea-level rise may be higher than previously predicted in the upcoming century

Dec. 3 – *Science* reports that an international study of 46 years of declining Northern Hemisphere sea ice suggests global warming to be likely cause

December – Seven environmental groups release a worldwide map packed with more than 100 anecdotes and reports of scientific studies of global warming

2000

Jan. 12 – A report released during the American Meteorological Society annual meeting by the National Research Council panel concludes global warming is real

Feb. 17 – *Nature* reports that researchers studying five centuries of temperature data compiled from various depths in 616 boreholes on six continents indicate natural temperature variation may be larger than previously thought

March 16 – *Environmental Health Perspectives* journal reports a Congressionally mandated scientific panel found no conclusive evidence to justify fears that global warming might cause harmful health effects

March 24 – *Science* reports scientific confirmation of the oceans soaking up much of the global warming of the previous decades, delaying the effects of global warming

June 12 – The U.S. Global Change Research Information Office releases report predicting that increased global warming by 2100 could increase coastal erosion, drought, fires and floods

June 16 – The National Climatic Data Center reports the United States witnessed the hottest spring in 106 years of data reporting

July – Review of 40 years of polar research by University of Colorado researchers show temperatures rising 11 degrees since 1970, and sea-ice thickness dropping 50 percent in the same period

July 14 – *Science* reports analysis of the climate from previous 1,000 years suggests human activity provides the dominant force behind the global warming trend of the 20th century

July 18 – At the International Conference on Emerging Infectious Diseases in Atlanta, Ga., a physicist says governmental policies to combat global warming may be good for the planet, but will come at the cost of more effective measures to fight for public health

July 24 – *Science* reports NASA scientists blaming global warming for melting Greenland's ice sheet

Aug. 15 – U.S. Dept. of Agriculture weed ecologist claims the extra carbon dioxide caused by global warming may have doubled the ragweed pollen in the air over 100 years, increasing respiratory problems

Aug. 19 – James E. Hansen and colleagues report in proceedings of the National Academy of Science that global warming is more likely to be caused by emissions including methane, chlorofluorocarbons, black particles of diesel and coal soot and compounds that create the ozone in smog, which are easier to control than carbon dioxide

Sept. 18 – *Science* reports that ice cores removed from a Himalayan glacier suggest temperatures over southern Asia during the previous five decades are the warmest in 1,000 years

Oct. 12 – *Nature* reports scientists used small amounts of iron in biologically barren seas in Antarctica to produce plants that pulls carbon dioxide out of the air

Oct. 25 – Intergovernmental Panel on Climate Change report issued to more than 100 governments concludes that humans play a significant role in climate change

Nov. 15 – A study released by five Energy Department laboratories indicates that with the right combination of research, incentives and government rules, costs of slowing global warming does not have to cost consumers anything and may lead to economic benefits

Dec. 14 – A two-year compilation of scientific studies commissioned by the Interior Department forecasts sharply reduced mountain snowpacks, increased flooding and the ruin of some coastal freshwater sources as global warming impacts U.S. water supplies; it is among the first to indicate some are unavoidable, even if the trend were to be immediately reversed

Dec. 20 – The National Oceanic and Atmospheric Administration reports the year 2000 is somewhere between the seventh and 12th warmest year on record despite the second coldest November on record

2001

Jan. 11 – *Nature* reports droughts caused by global warming could increase carbon dioxide release, which may possible speed changes in the climate

Feb. 5 – UC Irvine receives $2 million grant to become the first U.S. facility to study carbon's role in global warming

Feb. 19 – Intergovernmental Panel on Climate Change report indicates global warming affects animals, birds, glaciers and other features of the natural world, concludes poor countries will bear brunt of climate consequences

March 15 – *Nature* reports London's Space and Atmospheric Physics Group found direct evidence from Earth's outer atmosphere of rising levels of greenhouse gases believed responsible for global warming

April 5 – *Nature* reports Oregon scientists finding large-scale climate change led to a high mortality in the declining amphibian population of Oregon's northern Cascade Range

April 13 – *Science* reports two independent studies using computer models found that simulations of the Earth's climate could not produce current temperatures without factoring in the presence of man-made pollutants such as greenhouse gases and sulfate aerosol, which warm the Earth by trapping heat near the surface. With pollutants added to modelsę the temperature readings generated closely simulated the actual temperature records

June 6 – A panel report from the National Academy of Sciences requested by the White House reaffirms the mainstream scientific view that the earth's atmosphere is getting warmer and that human activity is largely responsible

July 19 – *Science* reports a study by the National Center for Atmospheric Research and the University of East Anglia found a high probability the Earth's average temperature will rise between 4 and 7 degrees Fahrenheit over the coming century; a second study by scientists from the Massachusetts Institute of Technology and the University of North Carolina cautions that environmental and economic consequences resulting from greenhouse gas emissions are uncertain

Aug. 17 – *Science* reports a review of more than 1,000 scientific studies indicates the reduction of air pollution and use of fossil fuels in four of the world's largest cities would reduce global warming, improve health and save lives

Appendix L. U.K. Prestige-Press Coverage of Science

1997

Jan. 19 – University of Georgia professor indicates global warming may be good for forests as increased levels of carbon dioxide help trees grow faster

March 12 – A senior U.S. scientist at the National Climate Data Center indicates that recent storms and floods causing over $2 billion in property damage reflect an increase in weather extremes caused by global warming

April 16 – *Nature* journal reports U.S. scientists confirm spring arrives a week earlier, suggest link to global warming

April 25 – An international specialist from the Center for Health and the Global Environment at Harvard's Medical School indicates global warming and the rise of mega-cities contribute to the rise of new diseases and infections once considered conquered

June 11 – Australian academic Brian Fisher attacks as unworkable the EU's attempt to persuade other developed nations to match proposed emission cuts, as energy-intensive industries would move from developed nations to developing countries

July 3 – *Nature* reports research of a century of temperature data indicates global warming occurring in part to climatic effects of trace gases and sulphate aerosols emitted into the atmosphere via human activity

July 27 – Scientists at the Hadley Center for Climate Modeling at the UK's Meteorological Office call excessive rain and flooding in Western Europe a result of global warming

July 30 – *Nature* reports British Antarctic Survey researchers suggest that moderate global warming would alter the sea circulation to bring cooler waters in contact with the Antarctic ice shelves, causing them to thicken

Aug. 7 – *Nature* reports the British Trust for Ornithology found British birds laying their eggs nine days earlier each spring than they did in 1971, suggests man-made global warming to blame

Sept. 3 – *Nature* reports a study of whaling records indicates Antartica lost a quarter of its sea ice in the 1900s, which might have been caused by global warming

Sept. 26 – The *British Medical Journal* reports specialists at the London School of Hygiene and Tropical Medicine and the Royal Free Hospital School of Medicine predict rising temperatures across the world due to global warming will spread tropical illnesses to Europe and North America and change the global pattern of disease

Sept. 30 – Clinton receives a petition signed by more than 1,500 of the world's leading scientists urging world leaders to immediate action to combat global warming; U.K. Prime Minister Tony Blair tells a Labor Party conference that Britain must hold a national debate on the problem of global warming leading to major policy moves on the issue, releases a report by the government's Chief Scientific Adviser, Sir Robert May, which signals that by the middle of the next century there will be twice as much carbon dioxide in the atmosphere as there was before the industrial revolution

Nov. 25 – A consultant's report by the Rocky Mountain Institute in Colorado indicates the United States annually wastes $300 billion worth of energy, and must reduce energy usage by 30 percent or more to meet its plan to return to its 1990 rate of carbon dioxide emissions

Nov. 27 – *Science* journal reports a U.S. scientist predicting global warming may disrupt the Gulf Stream, leading to European temperatures falling to Arctic levels

Nov. 30 – Researchers funded by the European Commission to find ways to predict Mediterranean volcano eruptions conclude sea-level changes caused by global warming could trigger eruptions of new or dormant volcanoes in the region, which could lead to the deaths of millions from respiratory ailments

Dec. 2 – Four British scientists who advise the U.K. government claim more than 20 million people face starvation, drowning, or dying of thirst by 2050 due to climate change

1998

Feb. 15 – The Acoustic Thermometry of Ocean Climate project announces results at an American Geophysical Union meeting that global warming may be measured through soundings through the ocean

March 20 – An internal insurance industry study warns that global warming may cause increases in serious flooding resulting from rising sea levels, suggests higher insurance premiums for residents on England's East Coast to offset potential losses

March 23 – A 25-mile long ice shelf breaks away from the Antarctic peninsula

April 12 – Scientists at Cern, a particle physics laboratory in Geneva, indicate that sunspots may be the true cause of global warming

May 17 – An Oxford University study suggests digital television's demand on household electricity could add to global warming because of an expected 7 percent increase power consumption in UK homes

May 27 – Findings reported at a Boston, Massachusetts meeting of the American Geophysical Union indicate world reserves of glacial ice are melting more quickly than previously thought

July 31 – The journal *British Birds* reports researchers expect global warming to dramatically change 200 species of native breeding birds

Aug. 13 – *Nature* reports scientists who work for a Californian consultancy, Remote Sensing Systems, found contradicting temperature measurements from satellite and land-based units can be explained by a gradual fall in the satellites' altitude as they orbit the Earth, solving a global warming anomaly

Aug. 25 – The Environment Agency indicates climate change may be harming the water quality in rivers and canals

Oct. 16 – In a report to the Met Office, the Hadley Center for Climate Change and the Climate Research Unit at East Anglia University predict heavy winter rains with frequent flooding, drier summers with frequent droughts and more extreme weather events

Oct. 20 – Scientists predict the Peary caribou of the high Canadian Arctic may be the first animal to become extinct as a result of global warming

Oct. 22 – Five of the British government's senior advisers on global warming predict millions of people will become environmental refugees and starve because politicians are failing to prepare for inevitable climate change resulting from man's activities

Nov. 2 – A U.K. government-commissioned report from UK, US, Spain and Austria researchers indicates global warming will turn South American rainforests into deserts while crop yields will increase in higher and mid-latitudes and decrease in lower latitudes, which could increase hunger by 18 percent in Africa by 2050

Nov. 9 – Scientists from the Intergovernmental Panel on Climate Change indicate aircraft pollution may cause three times more global warming than previously assumed

Nov. 12 – Scientists from the Global Coral Reef Alliance indicate high sea temperatures have killed most of the coral reefs in the Indian Ocean, Western Pacific and Eastern Pacific

Nov. 23 – A report from Insect Investigations Ltd, an affiliate of the University of Wales, warns that global warming will increase the number of insects invading Britain due to warmer temperatures

1999

Jan. 19 – An international team of scientists begins an Antarctica expedition to fertilize the Southern Ocean floor with iron, will measure changes in carbon dioxide levels expected to occur as a result of increased growth of algae

Feb. 13 – Fishermen catch an 8-foot long man-eating mako shark weighing nearly 400 pounds five miles off Brighton pier; marine biologists warn global warming could bring more killer fish closer to U.K. shores

Feb. 25 – *Nature* reports findings from a scientific survey of gardens from Ireland to Hungary and from Finland to Macedonia by University of Munich researchers that indicate spring is six days earlier in Europe than in the 1960s due to global climate change

April 15 – *Nature* reports scientists find a link between El Nino and global warming

March 1 – An experiment by the New Zealand National Institute of Water and Atmospheric Research indicates that fertilizing the sea with iron filings dramatically accelerates the growth of plant plankton, which absorb large amounts of greenhouse gases

May – *Science* reports that research to test the feasibility of ocean disposal of greenhouse gases found more water displacement than predicted, but the implications for combating global warming were unclear

June 10 – *Nature* reports that an international team of scientists found butterflies moving north during summer in response to global warming, which represents a significant shift in their breeding range

June 23 – A government-commissioned report by the Institute of Terrestrial Ecology and the University of East Anglia's Climate Research Unit indicates trends (e.g. earlier arrival of spring, rising sea levels, and drier summers) provide evidence of global warming's effects on Britain

July 10 – British scientists from the Institute of Terrestrial Ecology warn the BBC that global warming could be worse than predicted during a Countryfile program to be broadcast over the weekend, indicate peat bogs may add to global warming as the "sinks" may release excess carbon dioxide into the atmosphere

July 15 – British government announces a center to study climate change aiming to break down the barriers between environmental scientists, engineers and economists working on climate change

Aug. 6 – *New Scientist* magazine reports Australian national research lab computer models predict that climate change would occur even without global warming

Aug. 10 – A Cambridge University applied physics professor tells a National Astronomy Meeting that the latest computer models of climate change linking solar variability effects and greenhouse gases suggest that global warming may cause another ice age

Aug. 29 – A study conducted by East Anglia University and funded by World Wide Fund for Nature concludes British holiday destinations such as Spain and Florida could soon become marred by flash floods, fires, drought and disease due to global warming

Sept. 15 –The U.N. Environment Programme's Global Environment Outlook 2000 report concludes it's too late to stop the first effects of global warming, warns of water wars, calls for treasuries, central banks, planning departments, trade bodies and other institutions to have greater long-term environmental awareness rather than focusing on short-term economical gains

Oct. 16 – *Nature* reports a Rutherford Appleton Laboratory scientist's plan for PC users to help predict climate change on Earth

Oct. 18 – A Meteorological Office Hadley Center report predicts increased water shortages, floods, rainforest destruction and malaria risks by 2080 if current global warming policies do not change; even if changed, the report predicts tropical rainforest loss and water shortages in Europe and the Middle East

Oct. 21 – *New Scientist* reports a United Nations Intergovernmental Panel on Climate Change study suggests "carbon-sink" forests will quickly become saturated with carbon and begin to return much of the carbon they contain into the atmosphere just as global warming accelerates

Nov. 3 – British scientists predict global warming may trigger a surge in carbon-dioxide levels by 2050, which would increase droughts, hurricanes, food shortages and rising sea levels

Nov. 4 – In the first coordinated attempt to assess global warming's impact on California, research commissioned by the Union of Concerned Scientists and the Ecological Society of America indicates climate change threatens the state through increased water shortages, flooding, wildfires and landslides

Nov. 7 – *Scientific American* magazine reports scientists of the Research Center for Marine Geosciences in Kiel, Germany, warn that huge deposits of methane gas locked under the ocean floor could trigger a catastrophic bout of atmospheric warming that would cause global devastation

Nov. 24 – A report produced by consultants W S Atkins, the Meteorological Office and the Agricultural Development and Advisory Service predicts storm surges and rising sea levels due to global climate change, with resulting financial losses to the service and insurance industries as well as to paper, pharmaceutical and chemical manufacturers

2000

Jan. 27 – *Nature* reports an international team of scientists studying the environmental history of Kenya's climate-sensitive Lake Naivasha concludes the stability of tribal societies in east Africa has been subject to climate changes throughout the past millennium

Feb. 22 – Environmental Change Institute scientists' research indicates Britain will overtake southern France as a wine-growing region due to global warming, and southern coastal Scotland will produce wine by 2050

March 18 – A paper on the threat of global warming produced for the National Trust of Scotland predicts that the five uninhabited Monarch Islands off the west coast of Scotland might sink beneath the waves by 2020, threatening the largest grey seal colony in Europe

April 3 – A study funded by the World Wide Fund for Nature and conducted by the World Conservation Monitoring Center warns that global warming could decimate populations of British shorebirds

May 4 – *Nature* reports first complete collapse of a coral reef in the Caribbean due to global warming as central barrier reef off Belize suffers massive coral bleaching

May 15 – An independent report commissioned by the Department of the Environment, Transport and the Regions predicts that flood protection for England and Wales to combat climate change will cost billions of pounds over 50 years
May 16 – Oxford University's environmental change unit predicts digital television will increase U.K. energy consumption by 7 percent, which could add to global warming

May 24 – The journal *Global Change Biology* reports a study of 35 of the estimated 60 British butterfly indicates that global warming accelerates the arrival of butterflies in the U.K.

