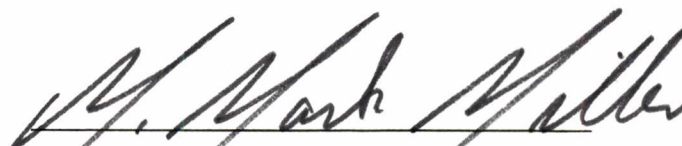
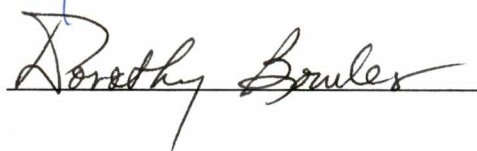


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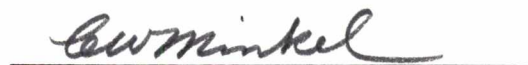
I am submitting herewith a thesis written by Dana Williams entitled "Laying Blame: Print Media Coverage of the 1993 Flood." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communications.


Dr. M. Mark Miller, Major Professor

We have read this thesis and recommend its acceptance.


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Accepted for the Council:



Associate Vice Chancellor and
Dean of The Graduate School

**LAYING BLAME:
PRINT MEDIA COVERAGE OF THE 1993 FLOOD**

A Thesis
Presented for the
Master of Science Degree
The University of Tennessee,
Knoxville

Dana Williams
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ABSTRACT

The focus of the media impacts the public's collective view of natural disasters and, in turn, may have far-reaching implications for policy formation regarding hazard mitigation and aid for victims.

The purpose of this study was to examine and compare, through content analysis, print media coverage of the "Great Flood" of 1993, focusing on blame attributed to people or policies that may affect local and national flood policies.

The publications studied were the *New York Times*, the *Washington Post*, the *Des Moines Register*, the *St. Louis Post-Dispatch*, *U.S. News & World Report*, *Time*, and *Newsweek*.

Coverage of the flood was dramatic and concentrated on immediate events more than on issues related to hazard mitigation. However, journalists included a variety of issues that may have long-term impacts on how we prepare for future flooding disasters.

The majority of blame generally targeted God or nature, as expected. Other frequent attributions of blame targeted the extensive levee system on the Mississippi River and its tributaries that constricts water flow and can compound flood problems; the patchwork nature of the public- and privately-built levee system; and the fact that the Midwestern floodplains are extensively developed.

A variety of sources were found to attribute blame: meteorologists, engineers and flood-control specialists, conservationists, federal and local officials, and Midwestern residents. Journalists often used sources, especially those in science professions, to elucidate key flood-control issues.

The treatment of blame and the use of sources was similar in some of the publications, yet remarkably different in others. The differences found underscore the variability of media coverage and the importance of thorough, thoughtful reporting of events and issues that impact public policy formation.

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1. INTRODUCTION

Natural disasters such as floods, drought, hurricanes, tornadoes, volcanic eruptions, earthquakes and tidal waves have taken the lives of millions of people, and may never cease to cause destruction. How we prepare for and respond to these occurrences, however, tremendously impacts the amount of damage incurred and the number of lives lost.

Hazard mitigation and prevention is a complex science, encompassing many political, geophysical, social and psychological influences. Choices are not isolated, but impact other dimensions of disaster policy. Also, decisions are based on priorities, rather than a single correct answer to a given problem. Perceptions of risk, as well as perceptions of responsibility for prevention or relief, determine those priorities, and these vary among interest groups and among levels of political organization.

The focus of the media not only helps determine public perception of a disaster, but it helps set priorities for disaster relief and lays the foundation for the policy decisions made to reduce future calamity and loss. (Smith, p. 167) An important part of understanding public attitudes regarding natural disasters, therefore, is a clear understanding of how the press presents disasters to its audience.

Reporters are responsible for communicating a complex array of information about which they may have little technical knowledge. They may cite specialists, public officials or area residents in covering a disaster, and the choice of sources may greatly impact how a story is written. Reporters may glean information from a variety of sources, then report their own impressions of an event. The attitudes of the sources -- and the reporter -- determine the tone of the story and, in turn, public perceptions.

How the media present disasters may differ across time or space, among different publications or types of publications, or among levels of coverage, whether local, regional, national or international. Where differences exist, there may be significant reflections on disaster perceptions and policy.

Nature may be held totally responsible for damage caused by natural disasters. In many instances, however, choices could be made to mitigate or even prevent widespread destruction. If blame is levied toward anything other than nature, it may be a monumental task to determine how that responsibility should be divided, given the complexities involved. Is it the responsibility of the federal government to establish controls that protect our lives and property? And if so, are we willing accept those controls? Or, should local or state governments be responsible for hazard mitigation and financial aid for disaster victims, since many hazards are limited to specific regions? Is it fair for American taxpayers to subsidize repeated rebuilding in marginal areas such as floodplains and earthquake fault zones? Is it humanitarian not to? Were we unwise to pave, plant, and build over wetlands that once provided natural flood protection? If so, what can be done after the fact? Is it fair to tell a farmer that he may no longer farm his grandfather's land, or a shopkeeper that he must relocate his well-established business? What are the social and economic costs of the policy options that are available to us? These and many other questions must arise in a thorough examination of flood-control policy, and the answers may ultimately lie in a combination of policy approaches.

The public must be aware of the issues involved in order to participate in any decision-making process. The media can be of great value in this regard if media organizations and individual reporters make it a priority to educate the public about such issues. It is through the media that ideas of responsibility and blame are introduced, or not, into the public conscience. Thus, questions also arise regarding the way the media present these ideas. Does the press concentrate on some issues and ignore others? Do journalists educate themselves about the issues well enough to educate their readers? To what extent do they enlist scientific, government, or other sources to help elucidate issues? Through their presentation of flood control topics, do they lead the public to certain conclusions about where problems exist? Does the presentation of these issues vary from one medium to another or from one media organization to another?

Overview

Flood control on the Mississippi

As a result of a severe flood in 1927, the United States Congress created the Mississippi River and Tributaries Project to tame the rivers in the Mississippi basin. (Walsh, 8/7/93, p. A4) During the next 65 years, the United States spent billions of dollars to build roughly 300 dams and reservoirs, construct thousands of miles of levees and flood walls, and operate countless pumping stations to regulate water draining from parts of 35 states into the Mississippi and its tributaries. (Schneider, p.1)

The reservoir system provides important control of water levels downstream and normally is effective in helping to control flooding. Another important aspect of the system is a network of levees and floodwalls which enable building and farming on the flat, fertile land adjacent to the rivers. In periods of minor flooding, these barriers have been effective; however, when floodwaters top certain levels, they may create more problems than they alleviate.

For example, when a river's flow is restricted, its sediments are no longer deposited to fertilize the floodplain but instead tend to be dropped within the narrow river channel, raising the height of the river and creating the need for ever higher levees. When floodwaters finally breach (break) or overtop the levees, the force of the water can strip vegetation and topsoil and destroy property. (Stevens, p. C1)

Midwestern communities have developed many isolated flood control measures, and the lack of coordination causes problems. For instance, levees in one area often compound problems in other areas. Constricting water into narrow channels upstream causes faster, higher water downstream. (Arnold, p. A8)

In response to a haphazard patchwork of private levees, the federal government began to construct levees in 1929, through the U.S. Army Corps of Engineers. Funding came from the federal government until the mid-

1980s, when the government began to require communities to help pay the bill. Some towns didn't decide that they wanted levees until after the funding changes, and then discovered levee construction to be too costly. (Hinds, p. 18L) Other towns declined to accept federal levees because they consume acreage and obstruct river views. (Verhovek, A12)

Many areas have levees which were financed, engineered, built and maintained by "levee districts," usually consisting of farmers and homeowners. These levees tended to be the ones breached by the 1993 flood. (Booth, p. A3, Walsh, 8/5/93, p. A3)

The Corps of Engineers maintains the flood-control reservoirs' water levels, ideally collecting excess rainfall in the reservoirs to protect downstream property from flooding. The Corps must accomplish a delicate balance between holding enough water to see the region through possible summer droughts and maintaining water levels low enough to provide flood protection in the event of unusually rainy periods. During floods, the balance entails releasing enough water so that areas upstream aren't flooded even more than the downstream areas. (Schneider, p.1)

In 1993, a wet spring complicated these tasks. The Corps had little choice but to maintain higher-than-normal water levels throughout the spring. When the deluge came in July, those in charge of the reservoirs could, at best, only balance the flood's severity between upstream and downstream regions. Nevertheless, some residents blamed the organization for increasing flood problems by letting too much or too little water out of the reservoirs. (Walsh, 8/3/93, p. A4)

The "Great Flood" of 1993 -- Who to blame?

The flooding of the Mississippi River and its tributaries in July of 1993 caused billions of dollars in damage. Nine states and 354 counties of the Midwest experienced severe flood damage, including losses in agriculture, industry, personal property, and infrastructure, such as roads and bridges, in addition to lives lost. (Glastris, p. 36)

Nature, of course, was the most obvious culprit in the devastation: through the spring and summer, there was unusually heavy rainfall. However, the media have published speculations of blame attributable to man as well. (Elmer-Dewitt, p. 23)

The subject of blame in this disaster is not clear-cut or obvious. An excessive amount of rain was obvious, but there are possible underlying causes, both natural and man-made, for the weather patterns which caused the concentrated period of rain in the Midwest (and concurrent drought in the Southeast). Another obvious cause of property damage was the fact that people have developed the floodplain of the Mississippi and its tributaries for farming, housing, and commercial use. This too has underlying complexities which were related in media coverage of the flood.

The targets of blame noted in the media in the weeks following the onset of the "Great Flood" of the Midwest can be categorized into two groups: natural and man-made.

