

**The Press and Global Environmental Change:  
An International Comparison of Elite Newspaper  
Reporting on the Acid Rain Issue from 1972 to 1992**

**Edited By**

**William C. Clark and Nancy M. Dickson**

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**THE PRESS AND GLOBAL ENVIRONMENTAL CHANGE:  
AN INTERNATIONAL COMPARISON OF ELITE NEWSPAPER  
REPORTING ON THE ACID RAIN ISSUE FROM 1972 TO 1992**

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William C. Clark and Nancy M. Dickson**

**CENTER FOR SCIENCE AND INTERNATIONAL AFFAIRS  
AND  
JOAN SHORENSTEIN BARONE CENTER ON THE PRESS, POLITICS AND PUBLIC POLICY**

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Despite this assistance, some errors may remain. The responsibility for these is solely ours.

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October 1995

**THE PRESS AND GLOBAL ENVIRONMENTAL CHANGE:  
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ON THE ACID RAIN ISSUE FROM 1972 TO 1992**

**Foreword**

Almost everyone has an opinion on how the press covers public policy issues. Some people believe that reporters and their editors have a preconceived agenda and focus on those facts and stories that support that agenda, while others believe the press is more benign and has a limited effect in shaping public perceptions. Still others embrace the notion that press coverage reflects the biases and viewpoints of the government or the "establishment."

Environmental issues seem to trigger this debate over the accuracy and fairness of the media. Does the press deliberately exaggerate environmental threats? Are they beholden to one political interest or another? Where do reporters get their information? Why do they decide to pay attention to one aspect of a "story" rather than pursue a different tact? Finally, what factors tend to change a reporter's slant on an environmental issue?

Surprisingly, there has been a paucity of analysis about how the press covers environmental issues. Anecdotal descriptions are the rule, not the exception. Prompted by the vacuum in the scholarly literature and fueled by a generous grant from the IBM Environmental Research Program, scholars at Harvard's John F. Kennedy School decided to explore how the press in six different countries covered the issue of acid rain over a twenty-year period, 1972-1992. Under the direction of Prof. William Clark, teams of researchers were formed in six countries to analyze how one or two elite newspapers in each country selected for attention a subset of events, ideas, and perspectives related to the problem of acid rain and how it diffused these perspectives through society at large. The information obtained from each country was then compared to identify the similarities and differences between the countries.

This paper describes the results of this project. Professor Clark and Nancy Dickson plan to publish a book expanding on these themes which should be available in early 1997.

We at the Kennedy School deeply appreciate the confidence and support provided to us by IBM and particularly by Art Hedge (now retired), and Joe Sarsanski without whom this project would not have been possible.

Henry Lee

**THE PRESS AND GLOBAL ENVIRONMENTAL CHANGE:  
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ELITE NEWSPAPER REPORTING ON THE ACID RAIN ISSUE  
FROM 1972 TO 1992**

**Renate Ell<sup>1</sup>**

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## 1 INTRODUCTION

In 1981 the German news magazine *Der Spiegel* printed a black and white image of fuming smokestacks and dying trees. "First the forest dies, then man" became the rational used to pressure the government to control the sulfur and nitrogen oxide emissions threatening the existence of Germany's forests, a threat which cut to the heart of the nation's cultural bond with its forests. Previously, the public had only been aware of local or regional damages due to air pollution, and policymakers had avoided any action which could have supported claims of the Scandinavian countries for acid rain damages which they were aware of since 1968. This chapter examines the emergence of the acid rain issue, the political and societal context in which it developed, and the influence by and on the press during the heated debate on acid rain that in Germany was framed exclusively by the problem of forest dieback ("Waldsterben").

## 2 CONTEXT

### 2.1 The Political System

As of October 1990, Germany comprised the former Federal Republic of Germany (FRG), or West Germany, and the former German Democratic Republic (GDR), or East Germany. Given the study period 1972-1992, in this report "Germany" refers only to West Germany.

Germany is a democratic republic with a social market economy. The Federal Government is headed by the Federal Chancellor and the cabinet ministers. The Chancellor determines the number of ministries, selects the ministerial candidates, and obtains the Federal President's approval for their appointment. The Chancellor establishes the government policy framework in which the ministers act, albeit independently. Most federal ministers belong to Parliament and vote with their respective parliamentary groups. The Chancellor is the only member of government elected by Parliament. Except for one election period in the 1950s, Germany has always been governed by a coalition government (see section 2.1).

The Federal Parliament is constituted through elections held every four years. Legislation is prepared by parliamentary committees whose membership is defined by political party representation in Parliament. Voting generally takes place along strict party lines.

The Federal Council consists of representatives of the sixteen provinces who hold between three and six votes depending on a province's population size.<sup>2</sup> Council approval is needed for most bills, particularly those relating to financial transactions; for all other cases, the Council has the right of objection but can be overruled by Parliament. In the Council it is not uncommon that provincial interests prevail over party loyalty. Compromises have to be made if the political parties forming a coalition government do not have a Council majority.

According to the Basic Law, political parties must help form the political will of the people. In 1990 five political parties were represented in the Federal Parliament (Table 1). From 1969 to 1982, Germany had an SPD-FDP, i.e., center-left, government coalition. In 1982 that coalition ended in a constructive vote of no confidence<sup>3</sup> when the FDP joined with the CDU/CSU to form a center-conservative coalition. Helmut Kohl of the CDU was elected Federal Chancellor and headed this government coalition up to the time of writing (1995).

## 2.2 Environmental Policy and Acid Rain

### 2.2.1 Historical Development

In addition to human health adversities, forest damage was one of the traditional issues which prompted concern about air pollution in Germany. The impact of pollution on forests near industrial areas, including acidification, has been investigated by scientists since the mid-19th century (Ell & Luhmann 1995). The present debate about forest damage due to acid rain can be traced back to the 1950s as forest owners began to document their concern about forest dieback, e.g., in the industrialized Ruhr area in the province of North Rhine Westfalia.

Subsequent attention paid to air pollution issues, however, focused on human health problems. In an effort to remedy increasing incidences of local air pollution problems in the 1960s and 1970s, Germany followed the pattern of other industrialized countries by erecting tall stacks to dilute pollution. At the same time, dust filters were also installed that, ironically, removed basic dust particles that had formerly helped to neutralize the acidity of emissions.

Air pollution legislation can be traced back to the General Trade Regulation enacted by the Prussian government in 1845, which introduced a license requirement for certain plants to avoid "disadvantages, dangers and irritations" for the neighbors (Kutscheidt 1982). This legislation, its core being to guarantee that no one has to suffer from another's emissions such as noise, fumes or smells, remained in force and was continuously developed during the next 120 years.

The first modern air pollution control legislation, the Federal Air Quality Control Act, was put in place at the national level in 1974; some provinces had previously enacted their own clean air legislation. Although it was a relatively weak law, it provided the basis for later, more strict pollution control measures. In general, German society overlooked the contribution of automobiles to pollution problems during this period.

Starting in 1972, the Scandinavian countries tried to spark German interest in acid rain, e.g., through conferences and the OECD Program on Long Range Transport of Air Pollution. Ironically they reached the contrary effect. Because they combined their scientific and political activities with the threat to sue Germany for damages, a cabinet decision in Germany advised the ministerial bureaucracy not to provide any arguments in support of this claim (Müller 1986).

Ministerial experts on air quality were aware of the link between tall stacks and long distance transport of pollution as well as soil acidification by the late 1970s. The first sign that political actors were taking seriously the issue of long-distance transport came in 1977/78 when the Clean Air Section within the Interior Ministry drafted a bill to create emissions standards for power plants and held an expert hearing. However, because of both the "tabooing" of the topic in response to the Scandinavian threats and the staunch opposition by the Economics Ministry, which acted to protect industry interests, the bill did not develop beyond a draft at that time. The Federation of German Forest Owners' Associations did not voice concern about acid rain until 1978 (Müller 1986).

The following year, West Germany reluctantly signed the LRTAP Convention in Geneva along with 32 other states. Despite this participation in the international convention and the recognition of the problem by individuals within the Interior Ministry and the Environment Agency, acid rain did not arrive on the national agenda until several years later.

In 1979, Bernard Ulrich, a German soil scientist, published his research on the ecological consequences of acid rain on a forest ecosystem (Ulrich et al. 1979). (See section 2.3.1.) The few government officials who were aware of the study chose not to respond.<sup>4</sup> On the other hand, Ulrich's findings were welcomed by many forestry experts as the explanation for the fir disease of fir dying which had spread in the southern provinces of Bavaria and Baden-Württemberg during the 1970s (Ell & Luhmann 1975).

The issue only reached the public in November 1981 when *Der Spiegel* published a cover story entitled, "Acid Rain Over Germany -- the Forest is Dying." This article was the first in a three-part series which concluded that half of Germany's forests could be dead within the next five years. These articles immediately stirred public controversy and set in motion a heated political debate about forest dieback (Waldsterben). From this point on, acid rain was no longer framed in public debate as a classical air pollution problem but as a threat of forest destruction.<sup>5</sup>

An important change within the government came some ten days after the start of the *Spiegel* series when the Minister of Agriculture, responding to concern from the forestry industry and the public, demanded from the Interior Minister that the Large Combustion Plant Regulation be strengthened (*Süddeutsche Zeitung* 28/11/1981). The SPD-FDP government first came to a decision on this controversy less than three weeks before it broke off (*Frankfurter Allgemeine Zeitung* 2/9/1982). It was the new CDU/CSU-FDP government with a new, conservative Interior Minister, Zimmermann, that enacted this regulation. A strengthened version of the previous Interior Minister's draft was passed by Parliament in March 1983.<sup>6</sup>

Next on the agenda was the reduction of automobile emissions, namely, the introduction of the three-way catalytic converter. This had to be agreed upon with the other member states of the European Community, some of which were strongly opposed to any emissions regulations to protect their automobile industries. At the end of 1985, the EC finally agreed upon a stepwise introduction of emissions limits. Germany complemented the EC regulation by tax incentives for low emission cars to speed the introduction of the catalytic converter and the refit of old cars.

In addition to control measures, a number of research and monitoring activities on forest decline were initiated in 1983/4. Efforts to improve forest health or gain time by liming and fertilizing were also undertaken.

The development of these regulations in the years 1983-85 was accompanied by fierce political debates which were met by immense public (and media) interest. After 1986, as forest damage reports revealed that the crisis was not worsening, and politicians engaged in other problems, attention to the problem of acid rain declined.

### 2.2.2 Fundamental Principles

German environmental policy as currently defined rests on three basic principles (Federal Ministry for the Environment, Nature and Nuclear Safety 1992). The first principle is precautionary action designed to prevent the occurrence of all environmental damages rather than mitigate their impacts. Accordingly, the risk justifies the regulatory action, even without scientific certainty on the causal relationship. The second principle, the "polluter must pay," embodies the concepts of cost apportionment and economic efficiency that are central to Germany's social market economy. Finally, the third principle of cooperation seeks to establish the broadest possible societal base for environmental policy: the individual, environmental organizations, science and industry have a common responsibility to protect the environment.

### 2.2.3 The Executive Branch

The Ministry of the Interior was responsible for environmental policy until 1986 when a new Ministry was formed, namely, the Ministry for Environment, Nature Protection and Nuclear Safety.<sup>7</sup> The new Ministry combined departments from the Ministry of the Interior, the Ministry for Research and Technology and the Ministry for Nutrition, Agriculture and Forestry. Some provincial governments had already established a ministry for the environment or had a ministry that had a combined interest in the environment, agriculture and forestry.