June 4 – Results from the first British butterfly census in 20 years indicate climate change encouraged some species to thrive, but severely reduced other species, e.g. the extinction of the Large Tortoiseshell butterfly

July 24 – *Science* reports NASA scientists blaming global warming for melting Greenland's ice sheet

July – Historian David Keys' book "Catastrophe" claims global warming may have killed 100,000 since 1997, predicts climate disturbances will lead to mass migration as people move from affected areas; increasing disease as viruses become more prone to jump species barriers; and an increase in poverty as agriculture and economies are disrupted

Aug. 6 – An entomologist at Edinburgh University indicates global warming may trigger an explosion in Scotland's midge population

Aug. 30 – The report "Global Warming and Terrestrial Biodiversity Decline" by a University of Toronto researcher and funded by the World Wide Fund for Nature predicts a third of the world's habitats face risks from global warming, with the extinction or great reduction of some northern plant and animal species

Aug. 31 – Proceedings of the National Academy of Sciences report U.S. scientists find global warming can be slowed by focusing on air pollution measures while reducing the reliance on fossil fuels

Sept. 8 – *Science* reports a University of Wisconsin-Madison study of ice records from the 19th century indicate Earth is warmer than 150 years ago, supporting the view that global warming is the result of the release of carbon dioxide from 19th century industrialization

Sept. 15 – *Science* reports an international team of scientists indicate Himalayan ice cores provide convincing evidence that the past 50 years - and the 1990s in particular - were the warmest of the past millennium

Sept. 23 – Scientists from the European Space Agency and others indicate an increase in solar radiation accounts for global warming

Oct. 8 – A study from the Public Marine Laboratory suggests Britain may become colder as the Gulf Stream moves south from global warming effects

Oct. 12 – *Nature* reports scientists fertilized the ocean floor with iron, leading to increases in phytoplankton, which soak up large quantities of carbon dioxide from the atmosphere

Oct. 26 – *Nature* reports scientists from Stanford University and the University of Colorado studying coral records found global warming increases the frequency of El Nino

Nov. 1 – A report by 30 international scientists for the European Commission predicts Northern Europe will have fewer days of frost and snow and longer growing seasons because of global warming, while Southern European resorts would become too hot in summer and the land would become arid. The report suggests Britain could expect more flooding but could benefit from a reduced need for heating and better growing conditions for trees and crops

Nov. 9 – *Nature* reports Britain's Meteorological Office's Hadley Center for Climate Prediction and Research predicting global warming will likely to take place 50 percent faster and result in much more damage than previously thought due to a feedback effect that may accelerate the process

Nov. 27 – The U.K. Meteorological Office declared Autumn 2000 to be the wettest in 350 years, but do not blame global warming

Dec. 10 – A scientist at the International Coral Reef Symposium in Bali indicates global warming threatens coral reefs in the Indian Ocean

Dec. 11 – Scientists at a Royal Society for the Protection of Birds workshop claim climate change is too pronounced to be ignored

Dec. 19 – The United Nations Convention to Combat Desertification attendees told the Sahara has crossed the Mediterranean and threatens to turn up to a third of southern Europe into desert

2001

Jan. 14 – The journal *Geophysical Research Letters* reports an international team of scientists found seawater measurements have exaggerated the amount of global warming over the seas by almost 40 percent, with the real temperature having risen less than half as fast during the 1970s than the standard measurements suggest

Jan. 22 – The Intergovernmental Panel on Climate Change Third Assessment Report indicates global warming is unstoppable and predicts a possible increase in surface temperatures of between 1.4 and 5.8 degrees Celsius by 2100, a significant increase from the 1 to 3.5 degrees estimated in 1995

Jan. 26 – *Science* reports U.S. scientists concluding the demise of some civilizations was climate driven and suggesting unprecedented social disruptions could result from global warming

Feb. 9 – A report by an expert panel into the health effects of climate change predicts the end of the National Health Service's annual flu crisis and prevent 20,000 deaths a year from cold by 2050, but says benefits would be offset by increased deaths from summer heat waves, skin cancer, food poisoning, malaria, gales and floods

Feb. 19 – Professor Lonnie Thompson, professor of geological sciences at Ohio State University, predicts during an American Association meeting that the snows of Kilimanjaro will disappear from the Tanzanian mountain by 2020; a UN Intergovernmental Panel on Climate Change report predicts the world faces dramatic and potentially disastrous climate changes caused by global warming, including melting polar icecaps and glaciers, the disappearance of countless species of animals, birds and plant life, farmland turning to desert, and coral reefs and islands in the Caribbean and Pacific sinking

March 5 – The IPCC's Accra Report indicates that technology needed to combat global warming is increasing faster than expected, including wind turbines, hybrid engine cars and fuel cell technology, to the expected detriment of coal, possibly oil and gas, and certain energy-intensive sectors such as steel production

March 30 –*Science* reports an international team of scientists predict global warming could devastate bird species that breed at set times each year, as warmer springs may confuse birds into breeding too early, with less food available for young birds

April 5 – *Nature* reports US scientists finding climate change fed by fossil fuel pollution could be the underlying cause of the worldwide deaths of frogs, toads and salamanders

April 13 – The National Science and Technology Council consults 300 US scientists, issues report predicting rising sea levels and US coastal erosion, health problems including malaria and yellow fever, and also noting that alterations in ocean circulation, cloud distribution, or storms could also bring prolonged spells of completely different weather wrecking normal agriculture; *Science* reports the US National Ocean and Atmosphere Administration as well as Department of Energy oceanographers found preliminary evidence of human-induced global warming from measurements of the first 3,000 meters of the oceans

May 17 – *Science* reports a statement from some of the world's most eminent scientific institutions criticized skeptics who question the need to mitigate climate change risks

June 7 – The US National Academy of Sciences issues report to the Bush Administration that global warming is real and that fossil-fuel consumption contributes to it

July 5 – *The Lancet* reports Swedish researchers finding a brain disease spread by blood-sucking ticks has increased dramatically since the 1980s, and blaming the ticks' northern spread due to global warming

July 19 –*Science* reports a National Center for Atmospheric Research-University of East Anglia joint study concludes the world is 90 percent certain to experience a potentially catastrophic global warming over the next century caused by man-made emissions of greenhouse gases

Sept. 5 – A marine biologist warns the British Association science festival in Glasgow that global warming would raise ocean temperatures to levels that would bleach the great reefs of the Pacific and Indian Oceans and the Caribbean and the Red Seas, which could cause their total destruction within 50 years

Sept. 6 – An oceanographer warns the British Association science festival that water flow from the Arctic past the north of Scotland had decreased by 20 percent since 1950, predicts Britain could face another Little Ice Age

Appendix M. U.S. Prestige-Press Coverage of Business

1997

May 21 – British Petroleum CEO breaks from oil industry, says it's unwise and potentially dangerous to continue to ignore global warming

June 11 – World Resources Institute releases study indicating global warming may or may not slow economic growth as results from studies depend on assumptions used in economic models: optimistic assumptions forecast economic growth of 5 percent, while pessimistic assumptions forecast economic reduction of 8 percent

Aug. 4 – Clinton meets with business leaders, calls for emission's limits; CEOs of utility, oil, gas, steel, chemical, manufacturing and financial service companies request more research

Sept. 30 – BP proposes self-imposed limits on greenhouse gas emissions; plans to measure and report emissions would lead to the possible creation of emissions trading

Oct. 23 – Environmentalists, Congressional members, business groups and U.S. allies attack Clinton's climate change proposal as either limited or "flawed"

Dec. 4 – American businesses and industry leaders claim the fight against global warming will slow the US economy, bringing widespread layoffs and soaring gasoline prices and energy bills

Dec. 6 – Media note intense lobbying during the Kyoto talks between energy companies in the Global Climate Coalition and environmental groups including Greenpeace, the World Wildlife Fund, the Climate Action Network and Friends of the Earth

Dec. 11 – Kyoto Protocol agreement reached; American automakers voice objections to proposed restrictions; British Petroleum CEO John Browne praises the limited progress achieved at Kyoto

Dec. 13 – Building architects cited as major players in reducing global warming

1998

April 21 – Royal Dutch/Shell Group leaves Global Climate Coalition

April 28 – More than 4 percent of Exxon stockholders vote against oil company and for a resolution aimed at requiring the company to take stock of global warming's impact on its policies and operations, ensuring the Interfaith Center on Corporate Responsibility's resolution would appear on the ballot again in 1999

May 7 – Eileen Claussen, a former State Department official involved in the formation of the Kyoto Protocol, announces the formation of the Pew Center on Climate Change. The inclusion of a dozen major companies formerly critical of global warming is expected to produce a moderate voice in the global warming debate

October – A coalition of business, labor and farm groups called the Global Climate Information Project sponsor TV commercials opposing the Kyoto Protocol

Oct. 13 – Energy advocates claim Republican Congressman James Sensenbrenner had a Congressional report written in a manner by which the costs of addressing global warming were higher than they should have been

1999

May 27 – Mobil CEO Lucio A. Noto refuted claims that a Mobil/Exxon merger would create monopoly power, then attacked the Kyoto Protocol as unrealistic

June 7 – The International Energy Agency estimates that a emissions-trading cap would fall most heavily on the U.S., reducing its ability to make trades by as much as two-thirds and forcing more domestic emissions cuts

June 30 – Preliminary analysis of Intergovernmental Panel on Climate Change data by the National Center for Atmospheric Research and released by the Pew Center on Global Climate Change suggests global warming and sea-level rise may be higher than previously predicted in the upcoming century

Dec. 6 – Ford Motor Co. leaves Global Climate Coalition

2000

Jan. 5 – DaimlerChrysler leaves Global Climate Coalition

Feb. 10 – Texaco announces plans to sharply increase spending on cleaner, synthetic natural gas

Feb. 25e- Texaco leaves Global Climate Coalition

May 4 – Texaco announces it is one of seven companies to launch a $20 million program to explore reducing greenhouse gas emissions

May 10 – Texaco appoints Jefferson B. Seabright to the newly created position of vice president, policy planning. Seabright previously served as executive director of Clinton's White House Climate Change Task Force

Oct. 29 – Survey sponsored by Deloitte & Touche finds American consumers have mixed views on paying more for electricity to mitigate global warming effects

Nov. 23 – American corporations say they advocate market-based solutions to cleanse the atmosphere of pollutants that cause global warming, lobby with the Pew Center on Global Climate Change at The Hague

2001

March 9 – Semiconductor manufacturers reach an agreement with the Environmental Protection Agency to voluntarily reduce use of perfluorocompounds by 10 percent over 1995 levels in the next decade. The long-lived chemicals are 10,000 times more efficient at trapping heat in the atmosphere than common greenhouse gases such as carbon dioxide

May 4 – Ford Motor Co. acknowledges role of auto industry in global warming, announces creation of executive team charged with finding ways to reduce auto emissions

Appendix N. U.K. Prestige-Press Coverage of Business

1997

Feb. 21 – The chairman of the Water Companies Association blames climate change and record dry periods for a water supply crisis that threatens development of towns and villages in southeast England

May 21 – British Petroleum CEO John Browne acknowledges car fumes are a factor in global warming

Sept. 4 – International Atomic Energy Agency director general Hans Blix insists world governments should turn to nuclear energy to achieve proposed cuts in greenhouse-gas emissions; survey of reinsurers indicates global warming altering perceptions of risk and what part insurance plays in economic life

Oct. 22 – Bonn talks begin; American engineers promise a hydrogen-powered car that gets 80 mpg within 10 years

Nov. 16 – An insurance company introduces a global warming indicator tool to help investors assess companies' contribution to climate change and their resulting exposure to financial risk

Nov. 25 – A consultant's report by the Rocky Mountain Institute in Colorado indicates the United States annually wastes $300 billion worth of energy, and must reduce energy usage by 30 percent or more to meet its plan to return to its 1990 rate of carbon dioxide emissions

1998

Feb. 5 – The CEO of the World Coal Institute predicts EU coal production could end by 2010 due to EU commitments to the Kyoto Protocol, suggests high-energy industries would migrate to countries without restrictions

March 20 – An internal insurance industry study warns that global warming may cause increases in serious flooding resulting from rising sea levels, suggests higher insurance premiums for residents on England's East Coast to offset potential losses

April 21 – Shell, the world's largest oil company, cancels its membership in the Global Climate Coalition

May – A leaked Global Science Communications report indicates the American Petroleum Institute plans to recruit independent scientists to dispute scientific evidence of global warming that may harm oil companies

May 11 – A U.S. economist from the Hoover Institution publishes book that predicts global climate change will produce positive effects on humanity

June 10 – An Anglo-German environmental forum held at the Wuppertal Institute concludes that a sophisticated campaign to sell eco-friendly lifestyle as glamorous must be used to make people adopt greener behavior

June 16 – A Pew Center on Global Climate Change report indicates privatization of electricity in developing countries can boost annual economic growth, but may also increase greenhouse-gas emissions and hasten global climate change

June 24 – In a speech in London, the director general of the Institute of Directors says higher transport costs for firms and lower UK competitiveness could result from the Government's pledge to cut greenhouse gases

July 13 – Royal Dutch/Shell publishes its first externally verified environmental audit, plans to increase flaring rather than venting of unwanted methane in Nigeria as the resulting carbon dioxide would produce fewer global warming effects

Dec. 11 – The North West Climate Group of public and private sector organizations releases a study that assesses the economic impact of climate changes, predicts an increase in coastal flooding and storms but also a possible increase in tourism to seaside resorts as the weather warms

1999

April 14 – BP-Amoco and Esso clash over global warming evidence during meetings with the Commons' environment select committee, which met to investigate government strategy on meeting the Kyoto targets

Oct. 25 – The Confederation of British Industry announces its intentions of having an emissions-trading system in operation by April 2000, a year ahead of the proposed climate-change levy

Dec. 21 – Britain's 10 most energy intensive industrial sectors accept an 80 percent discount on the government's proposed climate change levy, in return for cuts of 2.5m tons of carbon pollution by 2010

2000

Feb. 1 – The forecasting group Cambridge Econometrics says the proposed climate-change levy may not help Britain hit emissions targets unless ministers introduce further unpopular measures such as city center road tolls