The obvious natural cause was excessive rain. But why so much, and why at that time? Some scientists suspect El Nino, a huge pool of warm water in the western Pacific which expands every few years, nudging the jet stream off course and disrupting weather patterns. In 1993 this pool was joined by a second, smaller pool, increasing and lengthening the usual effects. (Sawyer, p. A1)

Another possible cause for the rain was a delayed effect of the eruption of Mount Pinatubo, a giant Philippine volcano, which in 1991 released 20 million tons of sulfur dioxide into the atmosphere. This haze reportedly lowered temperatures around the world by one degree in 1992, resulting in less evaporation and wetter ground conditions. (Elmer-Dewitt, p. 23)

Some wonder if the two seasons of excessive rain were the result of weather pattern changes caused by a depletion of the ozone layer, global warming, and/or the worldwide leveling of forests. (Elmer-Dewitt, p. 23)

Of the man-made problems, a frequently discussed issue was Washington's willingness, through the Federal Emergency Management

Agency (FEMA) and other relief programs, to give financial aid to homeowners, entrepreneurs and farmers who develop flood-prone land and often neglect to purchase inexpensive federal flood insurance. (Dean, p. B6) Some say that by providing certain types of disaster relief, government programs have encouraged property development in marginal areas such as flood plains, and have thus created a cycle of dependence on the government. (Walsh, 8/13/93, p. A3)

Even more fundamental to flood mitigation is the issue of trying to prevent flooding to begin with. Some officials and scientists question the wisdom of forcing the rivers to conform to our land use needs, and insist that we should allow the rivers to return to their natural, and ultimately less harmful, flooding patterns. (Budiansky, p. 24, Phillips, p. 9A)

As indicated by the variety of problems the press brought to light, blame was a significant component of the flood coverage. Some problems were cited often and by a variety of sources, and some only briefly alluded to. We should also recognize that for each target of blame there may be valid counter-arguments, rebuttals or extenuating circumstances not included in the flood coverage, and therefore not included in this study. The purpose of the study, however, was not to analyze or determine the problems or the solutions, but to find which of these issues were brought to public attention, and by whom.

The research questions for the study were the following:

- 1) Who or what was blamed, in addition to God or nature, for flood damage?
- 2) How often were sources cited in the flood coverage?
- 3) What sources were cited most often for attributing blame?
- 4) What sources mentioned what targets of blame?
- 5) What were the differences between nationally circulated newspapers
 - (a) in the coverage of the flood and (b) in the treatment of blame?
- 6) What were the differences between national and local newspapers
 - (a) in coverage of the flood and (b) in the treatment of blame?
- 7) What were the differences between newspapers in two Midwestern cities

- (a) in coverage of the flood and (b) in the treatment of blame?
- 8) Did national magazines cover the flood differently from national newspapers?
- 9) Were there differences over time in the attributions of blame?

Literature Review

This is one of the first research projects to examine blame in the media coverage of a specific natural disaster. Several related research areas are pertinent to the study, however. Some have established solid bases on which to build further research, while other research areas are still in their infancy.

Agenda building, the proven tendency for the media to impact how people perceive and evaluate issues, establishes a basis for the assumption that how the media presented issues surrounding the 1993 flood impacts public perceptions of flooding policies.

Several researchers, cited below, have examined how the media cover natural disasters. Their findings are relevant to this study because they provide a starting point for our expectations of the 1993 flood coverage. We can then compare flood coverage to the media treatment of other specific disasters and to disaster coverage in general.

The media's use of sources has a relatively undeveloped research foundation. However, the sources used in creating a story are vital to the final product and what that story says to its audience. One study examined sources used in the newspaper coverage of an earthquake and a hurricane, and provides a basis for expectations in studying flood coverage.

The issue of blame is another area of research that has barely been broached. Two studies are available as guide and comparison posts. One concentrates solely on the issue of blame in the coverage of a variety of natural and man-made hazard. The other examines blame as part of a study that analyses the framing of newspaper stories about the "Great Flood." Framing is the term used for the way media stories subtly and often unwittingly

tingly convey attitudes and perspectives through word choice, phrasing, and other content variables.

Agenda building

Mass media coverage of natural disasters is closely entwined with public perceptions of those disasters. The pervasiveness of the media and the impact they have on the development of attitudes and beliefs has long been established. The amount of media attention an issue receives determines public perception of its importance, and the way an event is framed in news stories impacts how audiences view the issues involved.

According to Doris Graber, "Agenda building goes beyond agenda setting. The media set the public agenda when news stories rivet attention on a problem and make it seem important to many people. Media build the public agenda when they create a political climate that determines the likely thrust of public opinions." (p. 183)

Researchers Gladys Engel Lang and Kurt Lang divided the concept of agenda building into six parts (Severin, pp.121-122), each of which is pertinent to disaster coverage:

- 1 - The press highlights some events or activities.
- 2 - Different kinds of issues require different kinds and amounts of news coverage to gain attention. Unobtrusive events or issues require more coverage to bring them to the public's attention.
- 3 - The events and activities in the focus of attention must be "framed," or given a field of meanings within which they can be understood.
- 4 - The language used by the media can affect perception of the importance of an issue.
- 5 - The media link the events that have become the focus of attention to secondary symbols whose location on the political landscape is easily recognized.
- 6 - Agenda building is accelerated when well-known and credible

individuals begin to speak out on an issue.

The importance of the mass media in establishing public attitudes is well supported by studies on disaster coverage. A study done at the University of Delaware showed the mass media to be the most salient source of disaster information for the public, even among those with first-hand experience in the disaster. (Wenger, p. 36)

Another study showed that the media played a central role in how the public defined a 1978 flooding disaster, one that appears to be at the heart of disaster prediction, management and response. (Scanlon, p. 262) According to this study, the public seemed to pay close attention to media accounts during the initial impact, but gradually lost interest, and there was little resultant policy change.

However, there can be a direct relationship between media coverage and policy changes. In his research on the Yellowstone forest fires, the *Exxon Valdez* oil spill and the Loma Prieta (California) earthquake, Conrad Smith found that the disasters, as reported in the mass media, were met by immediate and long-term political responses. (Smith, p. 167)

Media coverage of natural disasters

The media are frequently criticized for their shortcomings in disaster coverage. In any analysis, however, it is important to acknowledge the role of the media in today's society or, perhaps more importantly, what its role is not. It is not a journalist's job to uncover *every* truth, to digest or analyze information for us, or to make predictions, but to provide as much unbiased information as possible within the confines of the media organization. We often expect more from journalists than can be reasonably hoped for in our frustrated attempts to make clear-cut decisions in a highly complex technological society.

Many problems of disaster coverage stem from characteristics of the media and the constraints under which reporters work. Deadlines limit time available for reporters to do research and to examine complexities.

Reporters are dependent on sources for most or all of the information that goes into their stories. The viewpoints of these sources will naturally show in the resulting stories. (The topic of sources will have a separate discussion.) In addition, journalists are trained to try to balance conflicting viewpoints. In doing so, they may actually obscure the truth.

Another challenge for reporters is that major disasters happen less frequently than other types of news, and reporters have less experience to draw from. Few reporters have the scientific background necessary to assess the complexities of many disaster stories. They must rely on expert sources and, without a certain amount of scientific knowledge, they may not know which sources are the most reliable or accurate. Furthermore, natural disasters are not likely to happen in the same places as other news events, and journalists often must work in unfamiliar surroundings, where they are even less prepared to efficiently use available sources.

Eleanor Singer and Phyllis M. Endreny, who have done significant research on media coverage of hazards, point out that it is the nature of news reporting to be reactive to events: that it is a reporter's job to give the news after it has happened, not to be prognosticators of events that might happen.

The result of this reactive orientation on the part of the media is that reporting on hazards follows a common pattern whose outline varies only in certain limited respects from one situation to another. The occurrence of a hazardous event is followed almost immediately by a spate of stories whose number declines rapidly after a short interval of time. The initial flurry and decline may be followed by one or more resurgent flurries as related events occur, but the withdrawal of attention by the press ordinarily does not mean that the issue raised by the precipitating event has been resolved. More commonly, it occurs because of new developments in the continuing story, or because of the occurrence of a more newsworthy event which pre-empts media space or time, or more likely, because of both of these. (Singer, p. 22)

Many studies have shown mass media coverage of disasters to be dramatic. Focus is generally on the initial event: extent of damages, number of victims, and reactions of victims and observers. (Smith, p. 14) Hornig, Walters and Templin found that journalists most often report immediate events with plans and predictions, damage reports and discussions of resources. (Hornig, pp. 38-39)

Wilkins and Patterson, through a 1990 content analysis, found certain tendencies in the mass media's coverage of "slow-onset" hazards such as river pollution and acid rain. These tendencies may be applicable to more dramatic hazards, as well. Their analysis showed media coverage to be: 1) unidirectional, providing little opportunity for public feedback, 2) usually event-centered, 3) focused on the authorities currently in power, 4) dramatic rather than analytic, 5) focused on the short term, 6) lacking in message clarification, and 7) lacking in information about benefits and costs.