The Federal Environmental Agency was established in 1974 to support all federally supported environmental impact assessments, educate the general public on environmental matters, provide environmental data and central services for departmental research, and coordinate the government's environmental research. In addition, the Environmental Agency helped to implement environmental regulations (Umweltbundesamt 1993).

## 2.3 Key Actors, Media Strategies and the Policy Agenda

### 2.3.1 Scientists and Scientific Organizations

Soil scientist Bernhard Ulrich, of the University of Göttingen, had studied the nutrient cycle and the effects of the deposition of air pollutants in a forest ecosystem long before his 1979 report on acidification damage to the forest in the Solling mountains (Ulrich et al. 1979). The work, begun in the 1960s and still ongoing, has been part of a long-term ecosystem study conducted under the auspices of the International Biological Program. Ulrich not only documented the impacts of pollutant deposition on the forest ecosystem but also concluded that forests and other ecosystems in central Europe were at serious risk from air pollutants, especially sulfur and nitrogen oxides. To mitigate soil acidification, he recommended liming soils over the short term. Still, as his report underscored, drastic emission reductions were the only means for preventing severe damage to ecosystems (Ulrich et al. 1979).

Peter Schütt, of the University of Munich, had studied the phenomenon of fir-dying since the 1970s and was involved in forest dieback research in Bavaria since about 1981 (Ell & Luhmann 1995). He is the author of a popular science book that had a wide public distribution (Schütt 1984). Schütt also accepted invitations to take part in events organized by the Federation for Environmental Protection and Nature Conservation (BUND).

Similar to Schütt, Hans-Ulrich Moosmayer, the director of the Forest Research Institute of the province of Baden-Württemberg, had been involved in this institute's research on fir-dying since the early 1970s. These activities were broadened into a project on forest dieback research in 1982 (Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg).

These scientists were those most often called upon by the media during the acid rain debate; none solicited any media coverage. The aim was to answer all of the media's questions and thereby help to promote policy responses for preventing a potentially devastating environmental situation.

In 1982, the federal and provincial governments jointly established the Research Council on Forest Damages and Air Pollution under the auspices of the Ministry for Research and Technology. This council published its third report in 1989, the basic rationale being that forest dieback is mainly caused by air pollution, while natural causes can have an additional effect (Forschungsbeirat Waldschäden/Luftverunreinigungen 1989). The reports as well as some of the council's scientific

meetings gained media interest, not the least because these activities were made public by the Ministry.

Since 1983, the annual number of German scientists' publications on acid rain rose sharply to peak in 1985 and remained at a high level until 1990 (Cavender Bares et al. 1994). Once the awareness of the problem had been raised by scientists, they profited from it in the form of increased financial support for their research.

### **2.3.2 Federal and Provincial Governments**

Until 1986, environmental issues were part of the Interior Ministry's assignment. At the end of the 1970s, Gerhart R. Baum from the liberal FDP was the first minister who had to face a public debate on acid rain (cf. chapter 2.3.1).

After the change of government in September 1982, his successor, Friedrich Zimmermann from the conservative CSU, surprised everyone and especially industry by pressing for strict emissions standards for power plants. (See section 2.2.1.) During the project interview with Michael-Andreas Butz, spokesman for the Interior Ministry at the time, he indicated that press statements from Zimmermann were a common, almost daily occurrence as he had made acid rain a top priority issue.

As he stands for the crucial political measures of the government against acid rain, Zimmermann is by far the most often quoted actor on acid rain. From 1982 on, the Ministry for Nutrition, Agriculture and Forestry appeared mostly in the context of the annual forest damage surveys or other statements on the situation of the forest. The Ministry for Research and Technology financed a significant share of research into the causes of forest decline and organized the Research Council on Forest Damages and Air Pollution. (See Section 2.3.1.) The Ministers for Traffic and for Finance participated in the debate on automobile tax incentives to speed the introduction of low-emission cars. (See section 2.2.1.)

Most of the public relations officers and media spokespersons engaged by the various ministries during the acid rain debate were career officers. A somewhat unique feature of the German media scene was that the spokesperson for the ministries and the federal government actively sought out the media, rather than just responding to media initiatives.

The provinces of Bavaria and of Baden-Württemberg experienced the most severe acid rain related damage to forests, and the heads of both these governments actively participated in the debate on air pollution legislation. While these provincial governments were conservative, they still championed emission control regulations that were stricter than those advanced by the federal government. The province of Hesse, which had a social democratic government, in 1983 introduced (albeit unsuccessfully) the notion of charging polluters for sulfur emissions.

### **2.3.3 Environmental organizations**

In line with the principle of cooperation underpinning environmental policy in Germany (see Section 2.2.2), environmental organizations are invited to all hearings on new environmental legislation. During project interviews Lorenz Graf, executive director of the Federation for Environmental Protection and Nature Conservation (BUND), and Sabine Krömer-Butz, spokesperson for the Association for the Protection of German Forests (SDW), both indicated that the communication skills of environmental advocates had greatly improved during the acid rain debate in the 1980s, which enabled them to broaden the discussion of environmental affairs and promote stricter environmental policy in Germany. This view is also supported by Wollenweber (1994).

The BUND was founded federally as the German chapter of Friends of the Earth in 1976; several provincial associations date back to the beginning of the 20th century. The BUND is a popular, well-known environmental organization in Germany. Its membership has grown significantly since the beginning of the 1980s, largely because of the organization's highly visible participation in the acid rain debate. As Graf indicated in his project interview, in 1987 the BUND was able to hire a press spokesperson; previously, media work had been done by him or the staff member involved in the issue in question. He attributed its growing popularity and influence partly to its good working relationship with Hajo Keppner, environmental editor of the Bonn office of the German Press Service (DPA), who frequently used the BUND's information on the acid rain problem.

The Association for the Protection of the German Forest (SDW) was founded in 1947 to help abate the overfelling of the German forest after the Second World War. More recently, SDW activities include the protection of German forests from environmental risks. Among the organizations mentioned herein, SDW is the only environmental organization to receive institutional support from the Federal Ministry of Nutrition, Agriculture and Forestry. A press spokesperson has been on the staff since 1986.

Robin Wood was founded in 1982 by several former members of Greenpeace. Robin Wood and Greenpeace share similar goals and styles of protest activities. For example Robin Wood displayed protest banners from smokestacks or freeway bridges and threw dead trees over the Berlin wall. The "non-violent action association for environmental protection and nature conservation," as they portray themselves, concentrates entirely on forest dieback. The German chapter of Greenpeace does not organize acid rain campaigns.

The Federation of Environmental Citizen's Initiatives (BBU) was very active during the beginning of the 1980s; since then its role has been significantly reduced after its president became the Environmental Minister of the Saarland Province in 1985.

#### 2.3.4 Emitter Industries

Throughout the debate, the Federation of German Industry (BDI) and the Federation of German Chambers of Commerce (DIHT) argued against air pollution legislation aimed to abate acid rain. They stated that the linkage between air pollution and forest dieback was not proven, that half of the pollutants came from neighboring countries, and that the strict emission control suggested by the government would contribute to unemployment or harm the financial well-being of the companies involved, reducing their international competitiveness.<sup>8</sup> After the legislation had been enacted, these associations no longer participated in the acid rain debate.

The Federation of German Electric Power Companies (VDEW) represented the utility companies which would have to invest heavily to meet the requirements of the Ordinance on Large Combustion Plants. The utilities argued against the Ordinance as too costly but did not succeed in weakening the requirements. VDEW's adept public relations unit provided news and background information on a weekly basis and its publications were geared especially to business and industry journalists. Yet VDEW avoided public discussions with representatives of government and environmental organizations. For example, Zimmermann (1994) and Graf in his project interview state that most of the discussion on acid rain within VDEW took place behind closed doors.

During his project interview Bernd Lichterbeck, then spokesperson for the VDEW, stated the organization viewed the media coverage of acid rain as inappropriate and somewhat hysterical,



sensing subtle press resentment. As for VDEW's low press coverage he attributed this to the organization's direct avoidance of any association with the debate on the Ordinance on Large Combustion Plants. Eventually, VDEW would publish figures on how much the electric power companies had invested to reduce emissions but without mention of acid rain.

In contrast, the Federation of German Automobile Manufacturers (VDA) sought to maintain a good public image on environmental issues and seemingly welcomed the opportunity to participate in the discussion of emission control regulations. For one thing, every fifth job in Germany is directly or indirectly related to the Germany automobile industry; then, too, the customer (i.e., the general public) would ultimately pay for the cost of introducing emission control technologies. However, opinions differ on whether VDA actually supported or opposed the introduction of the catalytic converter in Germany. For example, during his project interview Winfried Grzenia, then VDA's spokesman, conceded that the association had made mistakes during the debate on the introduction of the catalytic converter and that these may have even led some people to think that VDA opposed the move. But, as he recalled, VDA only wanted to underscore the difficulties associated with introducing the converter within Europe. Zimmermann (1994) recalls the automobile industry's strong opposition to the catalytic converter.

### **2.3.5 Impacted Groups**

The Federation of German Forest Owners' Associations (AGDW) represents the private owners of forests which in West Germany accounts for some 70 percent of the forest area.<sup>9</sup> The majority of the members are farmers with small forest property. The AGDW is the umbrella organization for its provincial associations. Traditionally, the AGDW has argued for strict air pollution regulations and lobbies intensely during the acid rain debate. AGDW has good contacts with the executive branch. During his project interview, Joachim Pampe, then executive director of AGDW, recalled how AGDW representatives spoke openly with representatives of the executive or industry about forest damage, often leading excursions to damaged areas. Since the 1970s the AGDW has employed a press spokesperson.

The payment of compensation had long been on the agenda of the AGDW (Müller 1986) when in 1987 two forest owners, a Black Forest farmer and the Bavarian city of Augsburg, were defeated at the Federal Supreme Court. They had carried their claim through all courts since 1984 and 1985, respectively, generating media interest.

The German Forestry Council unites forest owners and state forest administrations as well as the professional organizations of foresters and forest research institutions. It serves as a forum of exchange between all these groups.

### **2.3.6 An Important Intermediary: the Federal Press Conference**

The Federal Press Conference was founded in 1949, as an association of all German journalists in Bonn reporting on federal politics; the association of foreign journalists in Bonn is an associated member. It provides journalists with all available information on federal politics; de facto, it acts as an intermediary between journalists and the actors involved in federal politics. The association is headquartered in the Press Building located in Bonn, where it also sublets offices to German and foreign journalists and news offices. Mailboxes situated along a central wall provide opportunities for ministries, political parties and others to supply journalists with press releases.

The core of the association's work is the organization of press conferences. Typically, a representative of government, a political party and an organization active on the federal level can call a press conference, provided the Press Conference considers the topic newsworthy. Somewhat uniquely, since 1949 press conferences have been held every Monday, Wednesday and Friday by a spokesperson (or deputy spokesperson) for the government. The duration of the press conference is determined by the number of questions from the attending journalists.

The reporting on the government's annual forest damage survey presented by the Agriculture Minister is a good example for the intermediary function of the Federal Press Conference. The opposition parties, the environmental groups, and the Federation of Forest Owner's Association commented on the survey either in a press conference of their own or in a press release distributed through the Conference's mailboxes on the publication day of the survey. Typically, newspapers reported on the survey and presented a choice of comments from the other actors as "statements on statements."