March 24 – Industrial energy users compla in of an impasse in proposed climate-change levy negotiations after the government failed to clarify the terms of the controversial tax, including tax rebate eligibility and whether the levy would pass proposed EU guidelines on state aid

May 2 – The Confederation of British Industry warns that individual vehicle manufacturers could be hit by energy taxes of at least pounds 1m a year although they already reduced CO2 emissions by 25 percent since 1999

May 12 – Imperial Chemical Industries claims UK proposals to combat climate change, including phasing out the use of hydrofluorocarbons, could undermine competitiveness by forcing companies to switch to expensive, unsafe technologies such as ammonia and hydrocarbons

May 30 – The Aluminum Federation complains that steel makers will get an 80 percent discount on the proposed climate-change levy, but while primary production is exempt from the tax, aluminum cans and sheet rolling will be subject to the full levy

June 21 – Pew Center study indicates several European countries will exceed their emissions limits by a large margin, recommends renegotiating the Kyoto Protocol targets

Aug. 28 – The Engineering Employers' Federation survey of manufacturers with annual energy bills of 100,000 pounds contends under the proposed climate-change levy some manufacturers will pay taxes equivalent to 400 pounds per employee

Sept. 20 – A Combined Heat and Power Association survey indicates combined heat and power stations expected to play a crucial role in meeting U.K. climate-change targets are unlikely to be built

Oct. 14 – An Association of British Insurers' report warns that insurance companies may be forced to increase flood insurance premiums dramatically or refuse insurance altogether because of global warming

Oct. 24 – In a speech to the Confederation of British Industry and the Green Alliance, Blair admits solutions do not measure up to climate change problems, calls for business to view environmental protection as a lucrative field

Nov. 10 – Royal & Sun Alliance, the UK's second-biggest general insurer, indicates it may raise premiums due to global warming risks; a New Economics Foundation report indicates imports of out-of-season fruits undermine the fight against global warming due to exempted emissions of bunker fuels used to fuel aircraft and cargo ships

Nov. 28 – Severn Trent, Britain's second largest water company, warns that the UK sewage system may be unable to cope with wetter winters caused by climate change

2001

Jan. 14 – An Engineering Employers' Federation study warns that the proposed climate-change levy would cost industry almost pounds 100m and hit 2,300 firms employing more than 1.3 million workers, increase many companies' fuel bills, damage international competitiveness and prevent investment in energy-efficiency schemes

Jan. 17 – Corus, an Anglo-Dutch steel maker, announces it will pay between Pounds 7m and Pounds 8m a year on energy-saving and carbon-dioxide reducing measures at its biggest factories

Jan. 27 – The World Economic Forum publishes an environmental sustainability index ranking 122 countries according to their ability to protect the environment while promoting economic growth, with the United States in tenth place and Britain sixteenth

Jan. 29 – The New Economics Foundation criticizes the World Economic Forum's sustainability index, noting that industrialized countries that nearly all appeared in the top half of the index rank in the bottom half of 134 countries ranked according to their carbon dioxide emissions

Feb. 2 – Munich Re, the world's biggest reinsurer, tells the UN Environment Programme that the insurance bill for extreme weather events and rising sea levels will likely increase tenfold by 2050, making parts of the world uninsurable

Feb. 21 – A Business in the Environment survey shows a fifth of FTSE 100 companies and a third of all participants do not even measure their global warming emissions, while 37 percent of companies set targets for reducing emissions; the Confederation of British Industry increase pressure on ministers to review the climate change levy after its implementation in April

March 12 – Munich Re posts annual review that notes 2000 was the world's hottest year on record, claims climate change will dramatically increase natural disasters and poses a mounting threat to the world's most populated regions

April 1 – U.K. climate change levy introduced; Confederation of British Industry and Engineering Employers Federation predict thousands of small and medium-sized companies will be hit and confused by the introduction of the climate change levy

April 6 – Pirc, the pensions consultancy, urges institutional shareholders to support Greenpeace's campaign to force BP Amoco to give details of its strategy for managing the business risks relating to climate change, but the National Association of Pension Funds say shareholders should vote against the campaign

May 9 – The Organization for Economic Cooperation and Development release a report calling for the introduction of market-based measures, such as emissions trading systems, carbon taxes and subsidy reforms, as well as programs for technological development and diffusion

July 2 –Electricite de France asks the British energy regulator for a climate-change levy exemption since it generates a small portion of its electricity from renewable sources

July 12 – A Country Land and Business Association report of 102 proposals calls for EU policy to encourage farmers and landowners to reduce emissions of carbon, methane and nitrous oxide; the expansion of renewable energy sources and farm reservoirs; growing elephant grass and willow to replace fossil fuels; and more investment in communications technologies to reduce travel needs

July 26 – Water UK tells an industry seminar on climate change that higher bills will be needed to combat the summer droughts and winter floods likely to become more common due to climate change

Aug. 12e- The Universities Superannuation Scheme, one of Britain's largest pension funds, warns that risks posed by climate change could undermine fund managers' ability to provide pensions through long-term investments

Appendix O. U.S. Prestige-Press Coverage of SMOs

1997

June 11 – World Resources Institute releases study indicating global warming may or may not slow economic growth as results from studies depend on assumptions used in economic models: optimistic assumptions forecast economic growth of 5 percent, while pessimistic assumptions forecast economic reduction of 8 percent

June 25 – World Wildlife Fund report concludes that global warming threatens U.S. National Parks and wildlife areas

Oct. 6 – New Jersey environmentalists urge Clinton to lead the world in reducing greenhouse gases to help fight global warming

Oct. 15 – Greenpeace activists climb 13 stories of a 51-story ARCO building in Los Angeles, unfurl banner featuring a polar bear and reading "Arctic Oil: Global Warming, Chill the Drills"

Oct. 23 – The Sierra Club attacks Clinton's plan to combat global warming as inadequate to lower production of greenhouse gases, while the Environmental Defense Fund praises the plan as a good starting point

Nov. 20 – Survey by Pew Center for the People and the Press reveals Americans would support gas increases up to 25 cents a gallon to reduce global warming, but 70 percent say all countries should make changes to fight global warming

Dec. 4 – Activists including Friends of the Earth, Greenpeace, World Wildlife Fund, and the Korean Federation for Environmental Movement receive media coverage, labeled as "sideshows in a global warming carnival"

Dec. 6 – Media note intense lobbying during the Kyoto talks between energy companies in the Global Climate Coalition and environmental groups including Greenpeace, the World Wildlife Fund, the Climate Action Network and Friends of the Earth; the National Council of Churches produce a spot featuring the poet Maya Angelou making a moral argument to save the planet

1998

Aug. 13 – religious groups mount campaign to support Kyoto Protocol

1999

April 13 – Major environmental groups criticize Gore and Clinton for reneging on promises to reduce global warming

June 29 – Environmental Defense Fund and Columbia University release report of possible effects to global warming to New York by the year 2100

December – Seven environmental groups release a worldwide map packed with more than 100 anecdotes and reports of scientific studies of global warming

2000

Aug. 31 – World Wide Fund for Nature report predicts global warming might wipe out many species of plants and animals by the end of the 21st century

Nov. 18 – Friends of the Earth build a sand barrier outside the climate change conference to symbolize dangers of rising sea levels

2001

March 29 – A coalition of religious groups urge Bush to reconsider or risk alienating a faith-based movement committed to protecting the environment

Aug. 15 – A poll sponsored by the *International Herald Tribune* and the Pew Research Center for the People and the Press and conducted between Aug. 1 and Aug. 9 finds Britons, French, Italians and Germans overwhelmingly oppose Bush's decisions to withdraw from the Kyoto Protocol

August – A group of environmental lawyers explore options of class-action lawsuits to force the United States or corporations to reduce emissions of heat-trapping greenhouse gases

Appendix P. U.K. Prestige-Press Coverage of SMOs

1997

March 11 – A researcher from the Cornwall Wildlife Trust indicates global warming is responsible for an increase in albino frog sightings in southeast and southwest Britain

Aug. 26 – A North Pole expedition by Greenpeace reveals global warming could threaten the existence of the polar bear and other unique Arctic wildlife

Oct. 25 – The Wildlife Trusts suggests global warming caused several species, whether previously unknown or regarded as rare migrants, to become firmly established as breeding birds of Britain

Nov. 13 – A Greenpeace report concludes a decline in tourism, shrinking beaches, water and food shortages could become the norm around the Mediterranean by 2100 due to effects of global warming

Dec. 3 – A report by Birdlife International and the World Wide Fund for Nature indicates global warming may have contributed to the disappearance of 40 percent of Central America's amphibians during the 1990s

1998

March 13 – Greenpeace vows to resume battle against U.K.-owned New Millennium Experience Company, whose Millennium Dome's air conditioning system would use hydroflourocarbon, a greenhouse gas

Nov. 7 – 100 environmental groups led by Friends of the Earth begin The Right Price for Air Travel campaign, seeking the re moval of the fuel tax exemption for airlines from the Kyoto Protocol

Nov. 15 – Environmental groups including Friends of the Earth and the World Wide Fund for Nature dismiss a deal made to curb global warming at the Buenos Aires Earth Summit as "an inaction plan"

1999

Aug. 29 – A study conducted by East Anglia University and funded by World Wide Fund for Nature concludes British holiday destinations such as Spain and Florida could soon become marred by flash floods, fires, drought and disease due to global warming

Nov. 4 – In the first coordinated attempt to assess global warming's impact on California, research commissioned by the Union of Concerned Scientists and the Ecological Society of America indicates climate change threatens the state through increased water shortages, flooding, wildfires and landslides

2000

April 3 – A study funded by the World Wide Fund for Nature and conducted by the World Conservation Monitoring Center warns that global warming could decimate populations of British shorebirds

July 20 – World Wide Fund for Nature launches its Oceans Recovery Campaign, announces overfishing and global warming land cod on the endangered species list

Aug. 30 – The report "Global Warming and Terrestrial Biodiversity Decline" by a University of Toronto researcher and funded by the World Wide Fund for Nature predicts a third of the world's habitats face risks from global warming, with the extinction or great reduction of some northern plant and animal species

Nov. 10 – A survey published by the Royal Society for the Protection of Birds indicates widespread public concern and confusion regarding global warming; a New Economics Foundation report indicates imports of out-of-season fruits undermine the fight against global warming due to exempted emissions of bunker fuels used to fuel aircraft and cargo ships

Dec. 11 – Scientists at a Royal Society for the Protection of Birds workshop claim climate change is too pronounced to be ignored

2001

March 8 – Greenpeace criticizes EU for failure to prepare the necessary legal groundwork to ratify the protocol

March 20 – A Woodland Trust report concludes global warming places at risk bluebells and other flowers, birds of spring such as warblers, butterflies and other insects and oak, beech, ash and Caledonian pine trees

April 6 – Greenpeace activists camp on a BG International oil rig in the North Sea to protest against global warming

April 13 – Greenpeace UK's Executive Director writes to the Chief Executive Officers of the top 100 US companies, asking them to declare their position on the protocol, threatens possible boycott of Exxon and other accused architects of the Bush Administration's climate change policy

April 14 – More than 700 environmental activists from 60 countries meet in Canberra, Australia, for the Global Greens 2001 conference to formulate a global action plan that may include a boycott of US oil companies

May 8 – Greenpeace and Friends of the Earth, along with celebrities including Bianca Jagger and Annie Lennox, launch a national "Stop Esso Campaign" to boycott Esso, until ExxonMobil, the US-based parent company, changes its stance on the Kyoto Protocol

July 25 – Greenpeace blockades Essex's Esso petrol plant in protest against the oil company's support for Bush and his position on the Kyoto Protocol

July 28 – London's assistant bishop calls Bush's decision to dismiss the Kyoto Protocol "catastrophic"

Aug. 27 – A study published by English Nature, WWF-UK, UNEP World Conservation Monitoring Center and the Royal Society for the Protection of Birds predicts that maintaining rare species and habitats in conservation areas will become increasingly difficult, prompting debate among wildlife conservation groups about possible attempts to counter climate-change impacts, in an attempt to give species more time to adapt to changing conditions

Appendix Q. Government Position Pieces – U.S.

1997

March 9 – In a *New York Times* letter to the editor, the ambassador of Antigua and Barbuda claims the United States and other developed countries are destroying the world's climate by emitting billions of tons of carbon dioxide into the atmosphere, which threatens ocean communities with destruction

July 15 – In a *Washington Post* letter to the editor, Sen. Chuck Hagel (R Neb.) claims the Senate is meeting the global climate change issue head on as a bipartisan group of 65 senators has cosponsored the Byrd-Hagel Resolution, which voices a strong objection to the administration's position in the negotiations and lays down a bottom line for any treaty that may come before the Senate for ratification

Oct. 21 – In a *Washington Post* letter to the editor, the counselor of Science, Technology Energy and Environment at the British Embassy claims if developed countries do not lead by example, developing countries will be hard pressed to devise their own responses

Oct. 24 – In a *Los Angeles Times* op/ed, US Secretary of the Interior Bruce Babbitt claims action is needed to stop global warming though the corporate world argues to do nothing now, notes that melting glaciers in Glacier National Park provide evidence of warming

Oct. 30 – A news release from The Michigan Chamber of Commerce announces a policy statement from its Board of Directors calling on President Clinton to reject any agreement on limiting greenhouse-gas emissions that applies restrictions only to developed nations and exempt other nations

Oct. 31 – A news release from the office of House Democratic Leader Richard Gephardt announces the appointment of the six Democratic Congressional members who will serve in the House delegation to the upcoming Kyoto global climate change conference, notes the United States must lead on environmental problems of the future

Dec. 2 – In a *Washington Post* op/ed, former UK Secretary of State for the environment John Gummer claims Europeans are alarmed by the Clinton administration's proposals for reducing carbon dioxide emissions and are offended by American accusations that European nations have somehow cheated in already cutting greenhouse emissions, insists American companies may soon find themselves squeezed out of markets in developing countries if their products and services do not offer energy efficiency and lower carbon emissions

Dec. 4 – In a *Washington Post* op/ed, the head of the Center for Building Science at the US Department of Energy's Lawrence Berkeley National Laboratory notes insurance companies offer a middle ground between environmentalists and capitalists, claims insurance companies will be directly affected by climate change while strategic deployment of sustainable energy options will reduce ordinary business risks and make a dent in greenhouse emissions

Dec. 17 – A news release from the office of House Democratic Leader Richard Gephardt announces his support of the Kyoto Protocol

Dec. 23 – A news release from the director of the Washington Department of Community, Trade, and Economic Development says the Kyoto Protocol could present new and rapidly expanding opportunities worldwide for the state's energy-efficiency and renewable energy companies

1998

March 5 - In a *Wall Street Journal* letter to the editor, Stuart E. Eizenstat, the U.S. lead negotiator in Kyoto, claims the United States will sign the Kyoto Protocol
May 6 – A *Washington Post* op/ed from Senators Hagel and Robert Byrd (D-W.Va.) claim the nation's Founding Fathers were right to give the Senate the responsibility of "Advice and Consent" on all treaties, insists the Kyoto Protocol should not be signed if it would harm the US economy and if developing countries are not held to the same restrictions as industrialized countries