News coverage of catastrophes also tends to personalize abstractions and institutions by using specific people to represent them. Stories about the Exxon oil spill, for instance, were often told in terms of "the captain who wrecked his ship, an Exxon official who couldn't clean up the oil, and an Alaska commissioner who represented the innocent victims of the oil." (Smith, p. 184)

Perhaps the most important quality of disaster coverage, relative to the 1993 flood, is that it tends to simplify or completely omit complex issues. An excerpt from Conrad Smith's book illustrates:

News stories about the oil spill often blamed the accident on Captain Hazelwood, who had a history of alcohol problems, and attributed slow progress in the cleanup efforts to Exxon, the corporation that organized and paid for them. The stories rarely discussed the regulatory context in which the accident and cleanup efforts occurred: lax enforcement by the Coast Guard of rules about alcohol consumption; reallocations in Coast Guard funding that had reduced the Valdez, Alaska

Coast Guard station's ability to enforce safety standards; the Coast Guard's approval of smaller crews for oil tankers; rules governing Coast Guard oversight of oil spill cleanup efforts that made it very difficult for the agency to exercise effective control; and actions by the State of Alaska, which had approved the ineffective spill cleanup plan, did not effectively enforce oil spill preparedness measures, and did not object to the elimination of some of the oil shipping safety standards that were in effect when the Trans-Alaska pipeline was completed. (Smith, p. 9)

Media use of sources

Sources used in reporting events have an important bearing on the way an event is presented. A content analysis of nuclear energy stories from 1970 to 1983 showed that a small corps of reporters who specialized in science writing drew much of their information from enemies of nuclear development, which contributed to anti-nuclear views of their readers. (Graber, p. 185)

The fact that a source has a given title in a news story should not be taken at face value. Sources named as "scientists," for instance, could work in any number of fields of science. They may be employed by private or government institutions. They may be part of a special interest group. They may be university scholars. Professional agendas may greatly impact opinions given regarding the assessment of risk and of policy issues, yet to the public eye, no differences exist.

A study published in 1991 by Hornig, Walters and Templin looked at newspaper coverage of Hurricane Hugo and the Loma Prieta Earthquake. The primary emphasis of the study was how quotes from expert sources were used to construct claims about institutional needs and responsibilities. Their hypothesis was that the loudest voices in the news would be those with the greatest interests in the public definition of the problem, and they generally found this to be true.

Hornig, Walters and Templin divided sources in to five categories:

elected official, spokesperson, victim/witness, all experts, and other. The category for experts was further divided into four sub-categories: preparedness specialist, scientist, engineer, or M.D./psychologist/ social scientist. They noted that the "other" category included a large percentage of government voices.

They also coded stories by the subject matter of quotations used in stories. These were placed in one of 10 categories: general comments, direct observations, plans/predictions, damage reports, resources, scientific information, engineering information, instructions, and past disasters. Direct observation was the largest group (28 percent), followed by general comments (23 percent), plans and predictions (15 percent), and damage reports (15 percent). Scientific information was provided in three percent of the quotations coded.

The study concluded that elected officials were quoted more often than all other sources combined. Scientific sources were most likely to make statements of a general nature about conditions rather than to illuminate the story with background or preventive information. The authors found a tendency for government sources to blame government and for individuals to blame individuals or private groups.

Hornig, Walters and Templin's research provides a useful example for studying sources. However, both of the disasters they studied were "rapid-onset," unlike the relatively slow onset of a widespread flood. Reporters may have more time establishing source contacts for "slow-onset" natural disasters. The coverage of flooding, then, may be quite different than for hurricanes or earthquakes, since the area affected is known at least somewhat in advance of the event.

If we find that sources used in flood coverage followed the same pattern as in hurricanes and earthquakes, the superficiality of the scientific viewpoint may have long-term impacts on flood mitigation policies. For example, if scientists and government officials were to tell us that it was a mistake to try to interfere with rivers' natural flooding patterns and that levees ultimately make the flood problems worse, this

would have a significant impact on policy. But if they were to say that the problem is insufficient levees or improperly constructed levees, it would have an opposite effect on future policies.

Another issue that could be the target for future changes is local land-use policy. If scientists and federal officials were vocal on the need to preserve natural floodplains, pressure to restrict land use in these and other marginal areas might ensue.

However, if we find that scientists are most likely to give only vague and superficial remarks, we don't benefit from their knowledge in our decision-making processes. We may make decisions based on what local officials and residents say, even though we expect their views to be biased by local economic and political motivations.

Blame

How the media treats blame surrounding natural disasters has received relatively little attention. Eleanor Singer and Phyllis M. Endreny were among the first to discuss blame as a research variable. In *Reporting on Risk* (1993), they described their comprehensive study on media patterns of responsibility and blame for hazards.

Their study of print media stories about hazards (including many categories in addition to natural disasters) found that only about half of all stories contained an assignment of blame. Of those, the majority of blame (70 percent or more) was directed toward God or nature.

While God or nature was blamed for the occurrence of the event, governments were seen as responsible for preventing the damage it caused. In every comparison the authors made, a higher proportion of stories identified someone as responsible for preventing a hazard than identified as a source of blame for the hazard itself. There was little mention of this responsibility being rooted in formal regulations.

Singer and Endreny categorized risks as voluntary or involuntary. In their study of blame, they found stories involving involuntary risks

attributed blame to industry, government, or some other agent. Flooding would be considered an involuntary risk, and we would expect to see the same trend in the present study.

Blame was also examined in a 1994 research paper by Esther Thorson and Robert Meads entitled "The Framing of Newspaper Stories About the Great Flood of 1993." They examined eleven weeks of flood stories in two midwestern newspapers, one large (350,000-plus daily circulation) and one small (under 10,000 daily circulation).

Each story was categorized to show a preponderance of one of nine frames, including blame, economics, conflict, predictions, devastation, powerlessness, morality, and solidarity. Half the stories they coded contained no identifiable frame.

Among those with a clear frame, blame occurred much less frequently (9% of all stories) than economics or solidarity, but it increased in frequency after each of the two flood crests. In addition, the blame stories dealt more with indirect consequences and environmental effects than other stories. They were also more likely to involve experts, and these experts were likely to be scientific or government sources.

Though his research didn't include blame per se, Conrad Smith contributed valuable insights about blame. He says, "Our cultural mindset is such that we hold public officials accountable for catastrophes within the direct jurisdiction of government agencies, blame industrial catastrophes on individuals, corporations, or equipment failure, and accept natural catastrophes as acts of God that we are powerless to prevent." (Smith, p. 4)

Sociologists have identified a tendency to blame the victim for various social ills. (Ryan, p. 68) Though the focus here is on issues such as poverty and homelessness, there may be an element of blaming victims of natural disasters. Flood and earthquake victims, in particular, may come under attack for building in clearly risky areas.

Since blame in media coverage is an apparently new area of research, many questions remain to be answered. For instance, we don't have an example of a study that specifically examines blame for one na-

tural hazard. The Singer and Endreny study is the only one to date that analyzes types of blame cited by the media. Its usefulness to this study is limited by its grouping of all natural hazards together. Natural hazards are listed with five other types of hazards: activities with costs/ benefits, energy hazards, materials hazards, complex technologies, and illness.

Because of the broad nature of the Singer and Endreny study, the categories of blame were necessarily broad as well. Stories were coded for statements of blame in any of seven categories: victim, other individual, business or industry, doctors or medicine, government, God or nature, or other. Some of these targets of blame are applicable to the coverage of the 1993 flood, but a more specific focus here will provide greater clarity of the complex issues involved.

Researchers also haven't looked at the differences between local and national coverage of natural disasters in terms of blame, though the policy implications of possible differences may be tremendous. The following scenarios of blame illustrate how differences may impact resultant attitudes and policies. Obviously, if both national and local media concentrate on a target of blame, the issue assumes an important position in future flood mitigation. If neither realm of the media mentions an issue, it becomes a non-issue.

For example, if both local and national coverage indicates that controlling the river system with levees has led to more severe problems than those caused by its natural flooding patterns, both local and national priorities may begin to lean away from further levee construction. However, if the national media concentrates on this as a problem but local media does not, we may wonder if political agendas are operating, and may not be as willing to support federal financing of levees. And if it isn't mentioned, we may assume that the flood-control system will continue to expand.

Yet some stories indicated a problem of inadequately constructed levees or a lack of levees. If both national and local media cite this, more attention will likely be paid to levee construction. If local papers concentrate on this while the national press indicates other problems, local

communities may push for additional construction funds while federal funding may be resisted.

Land-use policy is another issue that receives attention in the wake of regional flooding. Since local communities gain significantly in taxes and territory from the residential, agricultural, or industrial use of floodplains, land-use policy might not be a frequent target on a local level. If it is, we might assume that it is a purely local issue. If national newspapers and magazines cite land-use in marginal areas as an important factor in flood mitigation, however, it may make us question the wisdom of using our marginal lands. A national attitude shift could create meaningful policy changes over time.

A core policy issue is that of federal aid for flood victims. If national newspapers and magazines often say that financial aid for reconstruction encourages floodplain development, we might be inclined to limit federal funding and increase personal and/or local government responsibility for flooding risks. We might expect to find this target of blame only in the national media, for the local media would be more likely to cite calls for additional funding.

Water levels controlled by local officials or the Corps of Engineers came under attack in some communities. Again, if both national and local media cited this problem, it would gain attention on both levels. If local officials were blamed, it can only be a local issue. But if the Corps of Engineers was blamed, especially in the national media, there may be a reassessment of Corps procedures.

The target of blame that, based on the Singer and Endreny research, we will find most often mentioned is nature or God. This too may vary from one publication to another. In itself, the target says little that applies to flood mitigation. If, however, nature and God are blamed instead of other targets, it may illustrate an attitude of resignation to forces beyond our control.

2. RESEARCH METHOD

The study consisted of a content analysis of articles in the *New York Times*, the *Washington Post*, the *St. Louis Post-Dispatch*, the *Des Moines Register*, *Time*, *Newsweek*, and *U.S. News & World Report*. Articles studied appeared in these publications from June 15, 1993, when concern about possible flooding began to mount, until October 31, 1993. This time span allowed analysis of the articles that appeared during the onset, the crisis period, and the aftermath of the flood. A longer study period, encompassing coverage of localized spring flooding and coverage during the year after the flood, was considered, but the articles during these periods were so infrequent that comparisons between publications would be difficult.

Sampling method

The Midwestern papers ran an enormous number of stories about the flood, particularly from the onset of widespread flooding in the first week of July until the middle of August, when the rivers began to recede. Such a high volume of coverage necessitated a difference in the way stories were selected in the local newspapers compared to the national newspapers and magazines.