## 2.4 The German Press

### 2.4.1 Newspapers<sup>10</sup>

Germany has a long tradition of regional newspapers. Because of press censorship in the 19th century, most newspapers were apolitical with only a few politically oriented newspapers appearing around the middle of that century. Practically all of these newspapers were subscription based; in the 1920s, a new kind of newspaper (the so-called "boulevard press") was sold streetside. During the Weimar Republic, newspapers developed political allegiances and press concentration was common. Together these developments gave rise to the press imperium of the extreme conservative Alfred Hugenberg, a staunch supporter of Adolf Hitler and the policies of the Nazi regime. From 1933 until the end of World War Two the Nazi regime strictly regulated the press through its "editor's law." The year 1945 witnessed the emergence of a free German press. This development was influenced both by German tradition and by the licensing policy of the western allies that sought to make the German press privately owned, commercial, pluralistic and decentralized.

The political orientation of the German newspapers during the study period 1972-1992 ranged from center-left to distinctly conservative-right. Practically all newspapers are independent. Since the 1950s the trend has been toward press concentration.

Germany's Basic Law guarantees all citizens freedom of speech. As there is no federal legislation, each province issues its own press law. In 1956, the publishers' and journalists' organizations founded the German Press Council that monitors and guarantees press independence. The Council issues guidelines for journalistic practices; the last amendment was issued in 1990. German public relations professionals adhere to the international guidelines for their work as specified in the European Code of Lisbon and the worldwide Code d'Athènes.<sup>11</sup>

Germany does not have a dominating newspaper but rather four major national newspapers: *Die Welt*, *Frankfurter Allgemeine Zeitung*, *Süddeutsche Zeitung*, and *Frankfurter Rundschau*. Each was founded as a licensed newspaper between 1945 and 1949. Their orientation ranges from conservative right (*Die Welt*), right of center (*Frankfurter Allgemeine Zeitung*), left of center (*Süddeutsche Zeitung*) and moderately left (*Frankfurter Rundschau*). A fifth national newspaper, *Die Tageszeitung*, was founded in 1972 by members of the 1968 student protest movement in Germany; the paper has a much smaller circulation and holds a left-alternate political orientation.

In terms of readership appeal to leaders of industry and government, in 1991 the *Frankfurter Allgemeine Zeitung* leads with 15.2 percent, the *Süddeutsche Zeitung* follows with 10 percent, *Die Welt* with 8.3 percent and the *Frankfurter Rundschau* with only 4.3 percent (Leseranalyse Führungskräfte 1991). No other dailies have a wider reach among this group except for the *Handelsblatt* with some 13 percent, which specializes in economy and business issues.

### 2.4.2 The Weekly Press

A weekly news magazine with an independent but distinctly anti-conservative orientation, *Der Spiegel* is one of the most widely circulated publications in Germany. For example, in 1991 its readership included some 34 percent of Germany's leading industrialists and government officials. *Der Spiegel* follows an investigative journalism style. It played a highly influential role in the acid rain debate when in 1981 it published a three-part series of articles on the problems of forest dieback in Germany (*Der Spiegel* 1981). (See section 2.2.1.) Numerous articles and three more cover stories on acid rain followed.

The intellectual center-left oriented weekly paper *Die Zeit* reaches some 12 percent of the leading industrialists and government officials. Covering politics and culture, it practices analytical rather than investigative journalism. *Der Stern*, reaching some 31 percent of the leadership, is the most widely read of the numerous popular magazines; it covers political as well as general-interest topics. The other weekly magazines to have a wide circulation among leading industrialists and government officials are economy and business magazines such as *Wirtschaftswoche*, which has a reach of 11 percent among this group (Leseranalyse Führungskräfte 1991).

### 2.4.3 News Agencies

A substantial share of the press coverage of acid rain was supplied by the news agencies, namely by the four of them (see section 3.2.1.). The German Press Agency (Deutsche Press Agentur, DPA) is the largest and one of the most influential news services in Germany. Both the Associated Press and the Reuters Service maintain domestic and international sections in Germany. The small German Wire Service (Deutscher Depeschen Dienst, DDP) also played a role in the acid rain coverage.

A salient feature of the DPA in Germany is that its editorial staff serves as a "news filter." During the project interview with Hajo Keppner, DPA's environmental editor at the Bonn office and author of numerous articles on acid rain, he stated unless DPA used a news release it would have an extremely difficult time finding publication elsewhere; de facto, DPA is the reference for all German journalists whether they actually print the release, use the information in their own writings, or use them as a source. During the study period, practically all press information on environmental policy from the various actors in Bonn was passed through Keppner's desk.

### 2.4.4 The Selected Newspapers: *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung*

The *Süddeutsche Zeitung* and the *Frankfurter Allgemeine Zeitung* were selected for study for several reasons. For one thing, both have a large readership among leaders of industry and government. (See Table 2.) Therefore, these papers are good indicators of the political debate on acid rain as they reflect the trends and developments within the leadership.

While the two newspapers have slightly different political orientations, each is financially independent and without ties to any political party. Thus, journalists have full editorial freedom. An understanding of their similarities and differences can provide insight on their coverage of the acid rain issue.

#### 2.4.4.1 *Süddeutsche Zeitung*

The *Süddeutsche Zeitung* was founded in 1945 in the Bavarian capital of Munich. It is owned by the Süddeutscher Verlag, Germany's third-largest press publisher. The newspaper is left of center and provides a national as well as a regional perspective.

The editorial staff is headed by a chief editor and two deputy chief editors. An editorial statute guarantees every member of the editorial staff a say in the daily conference, where the contents of the paper are planned. Although the paper does not have an environmental section, environmental issues have been covered since the 1960s, which is much earlier than other leading papers.

This trend can be attributed largely to Christian Schütze, a political editor with the *Süddeutsche Zeitung* since 1964 who could be considered Germany's first environmental newspaper journalist. Covering culture, social politics, education and science, he became interested in environmental issues and in 1960 began writing about air and water pollution and even produced a TV documentary on the environment.

His interest in environmental matters was shared by Martin Urban, who founded the newspaper's science department in 1969. In 1990 the science section was expanded from one page twice a week to up to four pages once a week plus a comment. Urban also wrote opinion pieces on environmental or science-related topics.

At the Bonn office, environmental issues were covered by the political department during the 1980s. After 1992, they were assigned to a reporter on the staff of the office's economics department.

The *Süddeutsche Zeitung*, in an attempt to cover all relevant news, uses wire articles from news services to cover those issues for which no staff writer is available. Staff writers cover events or issues considered important in their respective fields. During the project interview, Udo Bergdoll, an editor with the newspaper's Bonn office, described how the decision to use a wire service or a staff writer is made on a case-by-case basis, jointly by the editorial boards of the Bonn and the Munich headquarters offices.

#### 2.4.4.2 *Frankfurter Allgemeine Zeitung*

The *Frankfurter Allgemeine Zeitung* was founded in 1949 in Frankfurt and is owned by a private company controlled by the FAZIT foundation (*Frankfurter Allgemeine Zeitung* 1992). The newspaper is right of center and in its main edition provides a national perspective; regional news appears only in the edition distributed in the Frankfurt area. Organizationally, the newspaper is run with a minimum of hierarchy, having no chief editor but rather five publishers, each responsible for a specific part of the paper. All departmental staff are represented at the daily meeting to decide on the paper's contents. Additionally, staff of the political department confer before deciding on publication of opinion articles (*Frankfurter Allgemeine Zeitung* 1992).

The *Frankfurter Allgemeine* was the first major daily paper with a weekly science section, which first appeared in 1958. The section grew slowly; in 1992 it was enlarged from two to four pages, and a comment was added. Science department staff also write science-oriented articles for the section "Germany and the World" which carries a mix of non-political news or features. During the project interview, Carl Graf Hohenthal, a reporter with the newspaper's economics department in Bonn, stated that science reporters often assist staff of other departments on science-related matters. As in the *Süddeutsche Zeitung*, science editors also write opinion pieces on scientific or environmental issues.

Environmental issues are often covered in the economics section. Hohenthal's explanation for this link was that the newspaper believed environmental issues could best be covered in terms of the costs of prevention and mitigation.

In contrast to the *Süddeutsche Zeitung*, the *Frankfurter Allgemeine* relies less on wire services for its news because of its relatively larger editorial staff and because of its policy to provide background information rather than straight news which readers are assumed to receive from television and other electronic media.

### 3 CONTENT ANALYSIS OF PRESS COVERAGE OF ACID RAIN

#### 3.1 Methodology

The archives of the two selected newspapers, the *Süddeutsche Zeitung* and the *Frankfurter Allgemeine Zeitung*, were used for article selection.<sup>12</sup> Articles were identified using a keyword search that took into account the terminology associated with acid rain over the study period 1972-1992 (e.g., "air pollution", "acid rain", "forest dieback"). The archive systems were similar but not identical.

Six hundred seventy-one articles from the *Süddeutsche Zeitung* and 572 from the *Frankfurter Allgemeine Zeitung* were identified covering the emissions and the impacts of sulfur dioxide, nitrogen oxides, and ozone; the long range transport of pollutants; and the associated politics.<sup>13</sup> The articles, and the article sources, were entered in the study project's database and coded according to the project's codebook. Content analysis was done on a sample set of ten articles per year per newspaper.

To enhance understanding of the press coverage, interviews were conducted with eighteen individuals considered representative of the major actors in the acid rain debate in Germany over the study period and the most important journalists having covered acid rain in the two papers. (See Table 3). The six journalists interviewed had written the most articles about acid rain appearing in the selected newspapers.<sup>14</sup> (See Table 4.) The interviews were conducted according to the project's protocol, with questions added as appropriate.

#### 3.2 Issues in Perspective

To help clarify the role of the press in the policy process, it is useful to examine the results of the content analysis and the interviews from the perspective of authorship, salience accorded the issue, timing, issue framing and slant of the coverage, and sources used for press coverage over the twenty year period.

##### 3.2.1 Newspapers, News Services and Authorship

As the data in Table 4 indicate, (inter)national wire services and editorial staff each contributed about half of the articles in the *Süddeutsche Zeitung*. Significantly, the largest number (177 articles) came from the DPA. In contrast, wire services provided only a fifth of the coverage in the *Frankfurter Allgemeine Zeitung*. As noted above (see Section 2.4.4), the editorial staff of the *Frankfurter Allgemeine* was larger and the paper's policy was to provide background information rather than straightforward news.

### 3.2.2 Timing: Four Phases of Press Coverage

Four phases of press coverage are distinguishable (Figure 1):

- Phase 1 (1972-1982): emerging interest
- Phase 2 (1983-1985): peak coverage
- Phase 3 (1986-1989): moderate coverage
- Phase 4 (1990-1992): low, background coverage.

These phases strongly correlate with the government's policy stance on the acid rain issue. (See Sections 2.2.1 and 2.3.2.) Only at the end of the emerging interest phase did policymakers publicly discuss acid rain, having "tabooed" it for nearly ten years. The core legislation to abate acid rain was discussed and passed during the peak phase, stirring great media interest. During the following moderate coverage phase, the legislation was implemented, partly amended.<sup>15</sup> During the last phase, articles mostly covered the federal and provincial forest damage surveys.

As to why a newspaper attaches more salience to a subject at a particular time, Keppner in his project interview referred to the influential role played by the news service DPA where he works as environmental editor since the early 1970s. (See Section 2.4.3.) Other journalists interviewed stated that concern for the environment had motivated their interest in writing on environmental issues. All of the journalists interviewed stated that they balanced the use of unsolicited information and their own research. None experienced constraints in obtaining information.