May 18 – A news release from Hagel announces that he told a conference sponsored by COMPASS, a distinguished group of foreign policy experts, and the US Chamber of Commerce that the White House must ensure that the Kyoto Protocol does not undermine US national security

Aug. 4 – In a *Washington Post* letter to the editor, Hagel claims since the Kyoto Protocol cannot meet the demands of the Byrd-Hagel Senate resolution, it is "fatally flawed"

Nov. 10 – In a *Los Angeles Times* commentary, the administrator of the U.N. Development Program claims that holding developing countries to the same emissions reductions as developed countries is not rational

Dec. 7 – In a *Washington Post* op/ed, Eizenstat and the Undersecretary of State for global affairs claim environmental problems put off today would strangle growth and devastate the environment tomorrow, note the Clinton Administration initiated or expanded more than 50 programs since 1993 that are improving US energy efficiency and accelerating Research and Development into renewable energy sources

1999

Aug. 12 – In a *New York Times* letter to the editor, the White House climate change director claims Congress has stalled progress in fighting threats associated with global warming

Nov. 14 – In a *Washington Post* letter to the editor, Hagel claims the Senate will not ratify the Kyoto Protocol because it exempts developing nations and would seriously harm the US economy, insists sound science should dictate the government's actions

2000

Jan. 29 – In a *Washington Post* op/ed, Hagel and Frank Murkowski (R- Alaska) claim reckless action on the part of the Clinton Administration would be costly to the US economy for generations as the Kyoto Protocol leaves out three-fourths of the world's nations

Feb. 19 – A news release from the chairman of the Republican National Committee challenges Democrat Senate candidate Hillary Clinton to choose between the Kyoto Protocol or New York families, whom he claims will suffer from home heating oil bill increases of 71 percent, based on a Wharton Econometric Forecasting Associates study

2001

Jan. 12 – In a *New York Times* letter to the editor, a Pennsylvania Congressman claims no reliable evidence exists for catastrophic global warming from fossil fuel use, insists drastic energy cuts would be destructive to the US economy, and those of developing countries that rely on America for global stability and free trade

May 20 – A news release from the Fletcher School of Law and Diplomacy at Tufts University announces that UN Secretary General Kofi Annan told graduating students that climate change may be the greatest global challenge for the next generation, expresses concern over the Bush Administration's decision to reject the Kyoto Protocol

June 23 – In a *New York Times* letter to the editor, the former minister of environment and forests for the Indian government claims the United States faces isolation over the Kyoto Protocol, suggests Bush should engage in serious discussions with Europe on implementing the protocol without jeopardizing long-term American interests

July 3 – In a *Washington Post* editorial, Clinton's former climate change director claims the Kyoto Protocol can be saved by making a mechanism for bringing developing countries into the agreement and by making the upcoming emission reductions goals voluntary

Appendix R. Government Position Pieces – U.K.

1997

March 10 – In a letter to the editor of *The Independent,* Shadow Secretary of State for Environmental Protection Michael Meacher says Britain will not offer any UK targets beyond those achieved without government intervention, largely as a result of the destruction of the UK coal industry

Nov. 17 – In a *Times* letter to the editor, Deputy Prime Minister John Prescott claims action on climate change is essential for the world and even more important to future generations

Nov. 25 – In a *Guardian* commentary, Meacher notes aircraft contribute to global warming, claims the fight against global warming should be a global project for the millennium

Dec. 1 – Kyoto climate change conference begins; in a *Financial Times* comment and analysis, US Secretary of State Madeleine Albright claims a broad scientific consensus that climate change is occurring and a worldwide effort is needed to tackle its dangers

Dec. 3 – In a *Guardian* commentary, the president of the Globe International group of parliamentarians and chairman of the European Parliament foreign affairs committee claims the challenges of the current climate conference are a duty for the current generation to save civilization

Dec. 4 – In a *Times* commentary, Blair announces a Green summit with business leaders, claims the threat from global warming already affects this generation and promises negative effects for future generations unless business and government tackle global warming

Dec. 10 – In a *Times* letter to the editor, the House of Commons' Opposition Environment Spokesman criticizes British government for rhetoric on global warming while failing to set up green taxes and boosting the use of coal in power generation

Dec. 26 – In a *Times* commentary, the chairman of the Royal Commission on Environmental Pollution notes an agreement over an issue with global implications is a real achievement, claims the UK government demonstrates an effective way forward based on honest, balanced and thorough appraisals of the science, technology, economics and equity considerations involved

1999

May 15 – In a *Guardian* comment and analysis, a former senior agricultural adviser to the US State Department claims global warming will lead to great benefits for the human race and the environment

2000

Sept. 3 – In a *Sunday Times* letter to the editor, Meacher claims upcoming climate change conferences in Lyons, France and in The Hague in November offer the opportunity to bring climate change talks to a conclusion

Sept. 9 – In a *Daily Telegraph* letter to the editor, the chairman of the Royal Commission on Environmental Pollution claims the world must act now to stop global warming, calls Kyoto a crucial first step

Nov. 28 – In a *Times* letter to the editor, Lord Young of Graffham claims concerns with the effects of global warming is another manifestation of being politically correct

Dec. 5 – In a *Financial Times* letter to the editor, EU Commissioner Margot Wallstrom claims nuclear phase-outs do not affect the EU Community's ability to fulfill Kyoto objectives by 2012 as there is a sufficient cost-effective emission-reduction potential in the EU by way of energy-efficiency improvements, energy saving, renewables, and changes in energy and transport systems

Dec. 19 – In a *Financial Times* comment and analysis, a former administrator of the US Environmental Protection Agency notes that painting the US as the perpetual monster of greenhouse-gas emissions does little to reverse climate change

2001

Jan. 22 – In a *Financial Times* comment and analysis, a UK foreign office minister claims problems like global climate change demand a global approach

April 1 - In an *Observer* commentary, Prescott claims international politicians owe it to their children to pass on the planet in better shape than it was inherited; I am the Walrus

April 5 – U.S. Congressman Kevin Brady in a *Financial Times* letter to the editor notes that the Bush administration's position should not be surprising in light of the Senate's resolution not to ratify the protocol; in an *Independent* commentary, Prodi promises to make Kyoto work without the United States

April 30 – In a *Times* letter to the editor, Lord Digby suggests an objective study of the environmental effects of nuclear power

June 21 – In a *Times* letter to the editor, a former member of the Prime Minister's Policy unit praises Bush for rejecting the anti-capitalist Kyoto Protocol

June 29 – In a *Guardian* comment and analysis, Meacher warns that Bush is out of synch with the rest of the world, which backs the Kyoto Protocol

July 13 – In a *Financial Times* letter to the editor, Japan's Ambassador for International Economic Affairs and Global Environmental Affairs insists the Kyoto Protocol needs the U.S. to be taken seriously

Appendix S. Science Position Pieces – U.S.

1997

April 30 – In a *Wall Street Journal* letter to the editor, the president of the Science and Environmental Policy Project claims global warming may not exist and the Clinton Administration's proposed emissions trading system is a global rationing plan that is nothing but an ill-disguised energy tax

June 19 – A news release announces the return of Dr. S. Fred Singer of The Science and Environmental Policy Project from a European speaking tour on the global warming issue, where he noted the possible solar influence on climate, successes on ocean fertilization that could deplete carbon dioxide, and an anti-correlation between sea surface temperature and sea-level rise

June 22e- In a *Los Angeles Times* Op/Ed, a professor of applied economics at the University of North Texas claims that all possible alternatives must be examined before hobbling the US economy with costly new regulations and taxes, and that for any global emissions-reduction program to succeed, every nation must participate

June 23 – The Science and Environmental Policy Project news release reports that during a debate with Singer, IPCC Chairman Bert Bolin publicly refuted claims by the Clinton Administration and many environmental activist groups that any floods, droughts, hurricanes, or other extreme weather patterns are the result of rising global temperature

June 24 –A news release notes Singer, in a research paper submitted for publication, reports an anti-correlation between sea surface temperature and sea-level rise, the reverse of what was expected by the Intergovernmental Panel on Climate Change; Singer concludes ice accumulation at the poles will likely offset glacial melting

June 26 – A news release from the Science and Environmental Policy Project reports on Singer's research that shows an air-traffic influence on climate confounding IPCC global-warming estimates, suggests regional warming is likely produced by ice particles in the upper troposphere

July 2 – In a *New York Times* letter to the editor, a Texas A&M professor of oceanography claims statistical studies suggest scientists are on the verge of detecting a greenhouse warming, implying children will witness a climate change in their lifetimes

July 8 – In a *Los Angeles Times* letter to the editor, a Mt. San Jacinto College instructor of chemistry and environmental science claims fossil fuel combustion is a more serious threat to global warming than forest fires.

July 24 – In a *Washington Post* letter to the editor, the president of the Science and Environmental Policy Project claims an emissions trading system represents a stealth energy tax that would become a permanent entitlement program for Third World "kleptocrats"

July 28 – A news release from The Science and Environmental Policy Project announces its new Web site, reports that during a July 25 *Wall Street Journal* commentary piece, Singer denounces as a hoax the scientific consensus on global warming mentioned by Clinton

Sept. 2 – A news release from the Science and Environmental Policy Project reports that Singer dismisses Gore's announcement that global warming is destroying Glacier National Park as a defense of Montana's tourism that trivializes the debate

Oct. 9 – In a *Los Angeles Times* op/ed, the executive director and a staff scientist of the Union of Concerned Scientists note that the United States can cut emissions 10 percent below 1990 levels by 2010 and still reduce annual energy costs by $ 530 per household and create nearly 800,000 new jobs. They claim upcoming climate negotiations must not be torpedoed by the fossil-fuel lobby as the United States should acknowledge its responsibility and work to assure equitable commitments from all nations to guard against harmful effects of climate change

Oct. 10 – In a *Los Angeles Times* letter to the editor, a CalTech biology professor claims broad scientific consensus on global climate change, insists global warming is real and immediate action is needed

Oct. 13 – In a *New York Times* letter to the editor, a University of California at Berkeley' energy and resources group member claims a carbon tax could be mitigated by payroll tax reductions and increases in welfare payments; in a *Washington Post* op/ed, a MIT professor claims a modest tax on carbon emissions by the developed nations would be a first step toward ensuring that future generations will not find the concentration of atmospheric gases so great that it cannot be practically reversed before changes in the earth's climate cause calamitous damage

Oct. 27 – In a *Los Angeles Times* op/ed, an adjunct professor of environmental studies at Dartmouth College claims the United States has been immobilized by propaganda funded by energy companies and right-wing think tanks, while Europe acts to cut energy consumption

Oct. 30 – A news release from the Science and Environmental Policy Project announces that while speaking on the steps of the U.S. Capitol, Singer challenged the Clinton Administration to have its climate change experts openly debate the scientific evidence of global warming

Nov. 11 – A news release from the Science and Environmental Policy Project reports a surge in requests for the Leipzig Declaration after 21 TV meteorologists staged a press briefing in Cleveland, Ohio, on Oct. 30 to publicly add their signatures to the anti-Global Climate Treaty document

Dec. 1 – In a *Los Angeles Times* commentary, a professor of atmospheric sciences at the University of Illinois at Urbana Champaign and a senior scientist at the Rand Corporation argue that emissions targets should not be the centerpiece of US climate change policy because the expected reductions will not slow global climate change, emissions reductions depend on a variety of unpredictable factors, and it is more important to improve and adopt fossil-fuel alternatives than worry about emission controls

Dec. 26 – In a *Washington Post* op/ed, the president of the Institute for Energy and Environmental Research claims the Clinton Administration must follow through on the Kyoto Protocol by beginning the process of creating the regulations that will be needed to translate that commitment into reality

1998

Jan. 26 – In a *Washington Post* letter to the editor, the president of the Science and Environmental Policy Project claims that yearly reports of warmer temperatures are designed to convince people of a warming trend of steadily increasing surface temperatures, which even if true would be considerably smaller than what climate models calculate

May 21 – In a *Wall Street Journal* letter to the editor, the executive director of the George C. Marshall Institute notes a petition from the Oregon Institute of Science and Medicine urging the government to reject the Kyoto Protocol was signed by 15,000 scientists and engineers, including 6,000 Ph.D.s in the hard sciences

July 24 – In a *New York Times* editorial, an adjunct professor of Western American studies at Montana State University provides sarcastic reasons why global warming is good for the world

Sept. 11 – In a *Los Angeles Times* letter to the editor, a University of London biogeography professor claims the Kyoto Protocol has set the wrong agenda in criminalizing human beings as the root cause of climate change as gradual, sudden and unpredictable climate change is the norm and would only be surprising if it stopped changing

Nov. 3 – In a *Washington Post* op/ed, the president of the Institute for Energy and Environmental Research claims the US proposal of an emissions trading mechanism could do more harm than good, insists the United States should take the lead in proposing innovative solutions to a pressing global problem

Nov. 17 – In a *Los Angeles Times* letter to the editor, a Cal State emeritus professor of geology notes that not all scientists are convinced that current hurricanes are due to global warming, as proponents have not provided a viable explanation of severe prehistoric climate changes, which preceded man's industrial activity

1999

Jan. 16 – In a *New York Times* letter to the editor, a geophysicist claims global warming is here, notes fossil fuel taxes permit the reduction of overall taxes or the reduction of taxes on societally beneficial technologies

2000

Jan. 5 – A news release from The Virginia Institute for Public Policy reports that a University of Virginia environmental sciences professor found no statistically significant warming or cooling of Virginia in the 20th century, concludes the Kyoto Protocol would cause serious economic harm to the state without having any measurable impact on either Virginia or global climate between now and 2050

April 21 – In a *Los Angeles Times* commentary, the director of the National Institute of Environmental Health Sciences claims a need for a coordinated, well-financed study of health problems stemming from global warming, including how humans can adapt

Oct. 10 – In a *Wall Street Journal* letter to the editor, an Ohio State University professor of energy conversion in the mechanical engineering department claims it is futile to attempt to control global warming by reducing carbon dioxide

Nov. 21 – In a *Los Angeles Times* commentary, a UC-Irvine professor of international environmental law claims while a new model may be better than a salvaged Kyoto Protocol, extreme weather events will continue while it is fashioned, thereby tarnishing the US reputation as a world leader

Nov. 29 – In a *Washington Post* letter to the editor, an associate professor of economics and decision sciences at the Harvard Center for Risk Analysis claims the failure of climate change talks in The Hague may help replace the Kyoto Protocol with a more effective and politically acceptable agreement to combat climate change

2001

March 16 – In a *Wall Street Journal* letter to the editor, the president of the Science and Environmental Policy Project claims the evidence against global warming is overwhelming, calls for an adversary hearing, a trial that permits cross examination, to examine the conflicting evidence, including also the validity of the theoretical models on which all forecasts of future warming are based

April 19 – In a *Wall Street Journal* letter to the editor, the chairman of the George C. Marshall Institute claims Bush made a sound decision both scientifically and economically in rejecting the Kyoto Protocol

June 9 – In a *New York Times* letter to the editor, the president of the Science and Environmental Policy Project claims that the National Academy of Science's report to Bush is based on bad evidence, calls for an evidentiary hearing in an open, trial-like setting during which the proponents of the differing data sets can be questioned and cross-examined following established procedures in front of a jury of scientists and nonscientists

July 23 – A news release from a Canadian engineer announces a Web site to present evidence of his theory that the earth may be entering a 30-year cooling pattern, which could revise thinking about the Kyoto Protocol

July 29 – In a *Los Angeles Times* commentary, a Stanford University physics professor who was a co-winner of the 1976 Nobel Prize in physics claims Bush lacks the leadership to produce compromise on the Kyoto Protocol, notes other countries are at least doing something to combat global climate change

Appendix T. Science Position Pieces – U.K.