In order to keep the number of stories to a manageable number for coding, the study restricted stories in the *Des Moines Register* and the *St. Louis Post Dispatch* to front-page stories, including continuations of front-page stories to inside pages. A spot test determined that inside stories were no more likely to contain assertions of blame than front-page stories.

The national editions of the *New York Times* and the *Washington Post* consistently ran most flood articles in the same sections from week to week, and the study limited analysis to these sections. In the *New York Times*, the "National" section contained the majority of flood articles, and all of the stories that appeared in this section during the study period were coded. The *Washington Post* carried most flood articles in its news section,

the first section of the paper. Again, all that appeared in this section during the study period were coded.

News magazine coverage concentrated on the drama of the flood, and was short-lived and thus easily analyzed in entirety. Inclusion of magazine coverage was important because in some instances magazines cited targets of blame that were not mentioned in any newspaper coverage.

Stories chosen were explicitly about flood threats, fights against flooding, recovery from flooding, actions in response to flooding, or damages and costs resulting from flooding.

The stories coded consisted of 526 newspaper articles and 25 magazine articles.

Blame categories

Blame categories were determined by reading articles about the flood that were written during the study period in the magazines and newspapers to be coded, including all of the magazine stories and at least 20 stories in each of the newspapers, and listing targets of blame as they were encountered.

The coding sheet included this list of blame attributions, an "other" category, in the event that additional targets of blame might appear in other articles, as well as space for additional comments that may have proven to be important. (See appendix.)

Each story was coded for any attributions of blame it contained. Some stories contained several categories of blame, and each of these attributions was recorded. However, if a story discussed a category of blame more than once, that attribution was coded only once. For example, some stories concentrated solely on one category, such as controlling rivers with levees. In these cases, that category was coded one time. Thus, each story could contain multiple categories of blame, but no category could be coded twice for the same story.

The following categories were determined:

(1) "Nature or God" included all references to God as a contributing factor in the unusual rain that fell on the Midwest or in the resulting flood. The attributions of blame toward nature met a narrow set of criteria. An unusual amount of rain was so obvious and so frequently mentioned that it was coded only when included with mention of the unusual weather patterns or the stalling of the jet stream over the Midwest. "Nature," when cited explicitly, as in comments such as "Mother Nature hasn't let up on the Midwest," was so coded.

(2) "Attempts to control the rivers with levees" consisted of references to the levee system as a whole adding to flood problems or any specific levee within the flooded region that caused flooding problems in the immediate area or areas downstream or upstream as a result of its existence.

(3) "Lack of adequate levees" was a combination of blame toward the absence of a levee or toward levees that were not constructed properly or built large enough to give adequate flood protection. It included complaints that communities could not afford to build private levees, that the federal government required communities to pay a large percentage of levee construction costs, that communities were not approved for federally subsidized levees, and that communities had decided not to build levees.

(4) "Liberal aid policy" consisted of blame toward the federal government for providing disaster relief that ultimately encourages commercial or residential use of flood-prone lands, either through the National Flood Insurance Program (NFIP) or through any other disaster aid. The category included any reference to the government providing repeated aid that allows people to rebuild in the same marginal areas.

(5) "Land-use policy" included all allusions to the idea that it is a mistake to farm, live, or establish permanent businesses on land prone to repeated flooding. It also contained suggestions that floodplains be returned to their natural state which is, in some areas, wetlands that provide natural flood control. In addition, the category included explicit plans for individuals or groups to move to higher ground.

(6) "Corps of Engineers" consisted of blame specifically naming the Corps for any reason: communication, control of reservoir waters, construction of levees, or their cost-benefit analysis of the levee system.

(7) "Water level in reservoirs too high" (to provide effective flood control) referred to normal water levels being kept high in order to serve recreational purposes such as boating and fishing. In years of drought, high reservoir levels are needed -- but in rainy years, high levels can prevent effective flood control.

(8) "Actions of local officials" included any action or inaction of a Midwestern official that contributed to localized, community, or regional flood problems.

(9) "Problems with sewer/drainage systems" consisted of complaints that sewer or drainage systems, if they had been in better condition, could have routed water away from certain areas and prevented flooding or lessened the severity of flooding.

(10) "Climate pattern changes" contained any blame toward *human-induced* climate changes, such as global warming, the greenhouse effect, or the worldwide reduction of forests which serve to stabilize the world's climate patterns.

(11) "Siltling of reservoirs or rivers" included blame of silting for raising the reservoir or river levels and thus contributing to the flooding. To be included in the category, the silting could be due to poor land management, flood-control measures such as levees, or other reasons.

In their study of blame in the coverage of a variety of natural and man-made hazards (1993), Singer and Endreny used the categories of "victim," "other individual," "business or industry," "doctors or medicine," "government," "God or nature," and "other." The issues surrounding the 1993 flood proved to be too complex to synthesize into such general or parallel categories, because many of the targets of blame have more than one underlying cause. Any attempt to generalize blame might have obscured or even destroyed the information that the specific categories can provide.

For instance, some targets of blame, such as attempts to control the rivers with levees, are part of a long and complex history which cannot be pigeonholed into blame of one group or another. Also, the Corps of Engineers might be classified as a body of the federal government, but its role and perspective is that of locally involved scientists and engineers, not of policy-makers. Thus, it would be misleading to create a "federal government" blame classification that might include the Corps of Engineers, aid policy, and federal flood control policies. Each specific target of blame provides important information. Therefore, the categories were not combined, deleted, or otherwise simplified from the original list of issues. This classification method led to scant representation in some of the classes; however, the classification process proved to be exhaustive and accurate, reflecting the issues as they were presented by the press.

Source categories

If sources for blame citations were named, this information was coded and classified. A source was designated to one of five categories:

(1) "Scientist" included meteorologists, academics, environmental scientists, and flood-control or engineering specialists (excluding members of the Corps of Engineers) from anywhere in the United States or beyond.

(2) "Local official" referred to any elected official who worked in a Midwestern city or county that was affected by the flood.

(3) "Federal official" referred to any elected or appointed federal official who was based in Washington, D.C.

(4) "Resident" referred to any resident of a flooded Midwestern area who was not identified as a scientist, local official, or member of the Corps of Engineers.

(5) "Spokesman for the Corps of Engineers."

Where they were mentioned, the sources were cited explicitly, with occupation, affiliation, or personal information (such as a source's home

town) given to place the individual in one of the five categories. All sources coded clearly belonged to one of the five categories.

A large percentage of blame citations, though, were not attributed to a source. In such cases the reporter apparently either gleaned information from a variety of sources or stated a personal opinion, and these mentions of blame could not be coded by source.

Reliability

One coder was used in conducting the research. Intracoder reliability was established by coding 10 percent of the articles a second time, at least several weeks after initial coding. Intercoder reliability was established by a second individual coding 10 percent of the material. Each reliability test consisted of fifty-five stories, chosen randomly by date and publication.

Reliability percentages were calculated by individual coding categories, and the number of attributions found in the reliability samples varied. For instance, for the God/nature category, the number of attributions tested was higher than for the other categories. In the intracoder reliability test, there was only one incidence of disagreement, in the God/nature category. The first coding produced 13 attributions toward God/nature and the second coding produced 14 attributions in that category. The overall intracoder agreement was 96 percent.

In the intercoder reliability test, there was one incidence of disagreement in the God/nature category and one in the actions of local officials category. Blame toward God/nature was found eleven times by one coder and twelve times by the other coder. Blame toward local officials was found twice by one coder and three times by the other coder. Since the sample size for actions of local officials was much smaller than for God/nature, the percentage of agreement was much lower. (See table 1.) The overall intercoder agreement was 95 percent.

Table 1. Reliability results: percentage of agreement

<u>Blame category</u>	<u>Intracoder</u>	<u>Intercoder</u>
God/nature	93	92
Controlling rivers with levees	100	100
Lack of adequate levees	100	100
Liberal aid policy	100	100
Land-use planning	100	100
Corps of Engineers	100	100
Reservoir levels too high	100	100
Actions of local officials	100	66
Global climate changes	100	100
Sewer/drainage problems	100	100
Silting of reservoirs or rivers	100	100

3. RESULTS

Each coding sheet represented one story, and included the following information: the number of attributions in each blame category, the source of each attribution, if named, and the story's publication date.

For each publication, the number of attributions was totaled for each category of blame. Also, the number of sources quoted to attribute blame in each story was recorded by publication, along with the category of blame each source targeted.

Finally, the attributions of blame were classified by week of publication for each newspaper and magazine, so that a distribution over time of the blame attributions could be established.

For ease of comparison, all raw numbers were converted to percentages.

Who or what was blamed for flood damage?

When data for all publications were combined, God/nature was, as expected, the dominant target of blame in the flood coverage, with 30 percent of all blame going to this target, even though coding parameters of specific types of phrases limited this category. (See Table 2.)

The next most prevalent targets were controlling rivers with levees and land-use policy that allows development on flood plains. Each of these categories received blame 17 percent of the time.

A lack of adequate levees received blame in 15 percent of the attributions, the Corps of Engineers received eight percent, and liberal aid policy received five percent. Other categories each received blame in three percent or less of the attributions.

Five attributions of blame were coded in the "other" category. In a *Des Moines Register* story, the weather service was blamed for not issuing storm warnings early enough for people to be adequately prepared. Four other attributions came from the *St. Louis Post-Dispatch*. First, the

Table 2. Blame content in all publications

<u>Blame category</u>	<u>Percentage of total blame</u>
Nature/God	30%
Controlling rivers with levees	17%
Land-use planning	17%
Lack of adequate levees	15%
Corps of Engineers	8%
Liberal aid policy	5%
Sewer/drainage problems	3%
Actions of local officials	1%
Global climate change	1%
Silting of reservoirs/rivers	1%
Reservoir levels too high	.5%
Total attributions of blame: 183	

employees of a mapping agency blamed its management for not moving equipment and supplies out of a building in time to save them. In another story, a man was said to be accused of sabotaging a levee. In another, a general lack of preparation was blamed for flooding at the Des Moines water works. Lastly, a story posed the question of whether the Corps of Engineers flood control programs conflict with its navigation programs.