### 3.2.3 Framing

From 1982 through 1987, acid rain was predominantly covered as a political topic. This reflects the period of political debates on air pollution legislation between 1982 and 1985 and the subsequent implementation of and amendments to the regulations. (See Section 2.2.1.) Before and especially after this period, acid rain is mostly covered using an environmental frame, i.e., integrating descriptions of the situation, causes and effects, and political issues. For instance, an article on the annual forest damage survey would report the damages, their causes and the political statements of different actors. Similarly, a scientific frame appeared mostly before and after the phase of the intense policy debate.

The coverage focussed predominantly on domestic issues (Figure 2). Articles covering transboundary pollution issues or the problems of a foreign country intermittently ranked second in different years. Significantly, articles which integrate domestic and transboundary issues are rather infrequent in most years.

Press coverage of the causes of acid rain focused largely on sulfur and nitrogen oxide emissions from the combustion of fossil fuels by power plants and automobiles. From the late 1980s to 1992, automobile emissions were the most often cited cause of forest dieback. Forest damage from natural causes (e.g., pests, unfavorable weather) were considered additional factors which act synergistically with pollution. Silvicultural problems were another anthropogenic cause mentioned only rarely in connection with forest dieback. (See Figure 3.) In statements by executive sources, the connection between acidifying pollutants and forest dieback was mostly referred to as "most probable," leaving scope for scientific uncertainty. For environmentalists or impacted actors, the linkage was unquestionable. The scientists quoted most often were unanimous about the link between forest dieback and air pollution. The emitter industry, on the other hand, questioned or even denied the relationship.

The coverage clearly underscored that in Germany forest dieback was "the" impact of acid rain. (See Figure 4.) Many of the secondary effects were discussed as they related to forest dieback, such as economic losses for forest owners, or erosion and avalanches threatening settlements in the Alps. Impacts on lakes and fish were only mentioned in the context of Scandinavia and North America. The destruction of historic monuments was mentioned only rarely.

Essentially, there was no public debate about the choice of technological options, i.e., whether to use one or the other technology to reduce the emissions of stationary or mobile sources. The tenor of the press coverage was that fossil fuel combustion plants would be equipped with desulfurization and denitrification systems, and that all automobiles eventually would be equipped with the three-way catalytic converters, while other, weaker technologies are only suitable as an interim solution and for refitting old cars. Only two articles were identified in which the automobile editor of the *Frankfurter Allgemeine Zeitung* discussed the potentials of the catalytic converter versus those of another emission reduction technology. Mitigation of acid rain damages through liming of forest soils was only mentioned as a way to gain time until measures to reduce air pollution were in effect. Plans by the former East German government to breed resistant trees were also mentioned. (See Figure 5.)

Once defined in this way, the debate on policy options centered on the details of the relevant regulations to be introduced. Questions of "how strict" and "when" defined the terms of the policy debate both within Germany and, in the case of the introduction of the catalytic converter for automobiles, between Germany and other EC member states. The question of whether to act or not to act was asked only during discussions about imposing a general speed limit on German highways; by the study's end, no decision had been reached and the debate continues.

### 3.2.4 Slant

Both papers strictly separated news and opinion so that no significant slant could be identified from the content analysis. An observed tendency was that acid rain was covered as a severe problem, causing great damage and calling for effective countermeasures. (See Figure 6.)

Conflicts between actor groups were not defined as "action versus inaction," since virtually all of the actors were proactive. Indeed, opinions differed only about what actions should be taken and how quickly they should be implemented. One pole, calling for stricter and more rapidly implemented regulations, comprised the political parties opposing the coalition government, the environmental groups and the impacted group of forest owners. At the other pole were the emitter industries who tried to slow down and lessen the requirements for controlling pollution. (See Section 2.3.4.) If journalists took sides in the conflict, they did so in opinion articles favoring stricter and faster action (Figure 7).

### 3.2.5 Sources

Figure 8 shows to what extent each of the actor groups served as the source for the press coverage over the study period. On average, each article quoted about two sources.

#### 3.2.5.1 Executive Sources: The Dominant Factor

Executive level sources clearly dominated from 1978 until 1992, with heavy reliance observed during the second phase of peak coverage from 1983 to 1985. As Table 5 shows, Friedrich Zimmermann, the Interior Minister who was responsible for environmental policy between 1982 and 1986 is the most frequently quoted (executive) actor. This clearly reflects the press interest in Zimmermann's

energetic and proactive support for emission control regulations, as well as his proactive media activities. (See Section 2.3.2.)

Two other ministries were cited as sources throughout the study period: the Federal Ministry for Nutrition, Agriculture and Forestry, mostly in connection with forest dieback; and the Federal Ministry for Research and Technology, in connection with its funding of research on air pollution and forest dieback. (See Section 2.3.2.)

During discussions on the introduction of the three-way catalytic converter for automobiles in Europe (see section 2.2.1), both the Ministers for Transport and for Finance were quoted, but less frequently, the latter because of the tax incentives for emission reduced cars. Also, representatives of EC member states (i.e., France, Italy, UK) who opposed Germany's initiatives were quoted infrequently.

Among the provincial government executives, the Prime Minister or other members of the governments of Baden-Württemberg and Bavaria were frequently quoted. Both provinces were severely impacted by forest dieback and these executives were also cited for support of strict emission control regulations.

#### **3.2.5.2 Legislative Sources**

Not surprisingly, the number of quotes from the legislative peaks during the policy debates in the early and mid-1980s. Table 6 shows that the major coalition partner CDU/CSU is quoted significantly less than the opposition SPD and the minor coalition partner FDP. The reason may be that the strong position of the CDU/CSU in the coalition government was represented by the executive branch, mainly Interior Minister Zimmermann. (See Section 2.3.2.)

#### **3.2.5.3 Scientists**

The pattern shown for the scientists in Figures 1 and 8 does not resemble those of the other actors. One reason for the late press increase is that many research projects started in the peak phase and published their results during the late 1980s. (See Section 2.3.1.) Moreover, the Research Council on Forest Damages and Air Pollution, a committee of scientists established jointly by the Federal and provincial governments, published reports in 1986 and 1989.

The scientists quoted most often are those who conducted research on forest ecosystems and who became the protagonists of forest dieback research in Germany. (See Table 7.) This demonstrates again the forest dieback frame. Consistently, the scientific consensus was that air pollution was the major cause of forest dieback. The very few scientists who doubted this never played a role in the press coverage.

#### **3.2.5.4 Environmental Organizations<sup>16</sup>**

Table 7 shows that the Federation for Environmental Protection and Nature Conservation (BUND) is the most often quoted environmental organization. During his project interview, Lorenz Graf of the BUND noted that Hajo Keppner, DPA's environmental editor, helped the BUND considerably as Keppner was always receptive to their press releases and contacts. As a result of the press coverage on acid rain, the BUND's membership increased, giving the organization's arguments more weight and providing better financial resources.



The environmental organizations did not have professional media officers during the peak period of the coverage. (See Section 2.3.3.) The fact that they are quoted extensively reflects the demand for news on acid rain and forest dieback during the most intense policy debate which Keppner recalls.

While the Federation of Citizen's Initiatives (BBU), like BUND, tried to influence the policy debate through arguments and information campaigns, Robin Wood gained publicity with Greenpeace-style actions.

### 3.2.5.5 Impacted Groups

This group is almost entirely represented by forest owners and state foresters. (See Table 9.) The foresters were often quoted as expert witnesses for the dire situation of the forest. The impacted group also showed a late peak of influence on the coverage, which corresponds to the lawsuits in which a Black Forest farmer and the Bavarian city of Augsburg sued the State for damages. They were defeated at the Federal Court in 1987 but continued to lobby for compensation by the State.

### 3.2.5.6 Emitter Industries

All of the journalists claimed to be careful about news releases or statements from industry.<sup>17</sup> The electric power companies were quoted infrequently, the automobile industry only slightly more often. (See Table 10.) Considering they were the target of the regulations, this small coverage is somewhat surprising. One explanation may be that the Federation of Electric Power Companies (VDEW) actively avoided direct association with the topic. (See Section 2.3.4.) The automobile industry's more frequent citations may be due to both the long duration of the debate and the importance of the automobile industry for Germany's economy.

### 3.2.6 Major Differences between *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung*

The *Süddeutsche Zeitung* published some 20 percent more articles about acid rain during the study period. With respect to timing, the differences in article frequency mostly occur during the introduction and background phases, i.e., at the beginning and the end of the study period. With respect to article type, the difference lies in the frequency of opinion pieces, which is higher in the *Süddeutsche Zeitung*.

Martin Urban and Christian Schütze of the *Süddeutsche Zeitung* in their project interviews recalled that they had viewed acid rain as an important political issue already in the 1970s. Therefore, they used the few relevant events, such as the 1972 Stockholm Conference or an expert hearing on new air pollution legislation, to report on Sweden's concern about acidification or scientific findings on the possible effects of long-range pollution. The two editors also used opinion pieces to underscore the political relevance of the issue. Until 1982, the *Frankfurter Allgemeine Zeitung* published no opinion pieces on the topic, which was covered more as an environmental or scientific issue and a problem of Scandinavia or North America.

Since 1990, the annual federal forest damage surveys are virtually the only issue of political relevance with respect to acid rain. Apart from that, only the provincial forest damage surveys or scientific publications offer an occasion for coverage. The *Süddeutsche Zeitung* picked up the last two more often.

Except for the environmental organizations, all actor groups are quoted with roughly the same frequency in the two newspapers. The differences for the NGOs are both quantitative and qualitative.

The *Süddeutsche Zeitung* quoted environmentalists about 60 percent more often than the *Frankfurter Allgemeine Zeitung*. The NGO quoted most often in *Süddeutsche Zeitung* is the BUND, i.e., the actor group is dominated by a group that works with arguments and discussions. In the *Frankfurter Allgemeine Zeitung*, Robin Wood is first, i.e., the actor group is dominated by an NGO that gains attention by Greenpeace-style actions. (See Section 2.3.3.) The reason for this difference could not be found in the interviews with editors of the *Frankfurter Allgemeine Zeitung*.

#### 4 CONCLUSIONS

In contrast to most other studies of the coverage of a specific topic, this project included a very long study period, which includes both the emergence of the subject and its disappearing. This allows conclusions about the major influences on the amount of coverage at a certain time.

Because the acid rain issue then ranked high on the policy agenda, the decision for journalists to write a news article was straightforward during the peak (1983-1985) and the moderate (1986-1989) phases; during this time, acid rain was a "Bonn topic," i.e., it was dominated by the political debate on federal air pollution legislation. During both the introductory (1972-1982) and the background phase (1990-1992), editorial decision was less driven by political realities and coverage depended to a large degree on the editors' own initiative. The two newspapers selected for this study have shown this initiative to different degrees. (See Section 3.2.6.)

The results of this study also demonstrate how a dominating actor group -- in this case the executive - can influence the press career of a subject. While the dominance of the executive has been found in numerous studies of environmental coverage (e.g., Schanne and Meier 1992), the project analysis of the press coverage of acid rain over a relatively long period has shed new light on the role of actor groups in the lifecycle of press coverage.

Several selection models offer an explanation for the dominance of one actor, or, alternately the minor role of most other actors. The one seemingly suitable model for explaining the analytic findings is the overwhelming salience of public relations as explained by Baerns (1992). Baerns demonstrated that public relations controls both the topics of the coverage and their timing.<sup>18</sup> The author concludes that the rapid processes of news selection, editing and production absorb the capacities of the media, thereby reducing journalism to an autonomous system of information gathering of mostly public relations "statements on statements." (See Section 2.3.6 for an example of such practices.) Baerns also found the same dominance of public relations in a study of the science reporting of press agencies in North-Rhine Westfalia (Baerns 1990). From this basis, she concludes that the dominance of public relations is characteristic of media coverage (Baerns 1994).