1997

Oct. 20 – In a *Times* letter to the editor, the director of the Hadley Center for Climate Prediction and Research at the UK Meteorological Office claims earth's temperature is absolutely warming, and says it is wrong to suggest that most experts disregard satellite data

Oct. 26 – In a *Observer* commentary, the director of the Oxford Economic Research Associates at New College Oxford claims Blair must take radical steps to meet emissions targets, meaning government must force people to face up to the true environmental costs of their activities by increasing prices, and admit that the 2010 target will probably not be met

Dec. 15 – In a *Times* letter to the editor, a professor from the University of Huddersfield's Center for Corporate Environmental Management claims measures to prevent climate change will not hurt the poor in the short term as renewable energy sources and efficient usage are in no way incompatible with improved energy services to rich and poor alike; in a *Times* letter to the editor, a University of London biogeography professor notes though European countries criticize the American compromise over greenhouse gas emissions, Denmark, for example, is the fifth worst polluter in the world, on a per capita basis, behind the United Arab Emirates, Canada, Australia and Kuwait

1998

May 18 – In a *Times* letter to the editor, a University of London biogeography professor claims the current over-emphasis on the possible role of greenhouse-gas emissions is a distraction from the urgent necessity of developing better approaches to risk assessment

Oct. 7 – In a *Guardian* commentary, a University College marine geologist at the Environmental Change Research Center claims Hurricane Georges and El Nino are symptoms of rapid climate change, predicts more storms to come

Nov. 7 – In a *Financial Times* letter to the editor, a member of the American Council on Science and Health's board of directors claims the Kyoto Protocol will harm human living standards

Nov. 14 – In a *Times* letter to the editor, a University of London biogeography professor chastises the UK's deputy prime minister for linking environmental disasters to global warming

1999

Oct. 22e- In a *Times* letter to the editor, a University of London biogeography professor claims the idea that cutting greenhouse gas emissions will halt climate change is the biggest myth of the global warming debate

Dec. 23 – In a letter to the editor of *The Independent,* scientists from the UK Meteorological Office and the US National Oceanic and Atmospheric Administration note that new observations, when combined with improved understanding of the climate system, increasingly point to human influences as the cause of climate changes; they claim that ignoring climate change will be the most costly of all possible choices for this and future generations

Dec. 24 – In a letter to the editor of *The Independent,* a scientist from the University College London's geography department claims deadly storms in Central America are a reminder of the potentially devastating impact of climate change

Dec. 30 – In a *Daily Telegraph* letter to the editor, scientists from the UK Meteorological Office and the US National Oceanic and Atmospheric Administration claim world governments must address climate change immediately or the effects will be costly to this and future generations

2000

Feb. 4 – In a *Guardian* letter to the editor, a School of Oriental and African Studies' geography professor claims the idea that glaciers are retreating so fast that the rivers may dry up by the summer of 2040 displays an embarrassing ignorance of the normal hydrological cycle of rivers

Feb. 25 – In a *Financial Times* letter to the editor, Imperial College's professor of Climate Change and Energy Policy claims an emissions cap-and-trade system can interface with the proposed climate change levy to achieve environmental goals without damaging competitiveness if a scheme is clearly integrated into the levy

Aug. 17 – In an *Independent* letter to the editor, an Ohio State University professor of Energy Conversion claims the Greenpeace seizure of a BP barge off Alaska provides evidence that Greenpeace does not understand climate change as actions that result in melting the Arctic ice are more likely to precipitate a downturn, not an upturn in temperature

Sept. 4 – In a *Financial Times* letter to the editor, a senior research fellow at the Institute for Public Policy Research claims if the UK government abolished the proposed climate change levy, it would delay the UK's transformation to a low-carbon economy and stunt the growth of the clean-energy industries of the future.

Nov. 9 – In a *Times* letter to the editor, a University of Bath mechanical engineering professor claims Britain must address the requirement for precautionary action to reduce energy use, and associated pollutant emissions, in sectors of the economy such as power generation and transport; in a *Times* letter to the editor, a University of London biogeography professor claims global warming is a socio-political idea invented in 1988 to try to legitimize a "green" agenda

Nov. 17 – In a *Times* letter to the editor, a University of Liverpool chemistry professor criticizes the Royal Society's suggestion that nuclear power replace fossil fuels

Dec. 1 – In a *Financial Times* letter to the editor, a senior research fellow at the Institute for Public Policy Research claims the Kyoto Protocol is imperfect but also the best expression of the collective will as simply carrying on will accelerate the problem

Dec. 5 – In a *Financial Times* letter to the editor, a University of Hull geography professor claims advocates of emission cuts ignore the "shaky foundations" of Kyoto

2001

March 13 – In a *Daily Telegraph* letter to the editor, a University of East Anglia school of Environmental Science professor claims allowing economic growth to take precedence over environmental issues is a high-risk strategy in the long term, so it is hardly surprising that short-term politicians use this to their advantage

March 19 – In a *Guardian* letter to the editor, a University of London biogeography professor calls for a more adult scientific openness about the limitations of current knowledge on global climate change

April 2 – In a *Times* letter to the editor, a University of London biogeography professor claims global warming is a necessary myth for many Europeans

April 5 – In a *Financial Times* letter to the editor, a University of Houston Law Center professor claims Bush's views on the relationship between economic welfare and environmental protection are more than 20 years out of date, threatening future environmental and economic advantages of establishing leadership in new energy technologies

April 20 – A *Times* letter to the editor from the chief executive of the UK's Meteorological Office claims his criticism is reserved for world politicians and officials who claim that individual severe weather events are proof of global warming, though they may be indicative of future weather

April 22 – A *Sunday Times* letter to the editor from the IPCC's coordinating lead author and the UK's Meteorological Office's director of climate research claims human influence on climate cannot be totally certain, but is based on an open and considered assessment of the likelihood of future climate change

June 1 – In a *Sunday Telegraph* analysis and comment, a University of London biogeography professor reviews "The Little Ice Age: How Climate Made History", claims climate has always changed and such transformation cannot be ignored as a significant player on the historical stage of Europe

June 16 – In a *Times* letter to the editor, a University of London biogeography professor claims the Dutch environmental statistician is right in questioning the Kyoto protocol, when the world should instead be investing in flexible development and in a greater diversity of energy sources

July 19 – In a *Times* comment and analysis, a University of London biogeography professor claims the Kyoto Protocol is based on daft economics and dubious science

Aug. 17 – In a *Guardian* comment and analysis, a Danish environmental statistician claims cutting carbon emissions will be far more expensive than to pay the costs of adaptation to increased temperatures

Appendix U. Business Position Pieces – U.S.

1997

Feb. 5 – A Fuel Cells 2000 news release announces that the US Department of Defense will provide financial assistance up to one-third of the cost for fuel-cell buyers to help reduce greenhouse gas emissions

May 19 – In a speech at Stanford University, British Petroleum CEO John Browne announces that the company is making California the site of its first US solar operation and outlines other steps BP is taking to address the issue of climate change

June 12 – A congressional briefing sponsored by the National Center for Policy Analysis concludes theories about global warming and the proposed treaties to reduce climate change are based on disputed science and will shackle developed economies

June 27 – In a *New York Times* letter to the editor, an environmental policy analyst for the National Center for Policy Analysis notes that 24 major studies of the potential cost of a global warming treaty indicate that the proposals would cause severe economic harm

July 17 – In a *Washington Post* op/ed, the chairman of Chrysler Corporation claims agreement to a UN Global Warming Treaty in Kyoto in December would be unwise and unnecessary due to probable economic decline and inconclusive scientific evidence, suggests investing in science and keeping an open mind

Aug. 7 – A news release from Ionic Fuel Technology notes that *The New York Times* Aug. 5 article on global warming featuring BP CEO Browne represents a shift in the corporate view of carbon dioxide emissions, claims ionic fuel systems can reduce fuel consumption and emissions without a loss of power generation

Aug. 20 – A Peabody Holding Company news release reports a Resource Data International, Inc. study concludes that a proposed climate change treaty will curb US economic growth by jeopardizing the electricity supply

Sept. 9 – A news release from The Heartland Institute announces the release of a global warming policy study a day prior to the EPA's Region 5 Conference on Global Warming, concluding the IPCC report did not prove global warming is caused by man nor the need to control greenhouse gas emissions

Sept. 29 – A news release from The National Center for Policy Analysis reports that experts at a Senate briefing on global warming say the proposed climate change treaty does not consider the economic impact on industrial countries, will exempt developing countries from any restrictions, will decimate the American economy and make citizens poorer

Oct. 6 – A news release from The Eastman Chemical Company claims it will tell senior Clinton Administration officials that economic growth and American jobs are threatened by the US approach to concerns about possible global climate change; a news release from the Global Climate Coalition contends that the White House presents a worst-case assessment of climate change with intentions of implementing new taxes on carbon fuels; a news release from the Small Business Survival Committee says the White House Conference on Climate Change dismisses the valid concerns of millions of Americans over the U.N. treaty on global warming

Oct. 15 – A news release from Michigan's Climate Change Coalition announces a study by Wharton Econometric Forecasting Associates, Inc., a Massachusetts-based research firm, which concludes that a

proposed climate change treaty would be devastating to Michigan's economy and could cost the state hundreds of thousands of jobs and each household up to $3,000 a year

Oct. 22 – A news release from The American Petroleum Institute calls the Clinton Administration's plan for controlling global climate change little more than a Trojan horse hiding a stealth tax and a rationing scheme that threatens American prosperity; a news release from the Public Service Electric and Gas Company applauds Clinton for his leadership on the problem of global warming and the requirement for an international effort to stabilize and reduce greenhouse gases

Oct. 23 – A news release from The National Rural Electric Cooperative Association says Clinton's climate change proposals raises serious questions about the ability of the US economy to shoulder the burden of the proposed reductions and does nothing to alleviate concerns about the economic effects on the more than 30 million people served by electric cooperatives

Oct. 24 – A news release from The North American Insulation Manufacturers Association announces its support for the Clinton Administration's plan for controlling climate change, noting that insulation represents an immediate, cost-effective method to achieve climate-change goals

Nov. 5 – A news release from the Global Climate Coalition climate change conference contends that Clinton's climate change policies could raise taxes, drive up consumer prices and change lifestyles for Americans at every income level and in every region of the United States to carry out policies based on unrealistic views of climate science

Nov. 6 – A news release from the American Corn Growers Association predicts a 46 percent decrease in net farm income if the proposed Global Climate Change Treaty is signed by the President and ratified by the Senate

Nov. 13 – A news release from North American Pipeline Partners announces a full-page advertisement in the *Wall Street Journal* to solicit additional shippers for its proposed offshore pipeline stretching from the Grand Banks of Newfoundland to New Hampshire, which promises to deliver four times more natural gas to New England than any other proposed pipeline from Atlantic Canada

Dec. 3 – A news release from Global Energy Network International suggests the best way to fight climate change is linking the world's renewable energy resources through electricity

Dec. 6 – A news release from Global Climate Coalition President Gail McDonald contends Vice President Gore cannot ignore the economic burden that would be thrust upon the United States if economically unrealistic and environmentally meaningless targets and timetables are agreed to, saying any treaty must address those problems or be rejected

Dec. 8 – A news release from Global Climate Coalition President Gail McDonald criticizes Gore's speech in Kyoto, says US agreement to additional emissions reductions would result in a 35-40 percent cut in domestic energy use, which could result in devastating job losses and skyrocketing energy prices

Dec. 10 – In a *Washington Post* letter to the editor, a resident scholar at the American Enterprise Institute claims that carrying out significant reductions in greenhouse gases will require an institutional capability that simply does not exist now, insists the United States must build institutions that can effectively address the problem; a news release from American Automobile Manufacturers Association President & CEO Andrew H. Card Jr. reacts to Kyoto climate negotiations; a news release from the American Highway Users Alliance says the proposed treaty would force gasoline prices higher and seriously restrict mobility in the United States; a news release from the Global Climate Coalition, United Mine Workers of America, and the American Farm Bureau Federation pledges a fight to block ratification of the Kyoto Protocol

Dec. 11 – A news release from The General Motors Corporation says if the Kyoto Protocol is implemented as described, American people could pay a high price and still not receive meaningful improvement to the global environment; a news release from Chrysler expresses disappointment with the outcome of the Kyoto conference; a news release from the Edison Electric Institute says the Kyoto Protocol threatens the US economy and consumers; a news release from the Michigan Chamber of Commerce calls on Michigan's U.S. Senators to refuse to ratify the treaty; a news release from the Motor & Equipment Manufacturers Association says the treaty could seriously harm economic prospects in the United States and in the motor vehicle and equipment industry in particular

Dec. 30 – In a *Los Angeles Times* commentary, the CEO of CalStart claims smart business will embrace the Kyoto Protocol as opposition will allow Japan and the European Union to gain market shares and a competitive advantage over American automakers

1998

Jan. 12 – A news release from Johnson Controls announces the Department of Energy selected their company to help federal agencies in the southeast upgrade their energy systems to reduce energy consumption and cut greenhouse gas emissions by 30 percent by 2005

Feb. 2 – A media announcement from the United Mine Workers of America reports a planned Feb. 4 march by Alabama members to the state capitol in Montgomery for a noon protest against the Kyoto Protocol

April 16 – A news release from Consumer Alert claims a report to be released by the Pacific Research Institute and The National Consumer Coalition provides preliminary findings that indicate enactment of the Kyoto Protocol would spell disaster to the citizens of California due to the state's reliance on oil, natural gas and electricity

April 19 – In a *Los Angeles Times* commentary, a senior fellow in environmental studies from the Cato Institute claims El Nino and global warming will boost the US economy

April 30 – A news release from The Small Business Survival Committee supports Sen. John Ashcroft and other Senate leaders for a bill to prevent back-door implementation of the Kyoto Protocol