How often were sources cited in the flood coverage?

Blame was attributed for the most part by named sources in newspaper stories. In the *New York Times*, 76 percent of blame mentioned was by a named source. In the *Washington Post*, named sources attributed 79 percent of blame mentioned. In the *Post-Dispatch*, 77 percent of blame came from named sources, and in the *Register*, 63 percent came from named sources. (See Tables 3 and 4.)

Magazine stories named sources significantly less than newspaper stories. *Time* named sources in 33 percent of the stories mentioning blame, and *Newsweek* named sources in 43 percent of the stories. *U.S. News & World Report* named a source only once, contributing 20 percent of its five mentions of blame.

What sources were cited most often for attributing blame?

In all publications combined, scientists were the dominant source of blame where sources were named, contributing 33 percent of quoted blame in all newspaper and magazine coverage. (Though types of scientists were not coded separately, meteorologists were quoted more than other scientists or scholars.) (See Tables 3 and 4.)

Residents were quoted the next most frequently, overall, with 24 percent of all quoted attributions. Other results varied widely, except that spokesmen for the Corps of Engineers were rarely quoted in attributions of blame. The *New York Times* and the *Washington Post* were the only

Table 3. Use of sources by all publications

<u>Publication</u>	<u>Frequency of named sources in citations of blame</u>
New York Times	76%
Washington Post	79%
Post-Dispatch	77%
Register	63%
Time	33%
Newsweek	43%
U.S. News & World Report	20%

Table 4. Source-attributed blame in all publications

<u>Source category</u>	<u>Percentage of all source-attributed blame</u>
Scientists	33%
Local officials	18%
Federal officials	18%
Residents	24%
Corps of Engineers	6%
Total sources named: 124	

Data total to 100 percent. Due to rounding, total may vary by two percentage points.

publications to quote them at all.

In the *New York Times*, scientists contributed 38 percent of blame where sources were named. The second most frequent source was residents, who contributed 26 percent. Local officials and spokesmen for the Corps of Engineers each contributed 13 percent, and federal officials contributed 10 percent. (See Tables 5 and 6.)

In the *Washington Post*, local officials were most often quoted, with 27 percent of all attributions. Scientists and residents each contributed 23 percent, and federal officials and the Corps of Engineers contributed 17 and 10 percent, respectively.

In the *Post-Dispatch*, federal officials were most often quoted when blame was mentioned. They contributed 42 percent of all quoted blame. Scientists contributed 29 percent, residents 16 percent, and local officials 13 percent. Corps of Engineers spokesmen were not quoted at all in mentions of blame.

The *Des Moines Register* named scientists and residents with equal frequency, with each contributing 33 percent of all quoted blame. Local officials contributed 29 percent, federal officials only 4 percent, and Corps of Engineers spokesmen contributed none.

Magazine coverage contained only eight mentions of quoted blame in all three publications. Four of these were in *Time*, where scientists were named twice, federal officials once, and residents once. Three were in *Newsweek*, where two scientists and one resident were named. Only one mention in *U.S. News & World Report* was by a named source, and this was a scientist. (See Tables 5 and 6.)

What sources mentioned what targets of blame?

Scientists (meteorologists) most often named nature (stalled weather patterns) as the primary cause of flood damage. Forty-one percent of blame attributed by scientists was in this category. (See Table 7.)

Scientists also blamed the constriction of the rivers by levees for

Table 5. Source-attributed blame contained in newspapers

<u>Source category</u>	<u>N.Y. Times</u>	<u>Wash. Post</u>	<u>Post- Dispatch</u>	<u>Register</u>
Scientist	38%	23%	29%	33%
Local official	13%	27%	13%	29%
Federal official	10%	17%	42%	4%
Resident	26%	23%	16%	33%
Corps of Engineers	13%	10%	0%	0%
<u>Total sources named</u>	<u>31</u>	<u>30</u>	<u>31</u>	<u>24</u>

Columns of data add to 100 percent. Due to rounding, totals may vary by two percentage points.

Table 6. Source-attributed blame contained in news magazines

<u>Source category</u>	<u>Time</u>	<u>Newsweek</u>	<u>U.S. News</u>
Scientist	50%	66%	100%
Local official	0%	0%	0%
Federal official	25%	0%	0%
Resident	25%	34%	0%
Corps of Engineers	0%	0%	0%
<u>Total sources named</u>	<u>4</u>	<u>3</u>	<u>1</u>

Columns of data add to 100 percent. Due to rounding, totals may vary by two percentage points.

Table 7. Blame attributed by sources

<u>Blame category</u>	<u>Source</u>					<u>n</u>
	<u>Scientist</u>	<u>Local Official</u>	<u>Federal Official</u>	<u>Resident</u>	<u>Corps</u>	
Nature/God	41%	13%	15%	23%	---	31
Controlling rivers with levees	39%	13%	11%	10%	43%	26
Land-use planning	12%	17%	40%	3%	---	22
Lack of adequate levees	---	13%	15%	30%	57%	21
Corps of Engineers	---	22%	4%	23%	---	12
Liberal aid policy	5%	---	15%	6%	---	8
Sewer/drainage problems	---	13%	---	3%	---	4
Actions of local official	---	4%	---	---	---	1
Global climate changes	2%	---	---	---	---	1
Silting of reservoirs or rivers	---	---	---	---	---	0
Reservoir levels	---	4%	---	---	---	1
<u>Total attributions</u>	<u>41</u>	<u>23</u>	<u>26</u>	<u>30</u>	<u>7</u>	<u>127</u>

Columns of data add to 100 percent. Due to rounding, totals may vary by two percentage points.

adding significantly to the flood damage, with 39 percent of their blame in this category. The scientists who blamed the levee system were most often specialists in flood control, engineering, or environmental science.

To a lesser degree, scientists targeted the development of the flood-plain: 12 percent of quotes by scientists blamed land planning.

Liberal federal aid was a target of blame in five percent of quotes by scientists, and global climate change was mentioned in two percent of their quotes.

Local officials concentrated on land-use planning (17 percent) and the Corps of Engineers (22 percent). Four other categories were blamed equally at 13 percent: nature/God, lack of adequate levees, controlling rivers with levees, and sewer or drainage problems. Local officials blamed the actions of other local officials in four percent and reservoir levels also in four percent of their quotes.

Federal officials blamed land-use planning far more than other targets, with this category comprising 40 percent of their quotes. Other significant targets by federal officials were nature/God, lack of adequate levees, and a liberal federal aid policy, each contributing 15 percent of their attributions. Constricting rivers with levees was blamed in 11 percent of federal officials attributions, and the Corps of Engineers was blamed in four percent.

Residents most frequently blamed a lack of adequate levees for flood damage. Thirty percent of their quotes were in this category. Close behind in frequency were nature/God and the Corps of Engineers, each contributing 23 percent of residents' quotes.

Residents blamed the levee system in 10 percent of their quotes, and land-use planning and sewer or drainage problems in 3 percent each. A liberal aid policy was blamed by some residents, even though they were to be recipients of that aid. Six percent of residents' quotes blamed the federal aid policy for contributing to repeated flood damage.

The Corps of Engineers blamed the levee system completely: they either blamed the entire method (controlling the rivers with levees), or they

blamed flaws in the way the system was implemented (lack of adequate levees). Corps spokesmen blamed a lack of adequate levees in 57 percent and controlling the rivers with levees in 43 percent of their attributions.

What were the differences over time in the attributions of blame?

Blame appeared in newspaper stories most frequently during the period of most intense coverage, from July 4 until August 15. Seventy percent of all blame appeared during that period.

The individual newspapers had similar concentrations of blame during these weeks, except the *Post-Dispatch*, in which most blame attributions appeared in August and September. In fact, 70 percent of its attributions appeared between August 1 and September 11, and 46 percent of its blame fell between August 22 and September 11. This distribution was almost a mirror opposite of the distribution in the other papers. (See Table 8.) Just as the other three papers were declining in attributions of blame in the middle of August, the *Post-Dispatch* had yet to publish the majority of its attributions. Sixteen percent of the blame in *New York Times* stories appeared after August 15; five percent of the blame in the *Washington Post* appeared after this date, and 11 percent of the *Register's* blame attributions appeared after this date. Yet sixty-five percent of blame attributions in the *Post-Dispatch* appeared after August 15.

Most blame categories also appeared predominantly in the weeks of most intense flooding and media coverage. Two categories are exceptions to this however: controlling rivers with levees and land-use planning. Forty-three percent of the blame attributed to controlling rivers with levees and 65 percent of the blame attributed to land-use planning appeared after August 21. That these categories appeared more frequently in the latter part of the flood can be explained by the fact that the *Post-Dispatch* stories had high percentages of blame attributed to these categories, and its stories were more likely to contain blame during this time.