For the present analysis of press coverage of acid rain, the executive and the legislative branches (i.e., political parties) both had a strong public relations strategy, which can account for their dominance of the coverage of acid rain. In contrast, the scientists, who usually do not pursue active media work, rank second after the executive in several years. The executive, as a strong actor, seemingly functions as a pacemaker, determining the climate for discussion; "weak" actors can also be heard provided their message suits the climate set by the dominant actor and/or they comment on the dominant actor (i.e., make a so-called "statement on a statement"). Alternatively, the strong flow of messages from the frequently quoted actors creates a "suction" that pulls the weaker actors along once attention has been generated by these strong actors.

Several of the project interviewees have supported this conclusion. For instance, Hajo Keppner, of DPA, experienced a strong demand for his articles on acid rain during the time of intense political debate. Lorenz Graf, former executive manager of the BUND, attributed the growth of the BUND and its influential role largely to the media coverage of acid rain. Significantly, the BUND's media spokesperson was only hired in 1987. The two scientists interviewed, Bernhard Ulrich and Peter Schütt, stated that there was not enough time for them to answer all of the (unsolicited) journalists' questions on forest dieback.

The clear dominance of the executive also supports the conclusion that this group determined both the content and the direction of the debate. However, since the design of the project analysis did not allow for examining linkage of content to certain actors, this cannot be proved.

Rossmann (1993), in his study of the press coverage of Greenpeace Germany, has shown that the press was strongly dominated by that group's public relations work. It might be worthwhile to follow up on this study to determine whether this applies also to the BUND since it has hired a professional spokesperson. That would include examining how much salience the BUND attaches to public relations activities and how this affects other actors.

Recent efforts have concentrated on evaluating the press coverage of environmental issues, risk, science or technology (e.g., Kepplinger 1989; Bell 1991; Wilkins 1990; Schanne and Meier 1992). All of the authors have suggested ways to improve the coverage. The current analysis of press coverage does likewise: one might ask (as others have done) whether the journalists conducted "announcement journalism" and allowed the government to dominate the coverage, or whether they balanced the sources adequately.

One could also agree with Kepplinger (1989) that journalists should continue to report on forest dieback since the damages still persist. Seemingly, there is no correlation between reality and media reality, e.g., the forests are still dying in the 1990s but coverage is rare. However, such claims presuppose a media system which does not exist. The coverage analyzed in this study was mostly of political debates and actions on forest dieback, not of forest dieback. The journalists reported what was happening in Bonn rather than describing a damaged forest, and the coverage reflected the reality at Bonn dieback.

Still, the question remains: which group of actors, or set of circumstances, can make a topic so important that it is widely accepted? A definite answer to this question transcends the limitations of the study, but the information at hand suggests that several factors acted in combination, maybe synergistically: the growing awareness of environmental problems, the discovery of forest decline, paired with the Germans' emotions for their forests, the part which air pollution regulation played for the failure of the SPD-FDP government in 1982, and the way in which Zimmermann fought out the controversy on the new air pollution regulations in public.

If, however, Baerns' findings are valid, they would suggest ways of altering the pattern of dominance: change is in the hand of the actor groups themselves.

**Table 1: The political parties represented in the Federal Parliament**

		<u>SPD</u>	<u>CDU/CSU</u>	<u>FDP</u>	<u>Greens/ All.90</u>	<u>PDS</u>
Membership	Feb. 1993	905,000	895,700	100,000	39,800	165,000
Number of seats	1980	228	237	54	-	-
	1983	202	255	35	17	-
	1987	193	234	48	44	-
	1990	239	337	79	8	17
	1994	252	294	47	49	30

SPD: social democrats

CDU/CSU: conservatives

FDP: liberals, Greens/Alliance 90: environmentalists, founded 1979, joined with East German civil rights movement 1993

PDS: (East German) socialists, former East German communist party

**Table 2: Readership profile of Süddeutsche Zeitung and Frankfurter Allgemeine Zeitung relative to the general population in Germany, 1987 (Media-Analyse 1987)**

	Population	SZ readers	FAZ readers
Owners or managers of companies, independent professions	1	7	5
Self-employed businesspeople	4	7	7
Executives and senior officials	3	9	16
Employees and civil servants	22	36	30
Skilled workers	10	2	3
Workers	6	2	2
Farmers	1	0	0

**Table 3: Profile of actors and journalists interviewed for project analysis**

<u>Name</u>	<u>Affiliation</u>
Bergdoll, Udo	Editor with the Bonn office of the Süddeutsche Zeitung, since 1983
Butz, Michael-Andreas	1982-88 spokesman of the Federal Ministry of the Interior, primarily in charge of environmental issues; had been with the ministry since 1978
Graf, Lorenz	1979-92 executive manager of the Bund für Umwelt und Naturschutz Deutschland (Friends of the Earth)
Grzenia, Winfried	Spokesman of the Federation of German Automobile Manufacturers
Hohenthal, Carl Graf	Journalist with the Economics department of the Bonn office of the Frankfurter Allgemeine Zeitung
Keppner, Hajo	Environmental editor with the Bonn office of the Deutsche Presse-Agentur (largest German wire service)
Krömer-Butz, Sabine	Spokeswoman of the Association for the Protection of the German Forest, since 1986
Lichterbeck, Bernd	Spokesman of the Federation of German Electric Power Companies
Pampe, Joachim	1970-89 executive manager of the of Federation of German Forest Owners' Associations
Reuss, Erwin	Spokesman of the Federal Ministry for Nutrition, Agriculture and Forestry, since 1970
Riedel, Detlef	Media officer of the Federation of German Coal Mining
Schütt, Peter	Professor for forestry, University of Munich
Schütze, Christian	(Environmental) editor of the Süddeutsche Zeitung, 1964-92
Schweden, Heinz	Member of the board, Bundes-Pressekonferenz
Ulrich, Bernhard	Professor for soil science, Forestry Department, University of Göttingen
Urban, Martin	Science editor of the Süddeutsche Zeitung, since 1969
Vygen, Hendrik	1980-82 second spokesman of the Federal Ministry of the Interior, primarily in charge of environmental issues; before and after, he has been in charge of international negotiations on air pollution agreements
Wandtner, Reinhard	Science writer with the Frankfurter Allgemeine Zeitung department since 1981, and covered acid rain until 1985

**Table 4: Major environmental reporters at the Süddeutsche Zeitung and the Frankfurter Allgemeine Zeitung and the four dominant news agencies for the acid rain coverage in Germany during 1972-1992**

**a: Authors' affiliation ("Other" refers to guest authors, letters are excluded.)**

<u>Paper</u>	<u>Number of articles by</u>			<u>Total</u>
	<u>Staff</u>	<u>Wire</u>	<u>Other</u>	
Süddeutsche Zeitung (SZ)	310 46.2%	358 53.4%	3 0.4%	671
Frankfurter Allgemeine Zeitung (FAZ)	454 79.4%	112 19.6%	6 1.0%	572

**b) Main staff authors**

<u>Paper</u>	<u>Author/Wire service</u>	<u>Author's role</u>	<u>Number of articles</u>
SZ	Martin Urban	Staff writer since 1965, founder and head of the science department since 1968	51
	Christian Schütze	Staff writer since 1964 with the interior policy department	37
	Udo Bergdoll	Staff correspondent with the political department of the Bonn office	28
	Wulf Reimer	Staff correspondent for Baden-Württemberg (south west Germany)	17
FAZ	Klaus Broichhausen	Staff correspondent with the business department of the Bonn office, in charge of environmental affairs until 1987	123
	Reinhard Wandtner	Staff writer with the science department since 1981, in charge of acid rain/forest dieback until 1985	27
	Caroline Möhring	Staff writer with the science department and in charge of acid rain/forest dieback since 1985	18
	Carl Graf Hohenthal	Staff correspondent with the business department of the Bonn office and in charge of environmental affairs since 1987	15
	Gerold Lingnau	Staff writer since 1961, head of the automobile and technology department since 1972	15

**c: Main news agencies**

<u>Name</u>	<u>Affiliation</u>	<u>SZ</u>	<u>FAZ</u>
DPA	Deutsche Presse-Agentur, largest and most important German wire service; most articles are written by the environmental editor at the Bonn office, Hajo Keppner	177	60
AP	German or international service of the Associated Press	87	34
DDP	Deutscher Depeschen-Dienst, German wire service	44	-
REUTER	German or international service of Reuter	42	14

**Table 5: Most frequently quoted executive actors in the selected newspapers, 1972-1992**

	Number of articles quoting	
	minister himself	ministerial officials or the ministry in general
Zimmermann, Friedrich: CSU, Federal Minister of the Interior, responsible for environmental policy 1982-86	125	41
Kiechle, Ignaz: CSU, Federal Minister for Nutrition, Agriculture and Forestry, 1982-92	37	13
Riesenhuber, Heinz: CDU, Federal Minister for Research and Technology, 1982-93	29	10
Baum, Gerhart: FDP, Federal Minister of the Interior, 1978-82	17	5

**Table 6: Most frequently quoted legislative actors in the selected newspapers, 1972-1992**

<u>Parliamentarian or party</u>	<u>Number of articles quoted</u>
Social Democratic Party (SPD) - major partner of the government coalition 1969-82	116
Free Democratic Party (FDP) - partner of the government coalitions 1970-82 and since 1982	76
The Greens - represented in Parliament for the first time in 1983	42
Christian Democratic Union (CDU) and Christian Social Union (CSU) - major partner of government coalition since 1982	37

**Table 7: Most frequently quoted scientists in the selected newspapers, 1972-1992**

<u>Scientist</u>	<u>Number of articles</u>
Ulrich, Bernhard: soil scientist, University of Göttingen -- the first German scientist to publish on acid deposition	17
Schütt, Peter: forest scientist, University of Munich	8
Moosmayer, Hans-Ulrich: forest scientist, director of the Forest Research Institute of Baden-Württemberg	8

**Table 8: Most frequently quoted environmental organizations in the selected newspapers, 1972-1992**

<u>ENGO</u>	<u>Number of articles</u>
Federation for Environmental and Nature Protection (BUND)	22
Robin Wood	20
Federation of environmental citizen's initiatives (BBU)	18
Association for the Protection of German Forest	12



**Table 9: Most frequently quoted impacted groups in the selected newspapers, 1972-1992**

<u>Organization</u>	<u>Number of articles</u>
Federation of German Forest Owners' Associations	28
German Forestry Council	5