May 7 – A news release from The Pew Charitable Trusts announces the Pew Center on Global Climate Change will undertake studies, conduct public education, promote climate change solutions globally and work with businesses to develop marketplace solutions to reduce greenhouse gasses; a second release from the Pew Center announces the formation of its Business Environmental Leadership Council, which includes founding members American Electric Power Company, Boeing, British Petroleum, Enron, Intercontinental Energy Corporation, Lockheed-Martin, Maytag, Sun Company, 3M Company, Toyota, United Technologies, U.S Generating Company, and the Whirlpool Corporation

May 13 – A news release from The Pew Center on Global Climate Change announces the first wave of advertising highlighting the support of the Pew Center's corporate partners in its Business Environmental Leadership Council and underscoring the importance of addressing the problems of global climate change, announces the launching of its Web site

May 14 – A news release from American Electric Power provides reasons for joining the Pew Center on Global Climate Change Business Environmental Leadership Council; a news release from the Small Business Survival Committee calls on the Clinton Administration to release an economic impact study of the Kyoto Protocol to the American public

May 18 – A news release from The Small Business Survival Committee claims the Clinton Administration reneged on a promise at the G-8 Birmingham Summit to gain developing country participation in the Kyoto Protocol, and announces a Freedom of Information Act request with the Council of Economic Advisors

pertaining to any and all of the economic analysis developed, utilized and cited by the Clinton Administration in the context of the Kyoto Protocol

May 20 – A news release from Michigan's Climate Change Coalition urges Michigan lawmakers to vote "yes" on an amendment to exempt domestic US procurement, training and readiness exercises from the stringent emission limitations required by the Kyoto Protocol

July 22 – A news release from The American Automobile Manufacturers Association urges Congress to bar the EPA from spending money on regulatory initiatives implementing the unratified Kyoto Protocol

July 29 – A news release from the Pew Center on Global Climate Change announces that International Paper, Baxter International, Holnam Inc., and Air Products and Chemicals, Inc. have joined the Business Environmental Leadership Council

Sept. 8 – A news release from The Global Climate Information Project claims a new series of national television advertisements explaining the costs of the Kyoto Protocol to Americans and their families, will highlight the fact that the treaty requires Americans to drastically cut their energy use, but will have no impact on carbon levels in the atmosphere because it exempts more than 130 developing countries

Oct. 1 – A news release from The Pew Center on Global Climate Change and its Business Environmental Leadership Council announces a climate change study that concludes significant costs will result from delaying emission reductions, calls for US Congressional leadership in preparing the legislative framework to encourage early action

Oct. 9 – A news release from Michigan's Climate Change Coalition reports that a US Energy Information Administration study concludes implementation of the Kyoto Protocol will mean a 50 cent-a-gallon increase in the price of gasoline and near doubling of the cost to heat homes in Michigan and around the nation

Oct. 14 – A news release from The Business Roundtable calls for early, cost-effective measures as an insurance policy against the potential threat of climate change, reiterates its opposition to the Kyoto Protocol

Oct. 20 – A news release from Suncor Energy Inc. and Niagara Mohawk Power Corp. announces the completion of the world's first cross-border emission reduction trade of 100,000 metric tons of greenhouse gas-emission reductions registered with the Environmental Resources Trust

Oct. 29 – A news release from The Pew Center on Global Climate Change announces that CH2M-HILL and DuPont have joined the Business Environmental Leadership Council; a news release from Michigan's Climate Change Coalition says the Kyoto is too expensive for Michigan families, farmers and factories, and needs a major overhaul immediately; a news release from the Small Business Survival Committee calls the Clinton Administration's emissions trading scheme a shell game, warns that costs for the Kyoto Protocol will be massive for small businesses, our workforce, American consumers and the economy

Nov. 9 – A news release from The Global Climate Coalition announces a study at the UN's Fourth Conference of the Parties shows a Wirthlin Worldwide poll of 1,008 voters conducted Nov. 3 concludes that 6 of 10 Americans believe the Kyoto Protocol will be expensive for American households and should not be implemented

Nov. 12 – A news release from The American Automobile Manufacturers Association indicates disappointment over President Clinton's decision to sign the Kyoto Protocol; a news release from Michigan's Climate Change Coalition says the Clinton Administration is out of step with Michigan constituents; a news release from the National Association of Manufacturers criticizes the protocol as inherently flawed in its omission of developing countries and will devastate the US economy if

implemented; a news release from the Chemical Manufacturers Association says the signing of the Kyoto Protocol shows the administration's disregard for the Senate's Byrd-Hagel Resolution, which states that the Senate would not ratify any agreement not requiring specific emissions-reduction commitments from developing countries or that would seriously harm the US economy; a news release from National Mining Association President and CEO Richard Lawson claims by signing the protocol, the Clinton Administration not only has ignored the concerns of the US Senate, but also has needlessly compromised the US negotiating position at the Fourth Conference of the Parties and future meetings; a news release from the Pacific Research Institute says Clinton's decision places US economic security in jeopardy and subjects Americans to skyrocketing energy costs; a news release from the Small Business Survival Committee criticizes Clinton for signing the Kyoto Accord merely to appease international bureaucrats and radical environmentalists; a news release from Texas Citizens for a Sound Economy claims the protocol should be rejected by consumers as environmental benefits are questionable and the treaty will cost the average Texas family $2,700

Nov. 13 – A news release from The Pew Center on Global Climate Change praises businesses at the Buenos Aires talks that accept the scientific evidence on climate change and plan to take actions to address its consequences; a news release from the Texas Farm Bureau criticizes the Clinton Administration for signing the Kyoto Protocol, claims the protocol will be a disaster for American agriculture and Texas farmers and ranchers

Nov. 20 – In a *Washington Post* letter to the editor, a fellow for science and technology at the Council on Foreign Relations insists the Buenos Aires climate talks did little to slow global warming, claims the Kyoto Protocol will not work and America should lead in the search for new technologies by investing into research and development

Nov. 21 – In a *Washington Post* letter to the editor, a climate consultant for the Global Climate Coalition claims that interest by some US companies in official credit for their voluntary efforts to limit greenhouse gas emissions should not be confused with endorsing the Kyoto Protocol as the voluntary effort has been in existence since 1993

1999

Jan. 7 – A news release from The Small Business Survival Committee warns against early implementation of the Kyoto Protocol, saying the "Credit for Voluntary Early Action Act" caters to big corporate special interests, and will ultimately lead to punitive action toward small and mid-sized businesses

Jan. 13 – In a *New York Times* commentary, the co-director of Empower America and the president of the Competitive Enterprise Institute claim an emissions-credit plan will divide the business community, claims the Kyoto Protocol will immensely harm the US economy

Jan. 26 – A news release from Allied Business Intelligence announces a study that concludes the electrical generation equipment market could surpass $100 billion annually within a decade as the global market turns to a new generation of electricity production technology and away from fossil-fuel power plants

May 19 – A news release from the National Center for Policy Analysis claims the United States would have to cut its energy use by one quarter – the equivalent of stopping all highway, rail, sea and air-traffic permanently – to meet the requirements of the Kyoto Protocol

June 8 – A news release from Michigan's Climate Change Coalition reports that Michigan's House of Representatives approved a resolution urging the US Senate not to ratify the Kyoto Climate Treaty, stating that more research is needed and that climate change action should be affordable and effective

Sept. 27 – A news release from The Pew Center on Global Climate Change announces a study by Dr. Kenneth Frederick of Resources for the Future and Dr. Peter Gleick of Pacific Institute for Studies in

Development Environment & Security that concludes climate change will likely impact both the availability and quality of the US water supply

Dec. 14 – A news release from The Pew Center on Global Climate Change announces a report that highlights the importance of international emissions-trading mechanism in reducing the costs of climate change, which would lower global mitigation costs

2000

March 31 – A news release from the National Mining Association claims that President and CEO Richard Lawson will tell the Senate Energy Committee that answers to climate questions lie in technology, not the Kyoto Protocol

Sept. 18 – A news release from Michigan's Climate Change Coalition warns that Michigan families will pay more at the gasoline pump, see home heating costs skyrocket, and suffer through rolling power blackouts if the Kyoto Protocol is approved; a news release from Entergy announces its CEO will speak in support of reducing greenhouse gas emissions at the Sept. 20 Business Climate Change Symposium in New Orleans, sponsored by Entergy along with the Pew Center for Global Climate Change, the Greater New Orleans Foundation and the Alliance for Affordable Energy

Sept. 29 – A news release from Georgians for Sensible Climate Policy announces a Web site to help local governments calculate the economic impact of the Kyoto Protocol on their operations

2001

March 23 – In a *New York Times* commentary, the senior fellow for science and technology at the Council of on Foreign Relations claims Bush's decision to abandon the Kyoto Protocol improved chances for slowing manmade changes in the world's climate as Kyoto targets are unachievable, insists the Bush Administration has a responsibility to build an alternative to the Kyoto Protocol, calls for increased funding for research and development on affordable ways to move the economy entirely away from fossil fuels over the next several decades, raising the efficiency of fossil fuel burning in the interim, and creating incentives for companies to limit emissions by letting them trade carbon emission permits

April 5 – In a *Wall Street Journal* letter to the editor, the vice president of Safety, Health and Environment at the ExxonMobil Corp. states that the company believes that there are many gaps in the current scientific understanding that need to be addressed, claims it is time to move beyond the Kyoto Protocol and focus on technological Research and Development

April 6 – In a *Washington Post* editorial, the senior vice president of the American Council for Capital Formation claims neither the US nor the EU can afford the costly sacrifices in economic growth needed to meet the Kyoto targets, proposes voluntary action to reduce CO2 emissions

April 11 – A news release from The United States Council for International Business announces it sent a letter to Bush urging the administration to quickly develop an agenda for future talks that would address a wide range of energy, competitiveness and technology-related issues, and avoid the Kyoto Protocol mandates

June 9 – In a *Los Angeles Times* letter to the editor, the editor of the Environmental Engineers' Handbook claims the only permanent solution to energy problems is the conversion to inexhaustible energy sources

July 13 – In a *Los Angeles Times* commentary, the director of international strategies at the Pew Center on Global Climate Change and the executive director of ENVORK claim that US rejection of the Kyoto Protocol deteriorates prospects for ever enlisting developing nations in the fight against global warming

July 31 – In a *New York Times* editorial, a consultant in Clinton's White House Science Office claims countries have a couple of decades to make emissions cuts if private business and private initiative is engaged now to attack the problem, suggests global financial penalties and incentives to meet the targets and establishing processes to identify and evaluate new technologies to reduce emissions

Aug. 19 – In a *Los Angeles Times* commentary, the senior fellow for science and technology at the Council on Foreign Relations claims the world did not rescue the Kyoto Protocol without the United States as the compromises given will not impact greenhouse emissions, yet notes that any serious strategy to combat climate change must work from inside the Kyoto system

Sept. 7 – In a *Wall Street Journal* letter to the editor, the president of the United States Council for International Business claims there is broad agreement within the business community that key elements of the protocol require clarification if companies are to make the long-term investment decisions necessary to implement it

Appendix V. Business Position Pieces – U.K.

1997

Nov. 20 – In a *Times* letter to the editor, the vice-president of the British Association of Colliery Management claims the U.K. government should not pretend that emissions targets are painless, but should explain why the UK is unilaterally committed to twice the level of pain required by other countries

Dec. 8 – In a *Daily Telegraph* letter to the editor, a member of the Institute of Economic Affairs notes the group is an independent charity and though some of its scientists received funding from the fossil-fuel industry, that should not invalidate their criticisms of climate change

Dec. 10 – In a *Times* letter to the editor, the CEO of the British Wind Energy Association claims using as few as 3,000 5MW windmills for power generation would help the UK reach its targets for renewable energy

1998

April 19 – An *Observer* editorial by an author of confounded weather theories notes Rob Roy and the Jacobite clans experienced more global warming than this century

1999

Aug. 10 – In a *Financial Times* comment and analysis, the chairman of the Royal Institute of International Affairs' energy and environment program claims UK prominence in international trading requires it to exceed Kyoto targets for reducing emissions and to have a large, liquid, domestic market for emission permits

Oct. 23 – In a *Guardian* letter to the editor, the deputy director general of the Confederation of British Industry claims the UK government is forcing businesses to go beyond normal business procedures in tackling climate change, requiring investments that will only be economically feasible if they get a substantial rebate on the tax, calls for emissions trading; in a *Guardian* letter to the editor, a national officer of the Graphical Paper & Media Union claims the proposed climate-change levy risks jobs of thousands of workers in the papermaking sector; in a *Guardian* letter to the editor, the Association of Electricity Producers' CEO claims an energy tax may not limit emissions, calls for wise spending of limited funds

Nov. 8 – In a *Financial Times* letter to the editor, the CEO of the Brunner Mond Group, the UK's sole producer of soda ash, claims combined heat and power plants should be exempt from the proposed climate change levy

2000

June 6 – In a *Financial Times* letter to the editor, members of the UK industrial gases industry claim the proposed climate change levy is unfair due to increasing production costs

July 11 – In a *Financial Times* letter to the editor, a Competitive Enterprise Institute's environmental policy analyst claims the U.S. National Assessment selectively uses scientific evidence for political gains and presents worst case scenarios in direct conflict with the available scientific evidence

Oct. 10 – In a *Financial Times* letter to the editor, the president of the Pew Center on Global Climate Change clarifies her position on the Kyoto Protocol, claims world governments should finish the Kyoto

framework (e.g., the rules governing emissions trading and carbon sequestration), determine what can be counted, and then assess whether the existing targets can be met in the current time frame
Sept. 22 – In a *Financial Times* letter to the editor, a Competitive Enterprise Institute policy analyst claims compliance with the Kyoto Protocol may require higher petrol prices

Oct. 24 – In a *Financial Times* comment and analysis, fellows at the German Marshall Fund and the US Institute of Peace who were previously on the U.S. National Security Council claim the European Union must allow emissions trading or risk killing the Kyoto Protocol

Nov. 8 – In a *Guardian* comment and analysis, the head of the Environmental Change Institute notes floods are not all caused by global warming, but by new developments on floodplains

Nov. 21 – In a *Financial Times* comment and analysis, the head of the global economy program at the New Economics Foundation notes the transportation of goods by air contributes to global warming but is not taxed accordingly

2001

Feb. 27 – In a *Financial Times* letter to the editor, the president of Energy Resources International claims it is difficult to understand how the EU will meet its Kyoto obligations without nuclear power

March 5 – The Aluminum Federation's secretary-general claims in a *Financial Times* letter to the editor that industry was not consulted over the upcoming climate change levy, and claims the tax will not be revenue-neutral

April 2 – In an *Independent* letter to the editor, the secretary of Supporters Of Nuclear Energy claims Bush's position on the Kyoto Protocol makes sense if he proceeds to promote the development of nuclear power in the United States

April 20 – In a *Times* letter to the editor, the deputy chairman of the Yorkshire Coal Taskforce claims clean-coal power stations offer a possible energy solution that will help government meet Kyoto commitments

May 2 – In a *Financial Times* letter to the editor, the President of the United States Council for International Business supports Bush's decision on Kyoto and calls for renewed international action to move forward with climate negotiations

June 14 – A *Guardian* commentary by a global security book author notes Bush believes global security is entering a volatile and dangerous phase, but claims global inequity and climate change are the real threat, not rogue states

June 18 – In a *Financial Times* comment and analysis, senior fellows at the Brookings Institution suggests critics of the US should start looking for alternative ways of tackling climate change

June 21 – In a *Times* letter to the editor, the owner of Peter Spiegel & Co. criticizes the climate-change levy and praises Bush's decision on the Kyoto Protocol

July 11 – In a *Financial Times* comment and analysis, the World Bank's vice-president and chief scientist claim politicians have a duty to respond to the evidence of global climate change; an *Independent* commentary claims Europe must persuade the world to ratify the Kyoto Protocol

July 19 – In a *Financial Times* letter to the editor, the Institute for International Economics suggests international carbon taxes would be better than the Kyoto Protocol

July 25 – A *Guardian* comment and analysis by the New Economics Foundation suggests developing countries should sue the United States for global warming effects

Appendix W. SMO Position Pieces – U.S.