Table 8. Newspaper blame attributions by week

	<u>NYT</u>	<u>Wash. P.</u>	<u>Post-D.</u>	<u>Register</u>	<u>All</u>
Week 1, June 15 - June 19	---	---	---	5%	1%
Week 2, June 20 - June 26	---	---	---	---	---
Week 3, June 27 - July 3	---	8%	2%	8%	4%
Week 4, July 4 - July 10	15%	18%	2%	16%	13%
Week 5, July 11 - July 17	27%	16%	5%	13%	15%
Week 6, July 18 - July 24	19%	21%	5%	10%	14%
Week 7, July 25 - July 31	5%	8%	2%	16%	8%
Week 8, Aug. 1 - Aug. 7	7%	16%	10%	16%	12%
Week 9, Aug. 8 - Aug. 14	10%	8%	7%	5%	8%
Week 10, Aug. 15 - Aug. 21	---	---	7%	3%	3%
Week 11, Aug. 22 - Aug. 28	7%	---	13%	3%	6%
Week 12, Aug. 29 - Sept. 4	2%	5%	13%	5%	6%
Week 13, Sept. 5 - Sept. 11	---	---	20%	---	5%
Week 14, Sept. 12 - Sept. 18	2%	---	5%	---	2%
Week 15, Sept. 19 - Sept. 25	---	---	---	---	---
Week 16, Sept. 26 - Oct. 2	---	---	---	---	---
Week 17, Oct. 3 - Oct. 9	---	---	---	---	---
Week 18, Oct. 10 - Oct. 16	---	---	---	---	---
Week 19, Oct. 17 - Oct. 23	---	---	---	---	---
Week 20, Oct. 24 - Oct. 31	5%	---	7%	---	3%
<u>Total attributions</u>	<u>41</u>	<u>38</u>	<u>40</u>	<u>38</u>	<u>157</u>

Columns of data add to 100 percent. Due to rounding, exact totals may vary.

What were the differences between the national newspapers in their coverage of the flood and in the treatment of blame?

The *Washington Post* and the *New York Times* ran approximately the same number of stories about the flood in the sections that were coded. The *Times* ran 101 stories on the front page or in its National section, and the *Post* ran 105 stories on the front page or the news section. The stories were distributed similarly over the period of flooding and recovery, with most stories appearing between the first week of July and the middle of August, when the rivers began returning to their banks. They each continued to run one to three stories per week from that time until the end of October. (See Table 8.)

Blame mentioned in the two papers also showed little significant difference. Thirty-one *New York Times* stories (31 percent) mentioned blame, and these stories contained 41 attributions of blame. Thirty *Washington Post* stories (29 percent) mentioned blame, and these contained 38 attributions of blame.

The targets of blame mentioned in the stories were also similar. Stories in the *New York Times* attributed blame to nature or God slightly more than those in the *Washington Post*, and stories in the *Washington Post* attributed blame to the Corps of Engineers slightly more than the *Times'* stories. (See Table 9.)

What were the differences in coverage and in treatment of blame between newspapers in two Midwestern cities that were affected by flooding?

The *St. Louis Post-Dispatch* and the *Des Moines Register* each ran a tremendous number of stories about the '93 flood. Front-page stories numbered 159 in the *Register* and 161 in the *Post-Dispatch*. These stories generally were quite lengthy, beginning on the front page and continuing on interior pages. During the height of the flood, the front-page stories alone often comprised three full pages of each newspaper.

Table 9. Blame content in newspapers

<u>Blame category</u>	<u>N.Y. Times</u>	<u>Wash. Post</u>	<u>Post- Disp.</u>	<u>Register</u>	<u>n</u>
Nature/God	39%	26%	12%	45%	48
Controlling rivers w/ levees	17%	21%	25%	5%	27
Land-use planning	15%	16%	32%	3%	26
Lack of adequate levees	19%	16%	17%	10%	25
Corps of Engineers	2%	10%	7%	18%	15
Liberal aid policy	5%	5%	5%	0%	6
Sewer/drainage problems	2%	3%	0%	8%	5
Actions of local official	0%	0%	0%	5%	2
Global climate changes	0%	3%	0%	0%	1
Silting of reservoirs or rivers	0%	0%	0%	3%	1
Reservoir levels too high	0%	0%	0%	3%	1
Total attributions of blame	41	38	40	38	157

Columns of data add to 100 percent. Due to rounding, totals may vary by two percentage points.

In the *Post-Dispatch*, 36 stories (22 percent) mentioned blame for flood damage, and these contained 40 attributions of blame. In the *Register*, 31 stories (19 percent) mentioned blame, and these stories contained 38 attributions of blame, each slightly less than the *Post-Dispatch*.

The most significant differences in blame found by the study were between these two Midwestern newspapers. Though each paper contained approximately the same number of blame attributions, the targets of blame were very different. (See Table 9.)

For instance, the *Register* named nature or God 17 times, comprising 45 percent of its stories' blame attributions. The *Post-Dispatch* named nature or God five times, comprising only 12 percent of blame attributions.

Also, in the *Post-Dispatch*, controlling rivers with levees was blamed ten times for increasing flood damage, and this category comprised 25 percent of its blame. The *Register* contained only two mentions that the existence of the levee system caused problems. These comprised only five percent of its blame.

Land-use planning was another category of blame that widely divided the two newspapers. It was blamed 13 times (32 percent of all blame) in *Post-Dispatch* stories, and only one time (three percent of all blame) in *Register* stories.

Though other differences weren't as pronounced, stories in the *Register* contained attributions of blame that did not appear in the *Post-Dispatch*. High reservoir levels, actions of local officials, sewer or drainage problems, and silting of rivers or reservoirs were all categories that appeared at least once in the *Register* but not at all in the *Post-Dispatch*.

In addition, stories in the *Register* contained slightly more blame toward the Corps of Engineers than stories in the *Post-Dispatch*, and *Post-Dispatch* stories contained slightly more blame toward liberal federal aid policies and a lack of adequate levees than *Register* stories.

What were the differences between national and local newspaper coverage?

The greatest and most obvious difference between national and local flood coverage was in the number of stories and the amount of space devoted in each issue to the flood. Even though the study was limited to front-page stories in the Midwestern newspapers, these outnumbered flood stories in the national papers by almost 65 percent.

Local and national flood coverage included about the same percentage of blame, and even though significant differences existed between blame contained in the Midwestern papers, when combined, the two were similar to the national newspapers. (See Table 9.)

Land-use planning was slightly more prevalent in the local coverage, owing to the large percentage of that category found in the *Post-Dispatch*. The Corps of Engineers was also blamed slightly more in the Midwestern newspapers than in the *Times* or the *Post*.

Two categories that appeared in the local papers but not in the national papers were high reservoir levels and actions of local officials. These seemed to be local issues in Des Moines.

How did national magazines cover the flood differently from national newspapers?

The national news magazines concentrated on the flood only during the crisis period. All magazine stories about the flood appeared between July 11 and August 28. Coverage from the middle of July until the middle of August was heavy in all three magazines, with cover photos of flood scenes on at least one issue of each publication during the four-week period.

Newspapers began coverage immediately after flooding began, and continued to run stories until the end of the study period, though the frequency and length of stories diminished after the rivers began to return to their banks.

Magazines contained very few stories about the flood compared to

newspapers, because of obvious differences in size and publication frequency. The news magazines ran a total of 25 stories about the flood, while the national newspapers each ran 78 stories between July 11 and August 28, when the magazine stories appeared.

Sources were quoted less frequently in magazines than in newspaper stories about the flood. *New York Times* reporters quoted sources in 76 percent of all blame attributions, and the *Washington Post* quoted sources in 79 percent of all blame attributions. The percentages for *Time*, *Newsweek*, and *U.S. News & World Report* were 33 percent, 43 percent, and 20 percent, respectively, all significantly lower than newspaper percentages for quotes. (See Tables 5 and 6.)

Only slight differences were found between magazines and national newspapers in the treatment of blame, however. (See Tables 9 and 10.) The newspaper stories contained more blame toward the lack of adequate levees (17 percent in newspapers vs. 5 percent in magazines). Newspaper stories contained slightly less blame toward land-use planning (15 percent in newspapers vs. 25 percent in magazines and silting of reservoirs or rivers (7 percent in magazines vs. 3 percent in newspapers).

Table 10. Blame content in news magazines

<u>Blame categories</u>	<u>Time</u>	<u>Newsweek</u>	<u>U.S. News</u>	<u>n</u>
Nature/God	33%	33%	20%	8
Controlling rivers w/ levees	17%	22%	20%	5
Land-use planning	25%	11%	40%	6
Lack of adequate levees	17%	0%	0%	2
Corps of Engineers	0%	0%	0%	0
Liberal aid policy	0%	33%	0%	3
Sewer/drainage problems	0%	0%	0%	0
Actions of local official	0%	0%	0%	0
Global climate changes	8%	0%	0%	1
Silting of reservoirs or rivers	0%	0%	20%	1
Reservoir levels too high	0%	0%	0%	1
Total attributions of blame	12	9	5	26

Columns of data add to 100 percent. Due to rounding, totals may vary by two percentage points.

4. DISCUSSION

This study both supported and departed from the findings of other studies published in recent years. Print media coverage of the 1993 floods concentrated on the critical period of the disaster, as studies of other disasters have found. Most newspaper stories and all magazine stories that appeared during the study period ran between the first week of July, when vast areas began to flood, and the middle of August, when floodwaters finally began to recede. Newspaper coverage did not end with the crisis, however, as some research might lead us to expect. Though coverage declined, stories continued to run at a rate of up to three stories per week in each newspaper until October 31, when the study period ended.

Though the study focused on blame that resulted from the flood rather than on flood coverage in general, it was clear that coverage was dramatic and emotionally appealing. Color photos featured weary sandbaggers of all ages, residents in small boats trying to salvage soggy belongings, and people and animals stranded on island rooftops. Stories highlighted the human costs of the flood: the loss of life, homes, belongings, pets and, universal among those who battled to save their properties, peace of mind.

Stories were also event-centered, in terms of giving daily accounts of levee failures, road closings, businesses inundated, and lives lost. But many of the stories disproved previous study findings that the media fail to educate about causes and consequences of disasters. These issues were an important element of the flood coverage, as the content analysis of blame illustrates. Based on the overall percentages of blame in the study, the media did, in fact, place a high priority on the policy choices we can make to ameliorate future flood damage. Though mentions of blame appeared in less than half of the stories included in the study, the targets of blame contained in those stories show an important collective perspective of the flood.

Where fingers point

The most frequent category of blame was, as found in the Singer and Endreny study, nature or God, showing that even if human attempts to mitigate flood damage are unsuccessful, people tend to blame forces beyond their control more than they blame other individuals or governments.