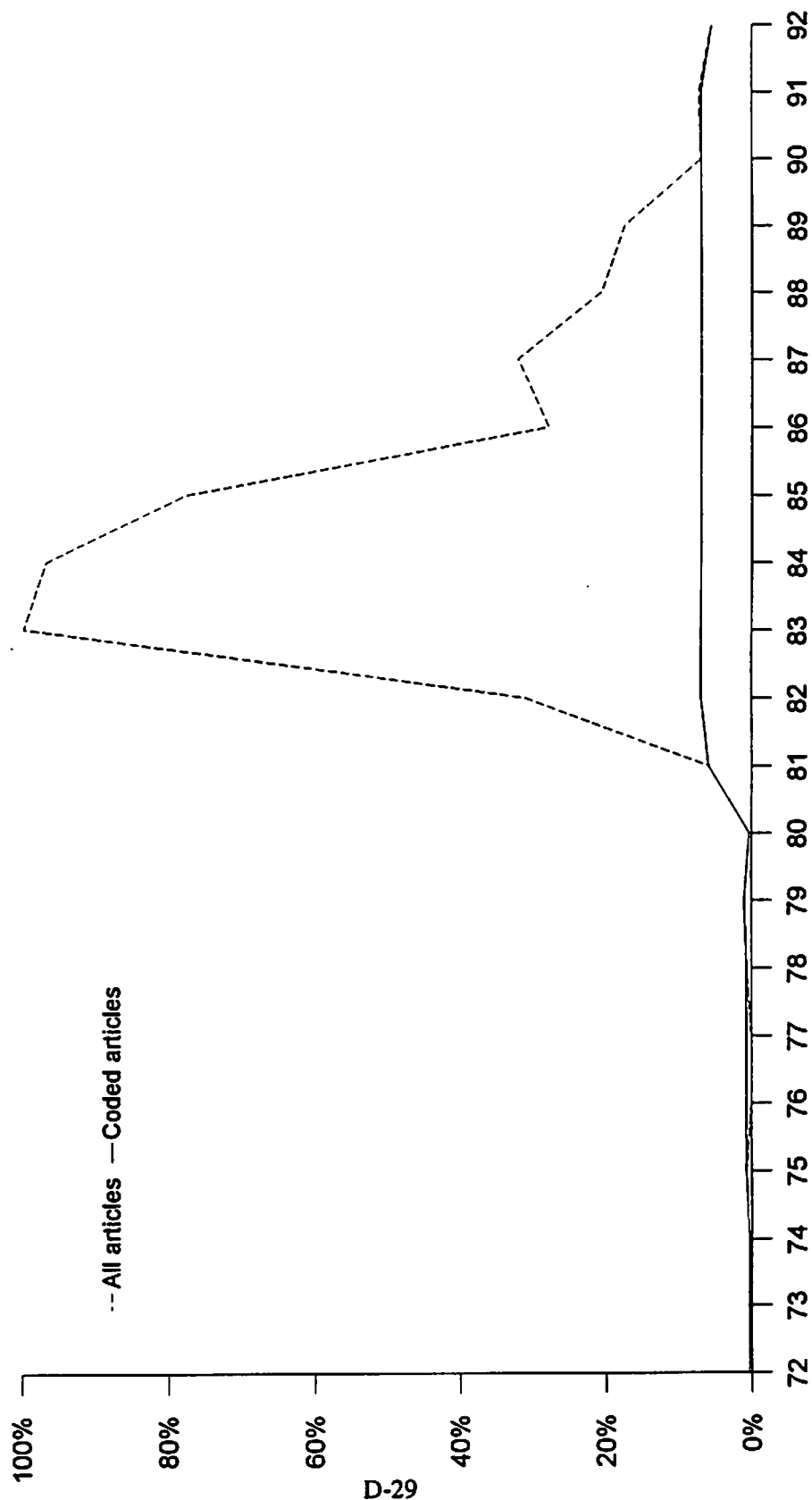
**Table 10: Most frequently quoted emitter industry actors in the selected newspapers, 1972-1992**

<u>Organization</u>	<u>Number of articles</u>
Federation of German Automobile Producers / individual companies	21 / 17
Federation of German Industry	12
Federation of German Chambers of Commerce	10

**Figure 1.** Frequency of articles on "acid rain" in the *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* and coded sample, scaled as a proportion of the number of articles in the year of maximum citations (1983=287), 1972-1992. Ten articles per year per newspaper were coded, or all if less than ten had been identified for that year. The articles were obtained from the newspaper's archives by a keyword search. The keywords were slightly different in the two archives and changed over time, e.g., "air pollution" in the beginning and "acid rain" or "forest dieback" later.

FIGURE 1

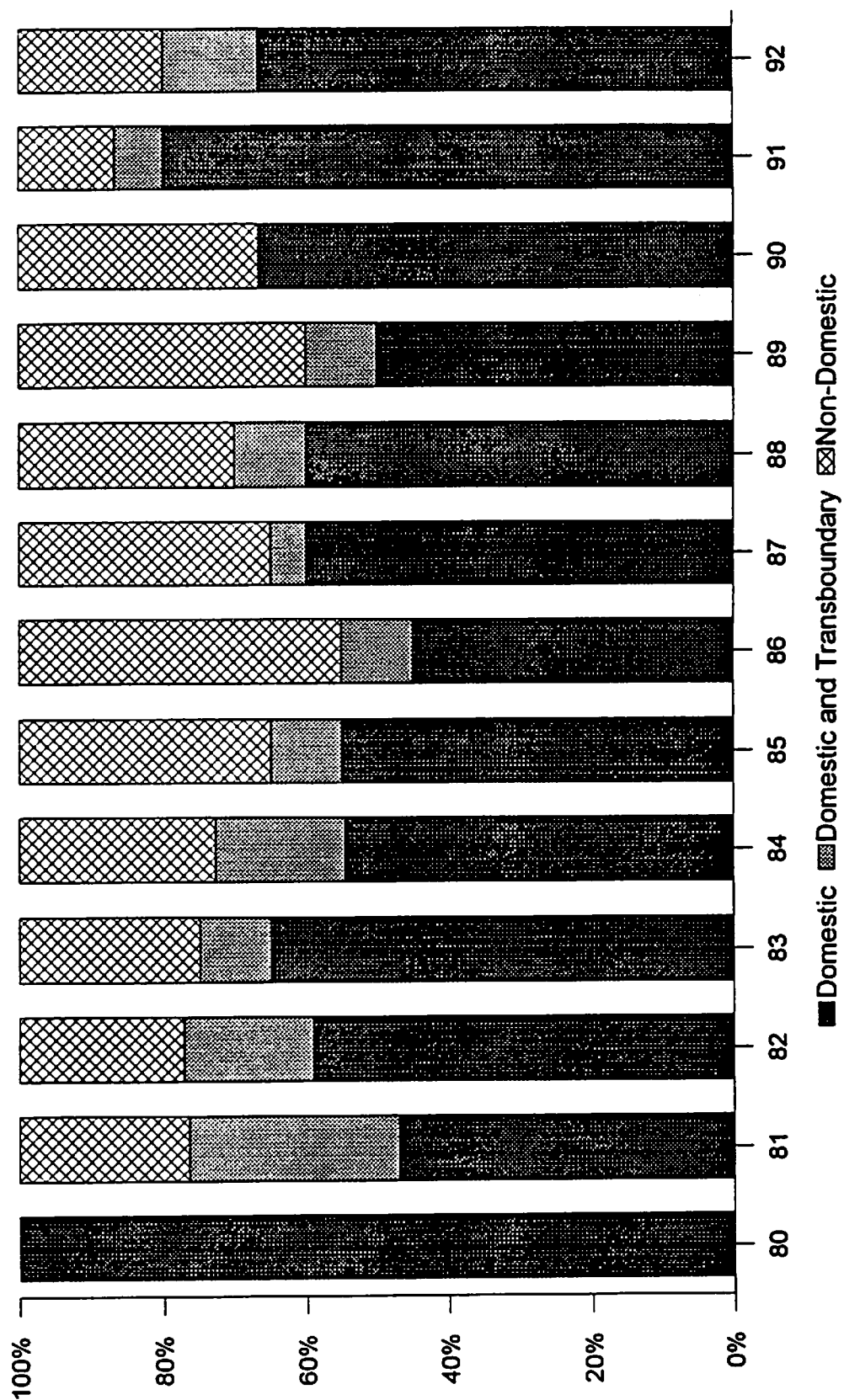
NEWSPAPER ATTENTION -- "ACID RAIN" -- GERMANY



**Figure 2.** Percentage of *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year belonging to each category, 1980-1992. Each article was assigned to only one of the following categories: purely a "domestic" scope; "domestic and transboundary" includes those articles that mention the transboundary aspect but have a domestic focus; and "non-domestic" includes articles that have the transboundary aspect as the main focus or cover another country's problems. This was performed on a sample of articles identified in Figure 1.

FIGURE 2

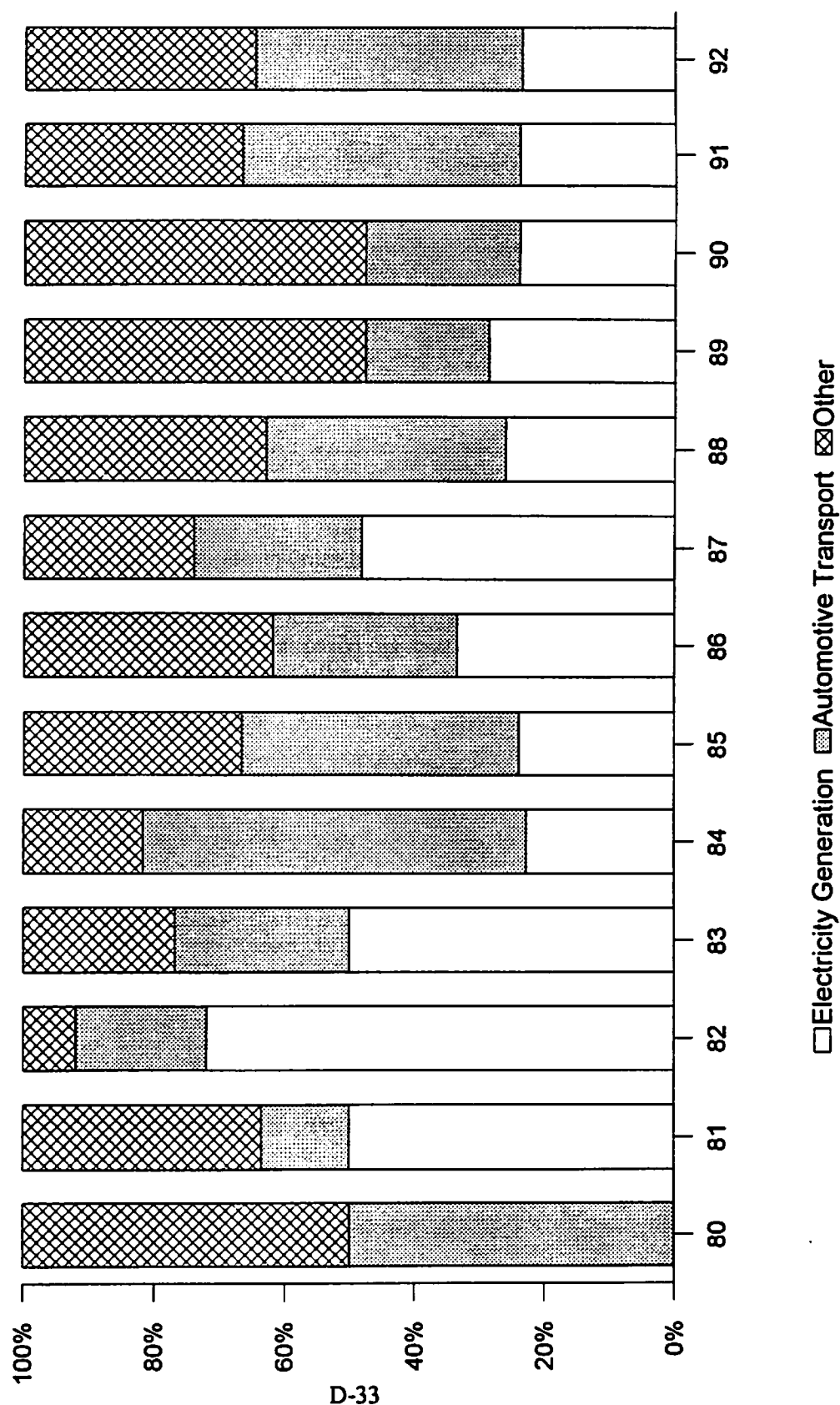
GEOGRAPHIC FOCUS -- "ACID RAIN" -- GERMANY



**Figure 3.** Percentage of all causes of "acid rain" mentioned in *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year belonging to each category, 1980-1992. Each articles may have more than one cause coded. In many cases, the pollutants, e.g., sulfur dioxide, were mentioned but not their sources; these cases were coded as "other". This was performed on a sample of articles identified in Figure 1.