1997

March 9 – In a *New York Times* letter to the editor, an Environmental Defense Fund physicist claims sea-level rise associated with global warming will likely submerge a large area of wetlands, beaches and inhabited coastal zones

April 2 – In a *Wall Street Journal* letter to the editor, the executive director of the Society for Environmental Truth claims that adopting greenhouse gas emission limits is bad scientific policy as well as bad economic policy that will lead to catastrophic economic and living standards adjustments

April 30 – In a *New York Times* letter to the editor, the director of Greenpeace's Climate Campaign claims if current US energy policies continue unabated, catastrophic weather events could become more frequent, endangering human health and the environment

June 26 – Environmental Media Services releases statements from environmental leaders including the Environmental Defense Fund, the National Resource Defense Council and the Union of Concerned Scientists in response to Clinton's climate change speech, notes environmentalists critical of administration inaction on the issue

July 24 – In a *Washington Post* letter to the editor, the associate representative and director of the Sierra Club's Global Warming and Energy Program claim trading schemes will not help with global warming as enforcement would be impossible and trading would reduce pressure to develop new, cleaner technologies; a news release announces that A Community Forum on Global Climate Change in Brook Park, Ohio, sent a post card to President Clinton claiming that a proposed international climate change treaty would cost Ohio jobs, business development and economic growth while penalizing consumers with costly and restrictive government regulation of their lives

Sept. 25 – In a *New York Times* letter to the editor, the chief scientist with the Environmental Defense Fund claims potentially disruptive warming of Earth is inevitable unless industrial emissions are curtailed

Oct. 20 – A news release announces that Greenpeace delivered the report "Oiling the Machine: Fossil-fuel dollars funneled into the US political process" to US Senators and the Clinton Administration, noting that oil and gas interests donated $53.4 million to candidates and their parties since 1991 and the administration's subsequent failure to support strong international targets to cut greenhouse gas emissions

Oct. 27 – In a *Los Angeles Times* letter to the editor, the assistant director of the US Climate Action Network claims the real issue is carbon dioxide that lasts 100 years in the atmosphere and emissions that should be cut 60-80 percent to make significant progress toward averting disastrous climate disruption

Dec. 11 – A news release from Population Environment Balance claims the Kyoto Protocol ignores the fact that the US population will increase by 20 million by 2012

1998

Jan. 29 – A news release from The Alliance to Save Energy announces a study from a Harvard economics professor that finds dramatic environmental and economic benefits from re-pricing energy, encourages the United States to price energy to reflect the costs of air pollution and climate change damages

Feb. 7 – In a *Washington Post* letter to the editor, the science policy director of Ozone Action notes the president of the Science and Environmental Policy Project has not published any peer-reviewed scientific research on global warming

Nov. 10 – A news release from The Alliance to Save Energy claims taxpayers could save $1 billion annually and see a significant reduction in air pollution and greenhouse gas emissions if the Federal Government adhered to the Energy Policy Act and executive orders that require agencies to reduce energy waste through improved energy productivity

1999

Feb. 1 – A news release from The Alliance to Save Energy commends the Clinton Administration for its proposed FY2000 budget that includes increasing funding for energy-efficiency programs and starting climate-change tax incentives to reduce carbon emissions

June 3 – A news release from The Alliance to Save Energy commends the Clinton Administration for its executive order on Greening the Government through Energy-Efficient Management, which includes recommendations by the Alliance's 50-member task force on reducing government energy consumption and waste, and notes this marks the first time the government has set a specific greenhouse-gas reduction target

Sept. 20 – A news release from The Pennsylvania Council of Churches begins a two-day grassroots training session in Lebanon, Penn., launches Interfaith Climate Campaign to have people of faith work to prevent global warming as a matter of religious responsibility

Oct. 7 – A news release from The Pennsylvania Council of Churches announces the signing of an historic Religious Leaders Statement on Global Warming, calls for people of faith to be stewards of His creation

Dec. 7 – In a *Los Angeles Times* letter to the editor, the chairman of Ozone Action praises Ford Motor Company for leaving the Global Climate Coalition, claims instead of clouding the climate change debate it is better to focus on policies and products that can stop or slow the warming trend

2000

April 11 – A news release from The Acton Institute reports religious leaders skeptical of global warming

May 10 – A news release from The World Wildlife Fund urges the Appropriations Committee to defeat the Emerson-Knollenberg rider on the Agriculture Appropriations bill that would block the US from working with the international community to address the threat of global warming, notes the rider may be unconstitutional as it attempts to override the Executive Branch's authority to represent US interests in negotiating treaties prior to submission to the Senate for ratification

May 16 – A news release from The World Wildlife Fund criticizes the Appropriation Committee's vote for the Emerson-Knollenberg rider on the Agriculture Appropriations bill, urges House members to defeat the bill

May 19 – A news release from The World Wildlife Fund urges Congress to vote against an Anti-Corporate Average Fuel Economy standards rider in the Transportation funding bill, which would tie the hands of the Administration and hold back technology that would make cars and trucks cleaner and more efficient

June 13 – A news release from The World Wildlife Fund, Friends of the Earth, Greenpeace, Sierra Club, National Environmental Trust, and Ozone Action release a joint statement analyzing the Bonn talks, accusing developed countries of working to undermine the Kyoto Protocol

June 19 – A news release from Georgians for Sensible Climate Policy condemns the "Climate Change in America" report as a political attempt to move the Kyoto Protocol through the Congressional ratification process, while discarding science and common sense for political gain

June 20 – A news release from The World Life League's director of research calls the Clinton Administration's "Climate Change in America" alarmist propaganda that attempts to capitalize on the fears of the American people

June 21 – In a *New York Times* letter to the editor, the senior research associate for the Natural Resources Defense Council claims the federal government's climate change assessment confirms global warming threatens national environmental treasures, notes that regional climate studies are long overdue

Aug. 2 – A news release from The World Wildlife Fund announces a poll conducted by the Mellman Group that finds 73 percent of American Voters believe global warming is a serious threat and 80 percent want the US government to take action to reduce carbon dioxide emissions

Dec. 2 – In a *Washington Post* letter to the editor, a World Resources Institute associate claims rich countries are responsible for CO2 emissions, insists the Kyoto Protocol represents a flexible, market-based framework that can adapt and work over the long term

2001

Feb. 6 – In a *Washington Post* letter to the editor, members of the Center for Science in the Public Interest and the Natural Resources Defense Council urge full disclosure from the press, note that the president of the Science and Environmental Protection Project has served as a consultant to Exxon, Shell, Unocal, Sun Oil, ARCO, Ford and GM

April 17 – A news release from Campaign ExxonMobil claims oil company ExxonMobil's editorials defending its position on global warming result from the April 16 boycott by participants at the Global Greens 2000 conference

June 13 – A news release from The Interfaith Climate Campaign of the Pennsylvania Council of Churches condemns Bush's stance on the climate change issue as misrepresenting the report of the scientific panel he appointed to advise him, and for failing to acknowledge the United States' and his administration's ethical responsibilities

Appendix X. SMO Position Pieces – U.K.

1997

Feb. 22 – In a letter to the editor of *The Independent,* a Greenpeace climate campaigner claims Britain must take action on climate change

July 30 – In a letter to the editor of *The Independent,* a Friends of the Earth senior research officer claims El Nino is exacerbated by human-induced climate change, urges UK government to translate their emissions targets into credible policy

Oct. 31e- In a *Times* letter to the editor, the executive director of Greenpeace UK claims *The Times* devoted more space in an article to attacking Greenpeace than attacking the Clinton administration's failure to keep promises to curb greenhouse-gas emissions

Dec. 1 – In a *Times* letter to the editor, members of the World Wide Fund for Nature, the Wildlife Trusts, Green Alliance, Greenpeace, Friends of the Earth and the Royal Society for the Protection of Birds claim the European Union must ensure the US fossil fuel lobby does not derail the Kyoto negotiations

Dec. 5 – In a *Daily Telegraph* letter to the editor, a member of the Climate Action Network claims a *Daily Telegraph* column is based on arguments from the Global Climate Coalition

Dec. 16 – In a letter to the editor of *The Independent,* the director of Friends of the Earth urges world governments to build on the success of the Kyoto Protocol, calls for essential and tougher reduction targets

1998

May 14 – In a *Times* letter to the editor, the World Wide Fund for Nature's climate change policy officer claims a US economist who wrote that global warming is a positive phenomenon is oblivious to the threat of extreme weather-related events

June 10 – In a *Guardian* comment and analysis, the director of Friends of the Earth claims cutting emissions can be good for business as well as the nation's health

1999

Sept 2 – In a *Financial Times* letter to the editor, the World Wide Fund Climate Change Campaign's public affairs manager claims the United States could double the emissions cuts promised in the Kyoto Protocol, save money on energy bills, and generate jobs

Oct. 23 – In a *Guardian* letter to the editor, the World Wide Fund for Nature-UK claims the UK treasury, and the government as a whole, must stand firm in implementing the climate change levy to meet Kyoto commitments

Nov. 4 – A *Financial Times* comment and analysis by the program director of Forum for the Future claims the vigor with which the UK government pursues its target for a 20 percent reduction in carbon emissions will act as a litmus test of its sustainable development commitment overall

Dec. 24 – In a letter to the editor of *The Independent,* members of the Global Commons Institute, Policy Studies Institute, GLOBE UK All-Party Group, GLOBE Council, and the New Economics Policy Foundation claim though wealthy countries have forgiven their poorer neighbors debts, they owe the rest of the world for the increased storm damage caused by global warming

2000

July 6 – In a *Financial Times* letter to the editor, the director of the Association for Conservation of Energy claims the euphoria surrounding the Saudi government's decision to release an additional 500,000 barrels of oil a day should be leavened with the realization that the decision will not assist any country meet its Kyoto commitments

Nov. 9 – In a *Times* letter to the editor, a Friends of the Earth senior climate campaigner claims while no particular extreme weather event can be definitely attributed to climate change, the frequency of such events is increasing and will continue to do so if the world's governments do not take action to curb greenhouse-gas emissions

Nov. 14 – In a *Times* letter to the editor, the chief executive of Going for Green notes scientific concern over climate change is real, and claims environmentalists want a better quality of life and a cleaner, safer world for this and future generations

Dec. 1 – In a *Financial Times* letter to the editor, the International Climate and Development Coordinator of the World Wide Fund's European Policy Unit insists adaptation measures are already required, and developing countries may have a liability case against developed countries

2001

March 19 – In a *Guardian* letter to the editor, the chief executive of World Wide Fund-UK claims Bush's decision to seek to exclude CO2 from new emissions reductions for electricity plants is a disaster for the world's climate, encourages Blair to make Bush reverse the decision

March 30 – In a *Guardian* comment and analysis, the director of Friends of the Earth claims Bush's decision to reject the Kyoto Protocol represents a blow to the credibility of the EPA's Christine Todd Whitman, encourages Blair to stick to EU policy and build an international consensus on Kyoto

March 31 – In a *Daily Telegraph* letter to the editor, a member of Friends of the Earth claims the Kyoto Protocol's immediate impact on dimate change may be slight, but it represents the first of a series of climate deals, which cannot even be debated after Bush's rejection of the treaty

April 2 – In a *Times* letter to the editor, the director of the Association for the Conservation of Energy claims energy-efficiency would help the United States reach Kyoto goals and be economically profitable

April 6 – In a *Financial Times* letter to the editor, the World Wide Fund Climate Change Campaign's public affairs manager claims the Kyoto Protocol can succeed without US involvement

April 25 – A *Guardian* comment and analysis by the Royal Society for the Protection of Birds' climate change policy officer claims Bush distorted science and reneged on commitments made by his father, notes uncertainties about temperature increases are due to different scenarios that underlie temperature forecasts

Aug. 20 – In a *Guardian* comment and analysis, the director of Friends of the Earth claims global warming skeptics work with a bad economic model, which overestimates the cost of action and underestimates the costs of inaction, makes unjustified assumptions about the IPCC's forecasts, and then misrepresents evidence which does not fit

Appendix Y. U.S. Prestige-Press Comment

1997

March 10 – A *Los Angeles Times* commentary claims winter flooding in Northern California provides a glimpse of future problems caused by global warming, insists a coordinated international effort is needed immediately to curtain the impact

June 4 – A *Los Angeles Times* editorial claims the United States should focus on expanding free market incentives to encourage exploitation of forms of renewable energy at two international summits in June

June 22 – A *New York Times* editorial claims Clinton's greatest problem is convincing Congress to take global warming as seriously as the scientists; a *Los Angeles Times* op/ed notes the United States broke the Rio pact to reduce emissions, claims Clinton will not take the risk of increasing the price of coal and oil to reduce the use of fuel

June 29 – A *New York Times* editorial notes Clinton's must educate the American public about global warming, invest heavily in new technologies, convince Congress to ratify an international treaty, plan to spread the costs fairly among industrialized nations and bring developing countries into the effort; claims Clinton's success will be measured by whether he has a credible plan ready in time for Kyoto

Oct. 5 – A *Los Angeles Times* editorial claims the real disagreement is not over the need for emission reductions, but over how it can be accomplished fairly

Oct. 6 – A *New York Times* editorial claims Clinton can position himself as a moderate in the global warming debate when devising an American proposal for the upcoming Kyoto conference in December

Oct. 14 – A *Washington Post* editorial claims environmentalists are right to campaign for action on the upcoming Kyoto talks, but notes if they put a failure label on a solid achievement, then the developing world will likely do the same

Oct. 16 – A *Los Angeles Times* editorial claims Gore's concern on global warming is part of a campaign aimed at population control

Oct. 23 – A *Los Angeles Times* editorial claims Congress should back an international treaty to curb greenhouse gases

Oct. 24 – A *Washington Post* editorial claims other countries will not take steps to reduce global warming if the United States does not change its pattern of energy use

Dec. 2 – A *Los Angeles Times* editorial notes the US proposal to reduce industrial nations' average carbon dioxide and other emissions to 1990 levels by 2012 represents a middle ground between nations opposed to reducing oil sales and the EU's proposal to reduce fossil fuel emissions by at least 15 percent from 1990 levels by 2010, claims EU goals are honorable but unreachable while US proposal provides an accord the world can abide by