Second to nature and God, two categories shared blame equally: controlling rivers with levees and land-use policy that allows development on flood-prone property. These targets of blame were not second to nature and God in all publications or by all sources, however, they were prevalent enough to rank higher than all other categories when data were combined.

Often, the levee system and floodplain development were blamed together, in the context that floodplain managers are changing their focus from one of mastering the rivers to one of cooperating with natural river dynamics.

Many reports gave in-depth explanations of the dynamics of flood control, often including diagrams illustrating how levees work and how straightening and channeling rivers increases their power downstream. Some diagrams showed how a levee break relieves pressure on areas downstream. (The Corps of Engineers intentionally broke some levees for this reason, and residents criticized the organization both for breaking and for not breaking levees.) Other stories included diagrams illustrating natural river dynamics compared to the way rivers respond to channeling.

An excerpt from a July 26, 1993 *Time* article, "Levees: Do They Work Too Well?" provides a good illustration of blame in the "controlling rivers with levees" category. "Left to its own devices, a flooding river spreads horizontally, filling its natural flood plain and enriching it with fertile, alluvial soil. Along the Mississippi, however, this pattern of natural flow has been increasingly blocked by a patchwork of levees. The effect is that an increasingly pent-up river rises higher, moves faster, and is more prone to back up like a clogged drain, increasing the pressure on unfortified areas. 'The water has to go somewhere, says aquatic ecologist Richard Sparks of

the Illinois Natural History Survey, 'and if we don't allow it to spread out, the only direction it can go is up.'"

The levee system was also blamed for the increased development of floodplains because levees give people a sense of security that they will not be flooded. The additional development, in turn, creates a greater need for flood protection and an ever-increasing cycle of dependence on levees.

Similarly, the levee system was blamed for the lack of participation in the National Flood Insurance Program, the only flood insurance available. If a levee protects property from all but the most unlikely 75-year or 100-year flood, there is little incentive for homeowners to pay into the insurance program. (This issue was not coded separately because it was generally included in discussions of federal aid policy. It does carry important implications for federal disaster relief, however, and may warrant individual attention in future studies.)

Floodplain development, like the development of the levee system, has taken place over a long period of time and has increased in response to the security that levees provide. But according to many of the flood stories, stemming flood damage increasingly entails returning floodplains to their natural state. Instead of providing funds for people to rebuild in flood-prone areas, the federal government, through FEMA and other programs, prohibited some rebuilding in favor of buy-out programs that, under certain conditions, required flooded residents to resettle in other areas.

The third most frequently blamed target was a lack of adequate levees. Blame in this category was directed toward either the absence of a levee or levees that were too small or were poorly constructed. Several cities, such as Davenport, Iowa, had elected not to erect a levee, residents preferring to take their chances with the weather. Some areas, especially small towns, did not qualify for federal levees or could not meet the requirement to match levee construction funds with the government.

Where levees succeeded in holding back the flood, they were hailed. The fact that a lack of levees was a frequent target of blame does not necessarily point to an increase in the number of levees along Midwestern rivers,

however. Most of the areas not protected by levees have apparently been left unprotected because of economic considerations: levees are extremely expensive to build, and are warranted only where lack of protection has been deemed ultimately more expensive than levee construction.

An aspect of this target that might produce significant changes, though, is that where levees existed, the federal levees tended to hold while the private ones failed, one after another. Private levees constructed by levee districts are not required to meet engineering standards that might make them more effective. Flood stories that mentioned the problem of an inadequate levee system often speculated about future standardization and coordination of levee construction.

Another policy issue, the federal aid policy that some say encourages building in marginal areas such as floodplains, was blamed in five percent of all attributions, a very small representation in the large scale of flood coverage. Its slight representation is surprising considering that other recent natural disasters had already brought the aid issue to the nation's attention. We might expect that in Washington, where aid policy is determined, the press might concentrate on this issue more than in other parts of the country. This was not the case: the subject of aid was as infrequent in the *Washington Post* as in the other newspapers. The issue of aid policy might have appeared more frequently later in the aftermath of the flood, however. During a flood and immediately afterward, when flood victims desperately need assistance, is not a logical time to expect loud voices in support of disaster aid reductions.

Nevertheless, the debate was broached. A recipient of federal aid even questioned the wisdom of providing repeated aid for flood victims. Quoted in *Newsweek* (August 2, 1993), Oliver Ready has paid \$6,000 for federal flood insurance since 1975 and received \$24,000 in payouts after floods in 1979, 1982, 1986, and April of 1993. He expected to receive another \$32,000 for the summer 1993 flood. "Ready is happy to take the money, but he wonders about a government program that rewards people for living in places that are frequently under water. 'You wouldn't run a business like

this,' says Ready, a 53-year-old fish-market owner. 'If every three or four years you had to spend \$10,000 to repair a business, you'd wise up and say, 'To hell with this location.'"

Sources of blame

Unlike the findings produced by the Hornig, Walters, and Templin study, which found elected officials to be quoted most frequently, scientists were the most frequently named source of blame in the flood stories. (Although their study included all quotes found in the stories they coded, instead of only quotes that attributed blame, as coded for this study.)

In the flood articles, scientists contributed 33 percent of all source-named attributions and were the most frequent source named in most of the publications. The exceptions were the *Washington Post*, which named Midwestern officials most frequently, and the *Post-Dispatch*, which named federal officials most frequently. Perhaps *Post* reporters, familiar with reporting government issues, were naturally drawn to the officials in flooded Midwestern cities and counties. St. Louis reporters seemed to focus on the policy implications of the flood more than the other papers (evidenced by high percentages of blame toward controlling rivers and developing floodplains), and that may explain why they looked to federal officials for comments.

In general, source-use varied too widely to make conclusive generalizations about the differences between publications. The totals by source for all publications combined are also of little value because the numbers can easily be manipulated to affect the findings. For instance, if scientists were to be divided into categories of "meteorologists" and "other scientists," residents would become the most frequently quoted source. And if local and federal officials are to be combined into one "elected officials" category, it surpasses residents as the largest category.

While publications showed few definable patterns in the use of

sources, sources did show clear patterns regarding what they blame. In the "scientist" category, meteorologists tended to blame nature in some way, and other scientists blamed the control of rivers with levees or land-use planning. The Corps of Engineers tended to concentrate on flaws in the levees or in existence of the levee system as a whole. These patterns reflect a natural tendency for people to concentrate on their areas of interest and expertise. Meteorologists would be more inclined to comment on weather patterns than on the construction of Midwestern levees, for example. Corps of Engineers representatives and certain types of scientists, such as flood-control or engineering specialists, would be more likely to comment on the effectiveness of efforts to contain the rivers.

The patterns might also reflect the tendency for reporters to ask certain sources about certain types of information, and for sources to make assumptions about why reporters choose to interview them. For instance, if a reporter needs information about the levee system or other engineering aspects of flood control, a Corps of Engineers representative would be a good source. And that engineer would assume that the reporter came to him to ask about flood control rather than about the weather.

In addition, the specific questions reporters ask and the way they phrase them might have important impacts on the sources' responses.

Residents also showed clear patterns, generally blaming either nature/God, a lack of adequate levees, or the Corps of Engineers. It may be that residents, in the midst of personal disaster, have a tendency to blame the targets that have the greatest potential for immediate relief. They know that the Corps of Engineers has direct control over the floodwaters held back by reservoirs, and they see levees protecting -- or not protecting -- their own and neighbors' property. On the other hand, we would not expect them to voice complaints about the development of the floodplain their houses occupy, the levee that may have protected their property, or the federal aid that will help them to rebuild.

Local and federal officials did not fall as easily into predictable patterns. Though local officials' blame leaned a bit more heavily toward

land-use and the Corps of Engineers, they blamed six other targets as well. Blame by local officials fell into a wider variety of categories than any other sources.

Federal officials blamed land-use planning more often than other targets, but they too had other complaints. The greater variety of blame expressed by officials may be due to a broader understanding of the issues that influence flood control and the knowledge that solutions seldom can be confined to one target of blame.

Distribution of blame over time

The distribution of blame followed the general distribution of coverage, with the exception that the number of blame attributions dropped off faster than the number of stories. After September 4, few mentions of blame appeared in three of the newspapers. *Post-Dispatch* stories, however, had their highest concentration of blame in late August and September. The only apparent explanation for this difference is that the *Post-Dispatch* focused more on the less immediate, policy-oriented targets of blame.

The two categories the *Post-Dispatch* concentrated on and that appeared more frequently in later flood coverage were controlling rivers with levees and land-use policy allowing floodplain development. This is not a surprising distribution of these targets because one would expect that as the severity of the damage is viewed in retrospect, focus on broad flood policy issues might intensify. One might also expect the federal aid issue to intensify after the crisis subsided, although 28 percent of this target did appear in September.

Certain targets of blame appeared more often during the crisis period, from the beginning of July until the middle of August. With few exceptions, stories mentioned the following targets during this period: nature and God, lack of adequate levees, the Corps of Engineers, local officials, problems with sewers or drainage, and silting of rivers or

reservoirs. The issues were generally of immediate concern, and blame, other than silting problems, was spurred for the most part by concrete events that happened during the crisis period of the flood.

Differences between publications

Surprisingly few differences existed between the combined data for national newspapers and the combined data for local newspapers, other than in the number of stories that appeared.

The *New York Times* and the *Washington Post* showed the most similarity of all the newspapers. Their coverage and distribution of blame were similar, and their stories attributed blame in generally the same way. Source-use where blame was mentioned in the two papers was different in some aspects, however. *New York Times* stories quoted scientists more often than *Washington Post* stories, and *Post* stories quoted local officials more often than stories in the *Times*. This might be explained by the fact that the *Times* has a staff well-seasoned in science and technology issues, while the *Post* staff is experienced in political reporting.