FIGURE 3

CAUSES -- "ACID RAIN" -- GERMANY

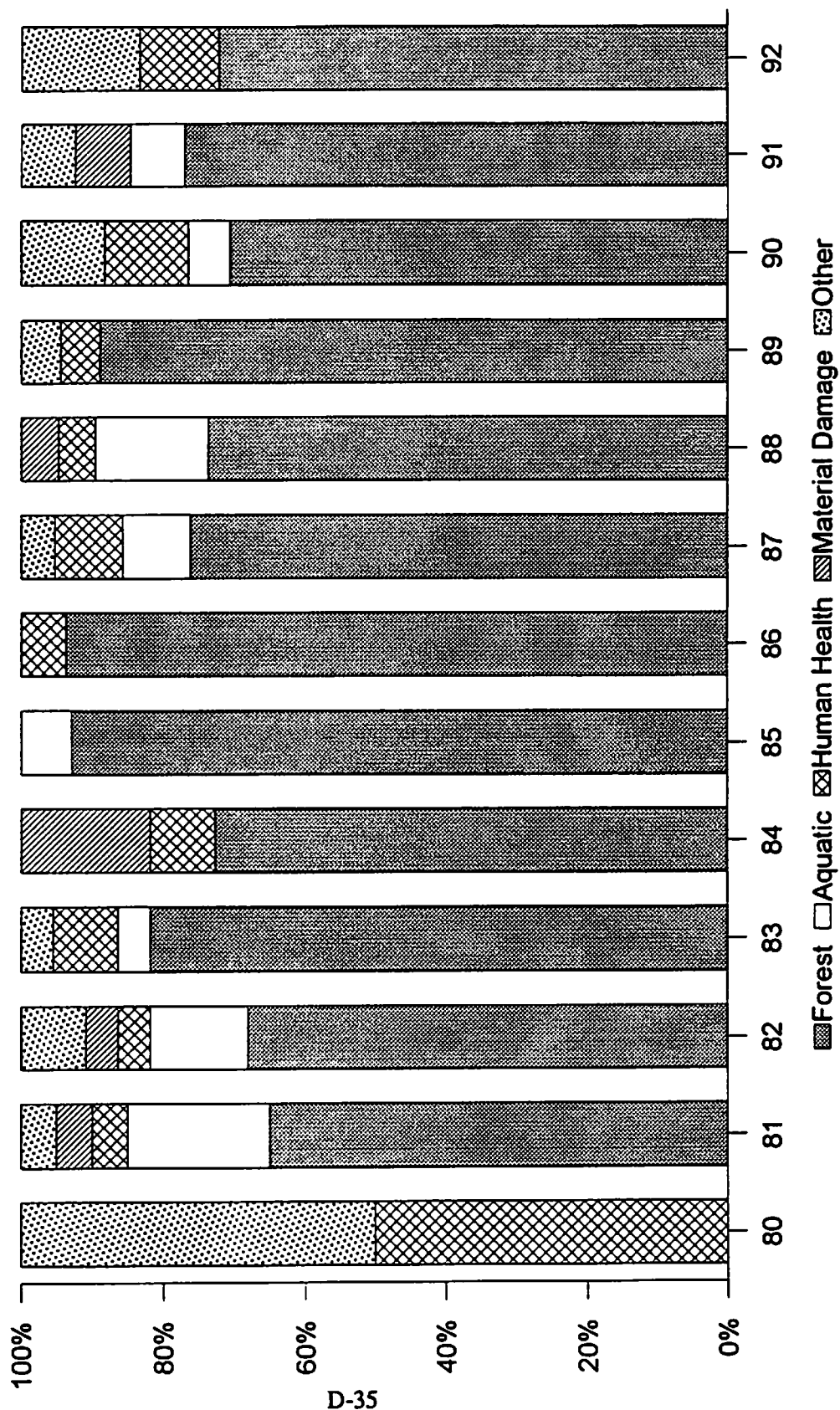


**Figure 4.** Percentage of all primary impacts of "acid rain" mentioned in *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year belonging to each category, 1980-1992. Each articles may have had more than one primary impact coded. Generic secondary effects, e.g., economic damage, are not included, unless they are posed in terms of one of the listed primary impacts, e.g., the economic impact on forests is generally coded under forest impacts. This was performed on a sample of articles identified in Figure 1.



FIGURE 4

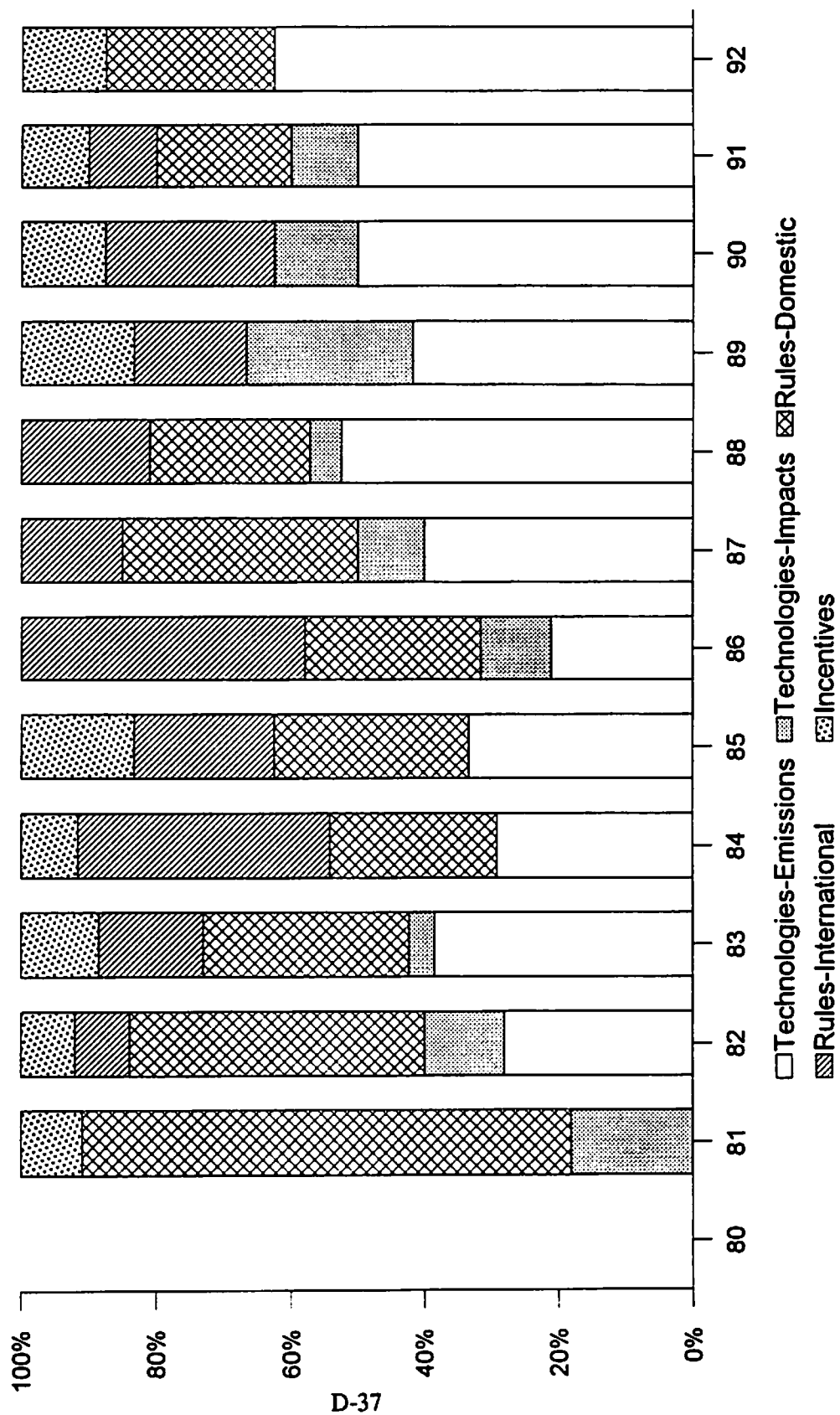
PRIMARY IMPACTS -- "ACID RAIN" -- GERMANY



**Figure 5.** Percentage of all options to manage "acid rain" mentioned in *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year belonging to each category, 1980-1992. Each articles may have more than one of the following option categories coded: "Technologies - emissions" includes technologies such as those that reduce emissions in power plants and autos, fuel switching and renewable energies. "Technologies - impacts" are technologies designed to mitigate impacts such as liming, fertilizing, or breeding resistant species. "Rules - domestic" include emissions standards for power plants or autos, and lawsuits. "Rules - international" includes international or bilateral regulations or agreements. "Incentives" could include financial incentives and education. This was performed on a sample of articles identified in Figure 1.