Dec. 4 – A *New York Times* editorial claims if the Kyoto talks do not produce a treaty, it will not have been a failure if it moves nations to a common ground

Dec. 5 – A *Washington Post* op/ed claims climate change activists are inflexible and intolerant, insists living standards should not be sacrificed for theory

Dec. 7 – A *Washington Post* editorial notes global warming presents a long-term challenge, claims the responsibility to compromise lies on all parties but the responsibility to move beyond rhetoric and failed voluntary measures lies most heavily with the United States

Dec. 11 – Kyoto Protocol agreement reached; a *Los Angeles Times* editorial claims the Kyoto Protocol is a start in the right direction

Dec. 12 – A *New York Times* editorial claims the agreement on the Kyoto Protocol could lead to a historic environmental undertaking that will merely be the beginning of a brutal political battle

Dec. 22 – A *New York Times* editorial claims the Senate has misread the American public if it considers the Kyoto Protocol to be dead on arrival and if it underestimates the public's resolve to address global warming

1998

July 23 – A *Los Angeles Times* editorial claims Congressional measures in the House and Senate are aimed at killing the Kyoto Protocol outright, notes this outcome would fulfill wishes by global coal and oil companies

Aug. 16 – A *Los Angeles Times* commentary claims Texas media were "snookered" into blaming only El Nino for the heat wave and drought that killed more than 120 Texans instead of also blaming global warming, notes that scientific debate on the issue is clouded by energy industry lobbyists

Sept. 5 – A *Los Angeles Times* editorial notes Republicans are trying to keep the Clinton Administration from even studying global warming reduction until developing nations commit to binding reductions, claims Congress should recall the success of the Clean Air Act and the Water Pollution Control Act, which ushered in a more enlightened national attitude and environmentally responsible spirit

Nov. 11 – A *Los Angeles Times* editorial claims that it is time for the United States to invest in renewable energy sources

Dec. 28 – A *Los Angeles Times* editorial claims energy-efficient technologies are good for the economy and the environment, praises proposed legislation that would encourage US companies to reduce their fossil fuel emissions

2000

April 3 – A *Los Angeles Times* editorial states the existence of global warming is no longer in doubt, claims attention needs to shift to human adaptation

June 11 – A *Los Angeles Times* editorial claims the US House of Representatives should defeat a measure that bars federal officials from taking steps to confront climate change and mitigate its effects, as the measure distracts Congress from identifying and considering reforms that make economic and environmental sense

July 10 – A *New York Times* editorial claims global warming is accelerating, insists any benefits will be outweighed by potentially devastating global effects

Aug. 19 – A *Los Angeles Times* editorial notes while Gore downplays global warming at the Democratic Convention, the Clinton Administration seeks a middle ground with Congress, claims its emissions-trading mechanism plan deserves support

Nov. 17 – A *Los Angeles Times* editorial claims the US plan to create short-term economic incentives that encourage long-term ecological behavior makes sense without relying on reducing factory and automobile emissions

Nov. 28 – A *New York Times* editorial claims that the progress of emissions trading and credits for clean-fuel investments, and the increasingly persuasive science about global warming's perils provide reasons to continue climate change talks in May 2001 though The Hague talks collapsed

2001

June 17 – A *New York Times* editorial notes Bush's overseas trip did not lessen the gap between US and EU positions on global warming, claims the ethical nuance of industrialized nations moving first with developing nations following is lost on the Bush Administration

June 21e- A *Washington Post* editorial claims Bush brings honesty to the global warming debate by defying conventional wisdom

July 19 – A *New York Times* editorial notes Bush will attend the Group of Eight summit meeting in Genoa without a global warming strategy after rejecting the Kyoto Protocol, claims proposed legislation before Congress and a National Academy of Sciences report recommending sharp improvement in fuel economy standards will determine whether the administration means what it says about the need for conservation

July 24 – A *New York Times* editorial notes US isolation after 178 countries salvaged the Kyoto Protocol, claims Bush can still honor his father's commitment to a global effort to reduce greenhouse gases

July 25 – A *USA Today* editorial claims Bush's absence of a plan to counter the Kyoto Protocol has lead to American isolation, questions Bush's leadership role

Appendix Z. U.K. Prestige-Press Comment

1997

March 17 – A *Daily Telegraph* editorial claims the Green party exaggerates the facts about global warming and attempts to suppress debate on the issue

Oct. 13 – A *Financial Times* column claims investors should pay attention to the upcoming Kyoto talks and oil company responses

Oct. 15 – In a *Guardian* commentary, the environment correspondent of BBC Radio's Today claims Clinton supports saving the world from global warming in an effort to win the Green vote

Oct. 22 – Bonn talks begin; an *Independent* commentary notes governments are becoming less important, while multinational companies are becoming more so, claims corporate greenery could counterbalance governmental impotence on the environment

Nov. 3 – A *Financial Times* column claims it is a shame that the US government lacks the courage to admit that while some jobs in some industries may be lost due to the Kyoto Protocol, new jobs will more than compensate

Nov. 29 – A *Daily Telegraph* editorial insists the United States must stand firm in the upcoming Kyoto talks, which threaten drastic increases in fuel taxes and a severe recession to the American economy; an *Independent* commentary claims though the United States looks selfish in the climate change talks, Europe's moral gestures to the problem offer no lasting solutions

Nov. 30 – An *Independent* commentary claims the upcoming Kyoto conference may be the last chance to halt global warming

Dec. 1 – A *Daily Telegraph* editorial claims media reports on global warming and the upcoming Kyoto talks contain various inaccuracies, citing books from the Institute of Economic Affairs and the European Science and Environment Forum; a *Financial Times* commentary claims any climate change treaty must be founded pragmatically in the present, recognizing political constraints as much as the limitations of modern science

Dec. 11 – A *Guardian* editorial claims the success or failure of the Kyoto climate change conference lies with the emission-trading plan, which sends the wrong message to developing countries

Dec. 12 – A *Financial Times* editorial claims the structure of the Kyoto Protocol is more important than the numbers, notes a carbon emissions trading system would help the US meet its quotas by raising energy efficiency in less industrialized countries; a *Guardian* editorial notes that emissions reduction is now legally binding; a *Financial Times* column claims that shortcomings in the Kyoto Protocol should not overshadow its achievements; an *Independent* commentary claims the protocol gets closer to addressing global climate change, but it's still a long way from the final goal

1998

Oct. 17 – An editorial in *The Independent* notes energy use of a growing world population has changed the world's climate a little and will change it a lot in the 21st century, calls on industrialized countries to use less energy and to increase its price fairly and efficiently

Nov. 13 – A *Daily Telegraph* editorial claims recent global warming studies show wide discrepancies in facts, insists the Kyoto Protocol will condemn many people to poverty and damage the environment

1999

Feb. 14e- A *Sunday Telegraph* editorial chastises radio announcers for saying unusual weather is caused by global warming

Sept. 16 – An editorial in *The Independent* notes that people perceive global warming as something distant without personal relevance, but notes the likely consequences dictate that the situation be taken seriously

2000

Feb. 26 – A *Daily Telegraph* editorial claims the proposed climate change levy is a bad tax that will cost jobs because it falls on producers and it will be costly to administer

June 17 – A *Daily Telegraph* editorial claims the proposed climate-change levy is a stupid tax that will not matter if the United States does not discourage automobile use

Aug. 13 – An *Observer* editorial claims emissions trading is an ingenious idea that is deeply flawed, urges United States to treat global warming as a global emergency and take unequivocal action to adopt the Kyoto targets

Sept. 1 – A *Guardian* editorial claims little action will be taken to combat climate change while oppositions offer people an excuse to do nothing

Sept. 5 – A *Daily Telegraph* editorial claims the Kyoto Protocol is irrelevant to the weather but will hamstring the world economy

Oct. 16 – A *Guardian* editorial claims recent flooding should shock Britain into seriously pushing for the ratification of the Kyoto Protocol

Oct. 31 – An *Independent* commentary claims the latest weather crisis demands that international governments address the problems of climate change

Nov. 4 – An editorial in *The Independent* notes that unusually strong storms do not necessarily mean global warming is happening, compares previous weeks flood with historical records in England

Nov. 11 – A *Guardian* analysis article claims global warming is a flood myth for the current generation

Nov. 18 – A *Daily Telegraph* editorial insists politicians must quit misleading the public by blaming car drivers for global warming

Nov. 19 – A *Sunday Times* editorial criticizes radio announcers for suggesting all experts agree that current floods are a result of climate change caused by global warming

Nov. 20 – A *Guardian* editorial claims the world stands to lose unless the U.S. president-elect commits to the Kyoto Protocol, notes American readers do not receive adequate environmental coverage, predicts Nader will cost Gore the election

Nov. 26 – An *Observer* editorial claims the United States ruined the global warming talks, claims forest fires may make US citizens demand a more intelligent approach from its governmental leaders

Nov. 27 – A *Guardian* editorial claims the failure of the climate change talks is the best chance to get the issue noticed; an editorial in *The Independent* claims it remarkable that transient politicians, operating

within the short-term constraints of local electorates, have achieved so much in the face of such huge long-term problems

Nov. 29 – A *Financial Times* editorial claims the world should not worry about the failure of climate change talks to impose radical restrictions on emissions

Dec. 27 – A *Guardian* comment and analysis claims as incontrovertible fact that the world is threatened by global warming

2001

Jan. 23 – A *Financial Times* editorial notes that the uncertainties of global climate change are great, but so are the dangers, demanding that international consensus must be rebuilt; an *Independent* editorial claims the Americans must come to the resumption of climate talks in Bonn in May with a new readiness to play their part in averting an avoidable global tragedy

Jan. 30 – A *Financial Times* comment and analysis notes that climate change concerns have revived the alternative power industry

March 30 – A *Financial Times* editorial notes Bush's rejection of Kyoto is not surprising considering the U.S. Congress' reluctance to ratify it, but claims the Bush administration must find a new basis for dialogue with its partners due to the possibilities of cataclysmic dangers; an *Independent* editorial claims Bush made a catastrophic error in rejecting the Kyoto Protocol

March 31 – An *Independent* commentary claims Bush was corrupted by affluence and the United States has missed the Christian implications of its public policies

April 1 – A *Sunday Times* editorial provides reasons why Bush is right to reject Kyoto

April 4 – A *Guardian* editorial claims Bush has turned America into a pariah and made enemies of the entire world, claims a protocol without America may not impossible, just unlikely; a *Guardian* comment by the London editor of *Vanity Fair* notes America's view of the world is profoundly different to Europe's

April 5 – The *Guardianés* chief political correspondent claims Europe has been struggling to promote a cohesive front on Kyoto though Britain has done its part since Bush's decision to reject the Kyoto Protocol

April 9 – A *Guardian* economic commentary notes America is living beyond its means due to dependency on capital flows from the rest of the world, claims the world should cut off the flow of funds to finance the US current account deficit

April 15 – A *Sunday Times* editorial claims the global warming myth endangers the planet

May 16 – A *Guardian* commentary claims Bush is bad for the world's environment as his administration's anti-environmental decisions outnumber favorable ones by roughly four to one

June 16 – An *Independent* commentary claims that Bush's rejection of Kyoto explicitly shows the US would not ratify the treaty, encourages other nations to ratify the treaty without the United States

June 19 – A *Guardian* comment and analysis notes that if the Kyoto Protocol collapses, emissions could be reduced on a per capita basis

July 14 – A *Financial Times* editorial claims the spirit of the Kyoto Protocol must be kept alive even if the document is declared dead at the upcoming Bonn meetings, as it provides the best hope for a workable solution to the problem

July 16 – A *Guardian* comment and analysis claims it's easy to blame the United States for global warming, but notes everyone who jets off on holidays shares the guilt

July 23 – An *Independent* editorial claims abandoning the Bonn talks would be worse than producing concessions to get a global warming treaty

July 24 – A *Guardian* editorial claims the ratification of the Kyoto Protocol represents a big advance, praises EU leaders for taking the lead in negotiations, calls the US irrelevant; a *Times* editorial claims the decision to implement the Kyoto Protocol does not lessen the political divide between the European Union and the United States over global climate change

July 25 – A *Financial Times* editorial claims the deal struck on the Kyoto Protocol was not bad but will hardly slow global warming, declares future negotiations must include the United States and developing countries must become involved in setting targets and emissions trading; an *Independent* commentary calls the ratification of the Kyoto Protocol a tremendous achievement

Aug. 15 – A poll sponsored by the *International Herald Tribune* and the Pew Research Center for the People and the Press and conducted between Aug. 1 and Aug. 9 finds Britons, French, Italians and Germans overwhelmingly oppose Bush's decisions to withdraw from the Kyoto Protocol

VITA

Ronald Sitton is originally from North Little Rock, Arkansas. Following high school graduation in 1987, he attended the University of Arkansas at Little Rock, where he received a B.A. degree in Journalism in 1992 with a minor in Criminal Justice. While at UALR, Sitton participated in the UALR Concert Choir and sang Mozart's Coronation Mass in New York City's Carnegie Hall.

During a two-year hiatus, Sitton worked for *The North Little Rock Times* as a city hall reporter, photographer, feature reporter and columnist. He returned to UALR for his M.A. in Journalism in 1996, where he worked as a graduate assistant and photo lab supervisor, as well as working as the Arts and Entertainment editor, columnist, photographer and copy editor for the *UALR Forum.* During this time, Sitton served as vice-president of both Kappa Tau Alpha, the journalism honor society, and Public Relations Student Society of America. He was also a member of Alpha Epsilon Lambda, the graduate school honor society, and the Society of Professional Journalists, and was named to "Who's Who Among Students in American Colleges and Universities."

In 1997, Sitton covered the Arkansas Legislative session for *The Benton County Daily Record* as a Capitol Correspondent. During this time, he also worked for *The Trucker* as a reporter, copy editor, production assistant, advertising coordinator and circulation manager, where he doubled the circulation in six months for the national award-winning bi-weekly paper.

Later that year, Sitton returned to school at the University of Tennessee to work on a doctoral degree in Communication. While in school, he served for two years as the

Communications College representative to the Graduate Student Association. Sitton helped found *The Southerner*, an online magazine for which he acted as the managing editor as well as the Arts and Entertainment editor. He also worked as a graduate teaching associate during this time while teaching media writing and media research. Sitton presented a conference paper at the 25th annual meeting of the Midwest Association for Public Opinion Research in November 2000, and was named to the Millennium edition of "Who's Who in America."

While working on his dissertation in 2002, Sitton took a job at Muskingum College as an Instructor of Journalism as well as the adviser to the campus newspaper, *The Black and Magenta,* which he taught students to publish online. In addition to media writing courses, Sitton also taught Editing and Make-Up, Feature Writing, Public Relations Writing, and practicums for both writing and design. Following the successful defense of his dissertation, Sitton returned to Arkansas, where he wrote for the *Little Rock Free Press* while finishing his dissertation revisions. He will graduate in May 2004.

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