The greatest differences existed between the *St. Louis Post Dispatch* and the *Des Moines Register*, and between each of these papers and the national coverage. The *Register* and the *Dispatch* were very different in their attributions of blame. While the *Register's* attributions of blame were much more heavily weighted toward nature and God than any other paper, *Post-Dispatch* attributions concentrated on the levee system and land-use planning more than any other paper. The attributions toward land-use planning were ten times more frequent in the *Post-Dispatch* than in the *Register*, and its attributions toward controlling rivers with levees were five times more frequent than in the *Register*.

The fact that the *Post-Dispatch* concentrated on these issues even more than the national papers comes as little surprise because St. Louis straddles the Mississippi, the focal point of all Midwestern flood control.

Des Moines lies at the confluence of the Raccoon and Des Moines

rivers which, unlike the Mississippi, do not possess extensive levee systems. This, according to Diane Graham, the managing editor of the *Register*, is the primary reason for the newspapers' differences in blame attributed to the levee system. She also said that the *Register* focused on local central-Iowa issues rather than on broader, regional ones. (Graham, 6/17/95)

What, though, accounts for the tremendous difference in attributions to land-use planning? Even though Des Moines is not as large as St. Louis, each city makes extensive use of the land adjacent to the rivers. Neither Graham nor Foster Davis, the managing editor of the *Post-Dispatch*, provided an explanation for this difference. "We simply tried to present issues that we considered important," said Davis. (Davis, 6/17/95)

More puzzling still is the fact that *Register* stories contained blame toward only one other target, the Corps of Engineers, in more than 10 percent of all its blame attributions. The blame directed toward the Corps was due almost entirely to events leading up to the flooding of Des Moines' water plant. Therefore, hardly anything other than God or nature was a target of blame in the *Register's* flood stories. Perhaps new reporters were assigned to the flood and didn't know what issues to examine. Perhaps the paper focused on solely a local perspective and flood-control policy issues were not at the forefront of local priorities.

A possible explanation for the greater concentration on policy issues and the later appearance of blame in the *Post-Dispatch* is that the crest of the flood came later in St. Louis than in Des Moines. Because the flood was national news before it reached St. Louis, the editorial and reporting staff there had more time to evaluate the issues.

Another significant difference existed in the use of federal officials as sources. The *Post-Dispatch* quoted them much more than any other publication (42 percent), while the *Register* hardly quoted them at all (four percent). Again, there is no readily apparent reason for such dramatic differences. Perhaps because St. Louis is a larger city than Des Moines, access to federal officials is more convenient.

The differences in blame contained in newspapers versus news magazines were slight, but the comparisons must be weighed by the differences between newspaper and magazine coverage and the number of stories analyzed in each medium. Far fewer magazine stories than newspaper stories contributed to the study, and thus, few of the total number of blame attributions came from magazines.

The general differences between newspaper and magazine coverage came to light with the difference in frequency of each medium's use of sources. Magazines have a different reporting style from newspapers because of less frequent publication and thus different deadlines. Also, the writing style in magazines is more narrative than newspapers, and likely to incorporate information from many sources without necessarily quoting all of the sources that provided information.

Implications for policy change

Aside from the *Des Moines Register*, all of the newspapers gave a significant amount of attention to controlling rivers with levees, lack of adequate levees, and land-use planning, which indicates that the media placed a high priority on the mitigation of future flooding disasters. This priority was shown also by the number of scientific sources in the flood coverage. Even though many of these were meteorologists giving forecasts and observations, many were experts in flood management or environmental engineering who provided thorough explanations of the reasons for the flood and the various policy changes that can be made to improve the region's capacity for handling flood water.

Based on the overall percentages of blame other than that directed toward nature or God, the policy priorities as the media presented them lie in this order: re-evaluating the way we have traditionally channeled the rivers with levees and dikes, placing tighter controls on the way we use our floodplains, and establishing a regionally comprehensive levee system, including setting guidelines for privately-built levees.

Blame as attributed by sources can tell us where priorities lie with whom. For instance, scientists who were not meteorologists tended to blame controlling rivers with levees. Their voices clearly tell us that we should be returning floodplains to wetlands and catchment areas.

Elected officials tended to blame land-use (which may explain the federal government's emphasis during the recovery on buying out flooded property in many cases instead of providing aid for rebuilding).

Residents blamed the Corps of Engineers and lack of adequate levees. Their interests lie close to home, with the immediate protection of their property. Levees can provide this immediate protection, as can the Corps by building more, better, and bigger levees and by carefully controlling water outflows from reservoirs.

The Corps of Engineers sources blamed the levee system in one way or another, most often in terms of the levee system being too piecemeal. Their votes will likely go toward a more unified levee system.

Conclusions

In general, the media operated as we might expect in covering the "Great Flood." The overriding priority, nationally, was to communicate the magnitude and significance of the flood and locally, to convey current events and provide useful information for residents. Assigning blame was predictably not a main priority of the coverage, but issues of responsibility and blame did appear frequently enough to reach regular readers. To be truly well informed about the flood and the issues that surrounded it would have required exposure to a variety of sources, as is true for any subject presented to the public through the media.

The variability of the blame cited and the sources quoted in the flood coverage demonstrates the tremendous variety in the way media publications can present an event. It also highlights the importance of thorough and thoughtful reporting on events that impact public policy. Omissions or simplifications could lead us to superficial conclusions about complex and

interrelated issues, and ultimately to thoughtless policy choices.

Limitations and suggestions for further research

With a wider array of news sources, a study of this type could better clarify media trends regarding natural disasters and blame. Differences between blame and sources could be measured against a greater number of publications, so that we could gauge whether differences are simply anomalies or part of a larger, predictable pattern.

Another limitation of the study was the difficulty in comparing magazine coverage to newspaper coverage of the flood. Magazines ran significantly fewer stories over a shorter period of time, and used sources much less frequently than the newspapers. Since fewer stories appeared in magazines, fewer citations of blame appeared as well, providing little room for comparison. Magazine stories are best analyzed over a long period of time to give an adequate sample size. This could not be done within the parameters of this study however.

The necessity of limiting the number of stories to be analyzed required a system of selection that may or may not have best illustrated the blame contained in the publications. Though a spot test gave some assurance that interior pages were not more likely to contain blame than front-page stories of the *Register* or the *Post-Dispatch*, every story could not be judged. Similarly in the *Post* and the *Times*, stories in other sections may have, at times, illuminated blame better than the stories in the sections chosen. The science section of the *New York Times*, for instance, contained a lengthy story about the use of levees in the Mississippi flood-control region. However, the vast majority of flood stories appeared in the sections chosen, and this seemed to be the only method that would provide a balanced collection of stories and blame.

It may be useful for future studies to analyze editorials in addition to news stories because editorials may provide explanations for differences between newspapers.

Another limitation of the study was that occasionally an entire story was devoted to one target of blame, such as the levee system, yet the coding system required that one target be coded only once. Whether a target of blame was mentioned once or ten times in a story, the target was coded one time for the story.

The need to establish coding categories prior to knowing exactly what sources would be named caused the creation of a "scientist" category that, in retrospect, should have been two categories: "meteorologists" and "other scientists." Meteorologists almost invariably named natural causes for the flood, and other scientists named causes that relate to the engineering of our river environments. Coding the two separately would have produced clearer results where they related to sources.

Another limitation regarding sources was that the study limited its analysis of sources to those who attributed blame. It was internally useful to limit the coding of sources in this way, but this limitation makes it difficult to make comparisons with other studies that analyze source use in general.

The most important need for further research, based on this study's findings, is to analyze a greater variety of newspapers. A broad range of publications studied in the same way would clarify whether some of the profound differences that existed in this study represent trends of media coverage or regional priorities -- or if they were anomalies that only appear in the comparison of these specific publications.

It would also be useful to examine television coverage of a flood or other natural disasters, with blame in mind. Magazine articles, as noted, are too few in number to tell us much about one disaster, but it would be useful to look at one type of disaster and study several different magazines' treatment of that type of disaster over a period of years.

A different research method, such as a case study, might clarify questions that this study was not designed to answer, such as *why* one newspaper concentrated on one target of blame more than another.

The study was also not designed to find out what policy ramifications

resulted from the "Great Flood." It would be extremely useful to examine federal and local policies regarding flood mitigation and financial aid for flood victims that either remained the same or changed after the 1993 floods, so that parallels might be drawn between media coverage and public policy. A study of this disaster alone would not be conclusive, but a series of studies about several floods or several different types of disasters would establish grounds for expectations of policy changes (or policy status quo) based on the media's priorities.

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APPENDIX

APPENDIX

Coding Sheet

Publication _____

Date _____

Title of article _____

Page number _____

Attributions of BlameSource

Nature/God _____

Controlling rivers w/ levees _____

Lack of adequate levees _____

Corps of Engineers _____

Liberal aid policy _____

Land-use planning _____

Sewer/drainage problems _____

Actions of local officials _____

Reservoir levels too high _____

Siltting of reservoirs/rivers _____

Global climate change _____

Other _____

Comments _____

VITA

Dana Williams was born in Gainesville, Florida on October 21, 1957. In 1967, her family moved to Athens, Georgia, where she attended Clarke Central High School. She received a B.A. in Geography from the University of Georgia in 1981. She has been the manager of a multi-million dollar retail garden center in Atlanta, Georgia; an account executive at an advertising agency, where she directed the advertising and public relations for four New Jersey hotels and their affiliated restaurants; and the art-and-production department manager of a twice-weekly newspaper in New Jersey. While completing an M.S. in Communications at the University of Tennessee, she was a writer and editor for an internationally circulated journal for the discussion of policy issues related to energy, economic development, technology, and the environment. In recognition of outstanding academic achievement, she was inducted in 1995 into Kappa Tau Alpha, a national honor society in journalism and mass communications.