FIGURE 5

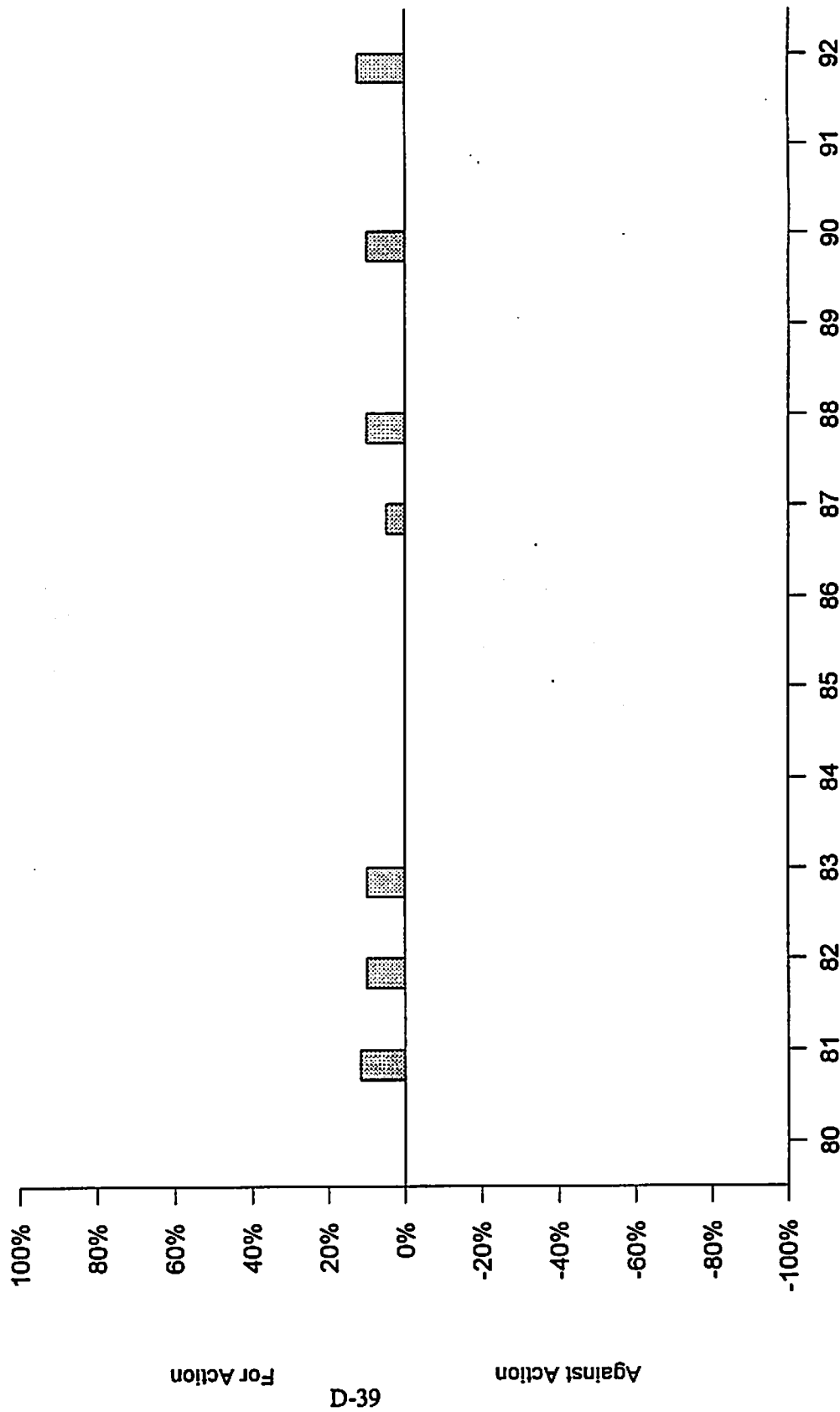
OPTIONS -- "ACID RAIN" -- GERMANY



**Figure 6.** Percentage of all *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year that were either for action or against action, 1980-1992. The percentage of articles coded as neutral are not shown. Each article was assigned only to one category. This was performed on a sample of articles identified in Figure 1.

FIGURE 6

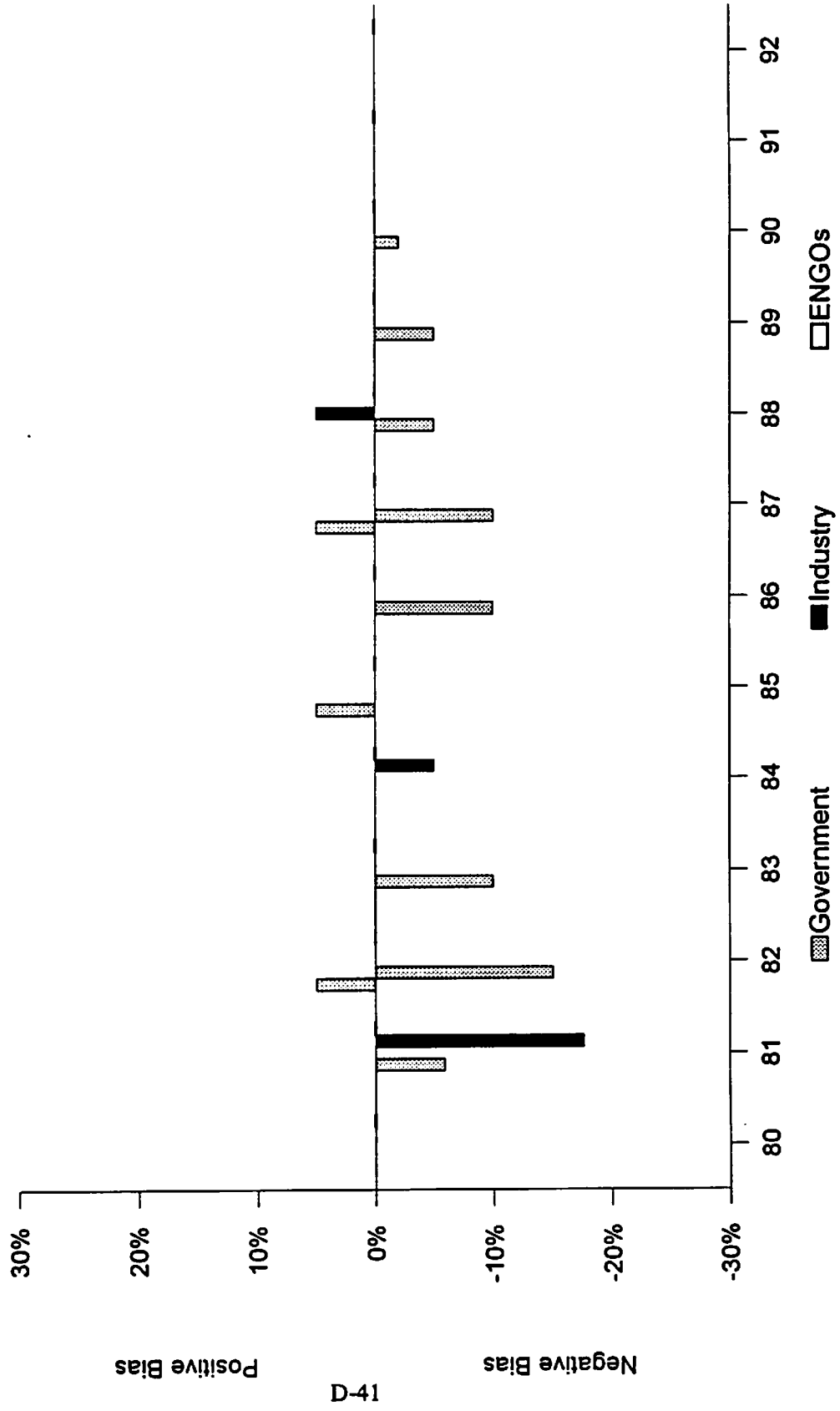
ACTION BIAS -- "ACID RAIN" -- GERMANY



**Figure 7.** Percentage of all *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung* articles in a given year that showed bias towards particular actors, 1980-1992. Positive bias portrayed an actor in a positive light; negative bias in a negative light. The percentage of articles coded as showing no bias are not shown here. Each article was assigned only two categories, one indicating positive and, second negative bias. This was performed on a sample of articles identified in Figure 1.

FIGURE 7

ACTOR BIAS -- "ACID RAIN" -- GERMANY

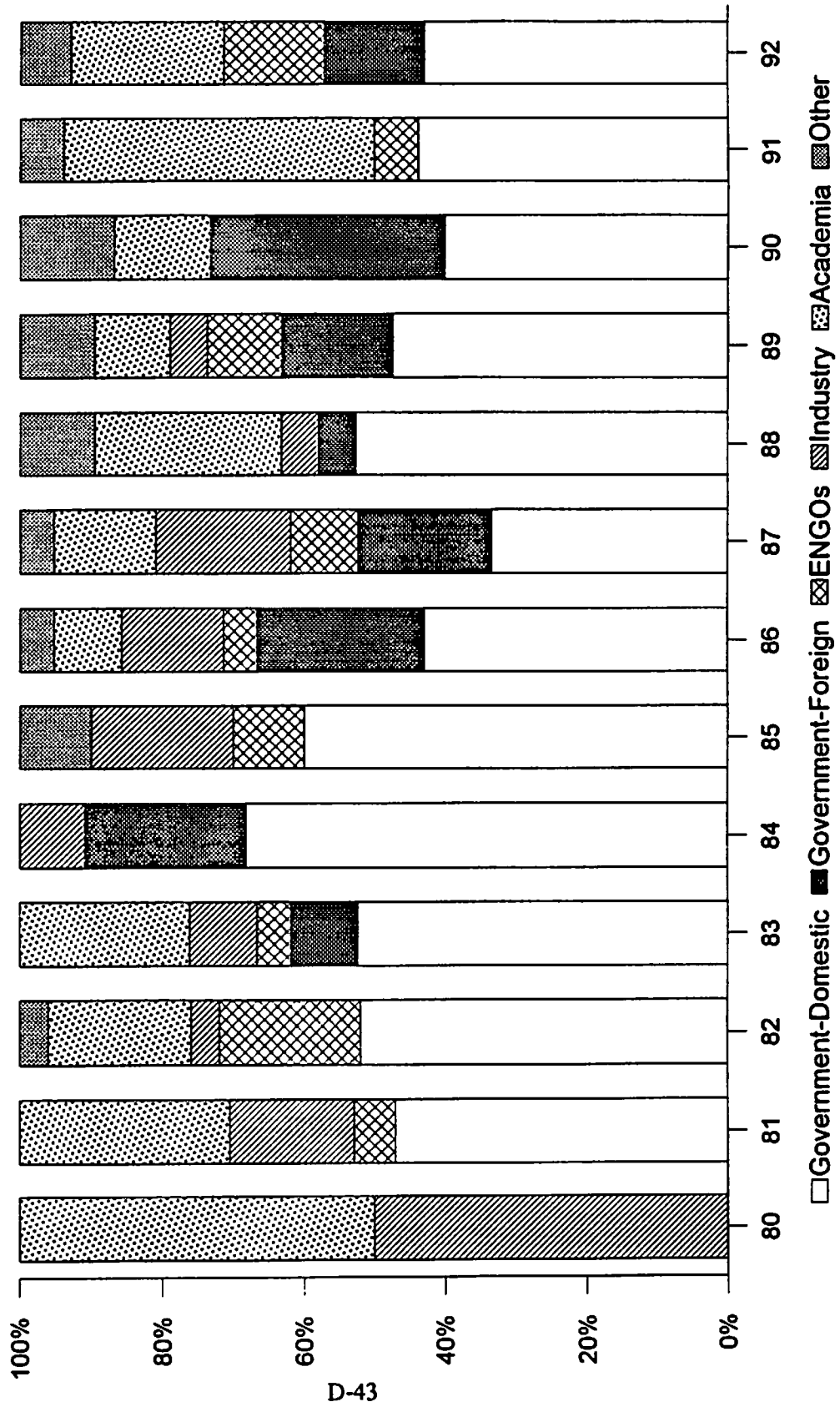


**Figure 8.** Percentage of news sources that dominated the framing and shaping of "acid rain" articles in the *Süddeutsche Zeitung* and *Frankfurter Allgemeine Zeitung*, 1980-1992. Each article may have more than one source category coded. "Government - domestic" includes executive, legislative, and judiciary actors. The "government - foreign" category includes representatives of foreign governments and executives of the European Community. "ENGO" includes environmental non-governmental organizations and environmentalists. "Industry" includes emitter and impacted industries. This was performed on a sample of articles identified in Figure 1.



FIGURE 8

NEWS SOURCES -- "ACID RAIN" -- GERMANY



Endnotes

1. Renate Ell, University of Bayreuth, Germany. The chapter is based on research supported in part by a grant of the Gottlieb Daimler and Carl Benz Foundation, Germany. There are many people who contributed to the research on which this paper is based. In particular the author wishes to thank the assistance of Jill Jäger at the International Institute of Applied Systems Analysis, Austria and Hans Peter eters of the Juelich Research Center, Germany.
2. Since 1990, Germany consists of 16 Provinces, or *Länder*. Former West Germany consisted of ten Provinces plus West Berlin, which had a special status. Each Province has a parliament and a government similar to the Federal Parliament and the Federal Government. Provinces may also formulate their own legislation if no concurrent Federal legislation exists.
3. A vote of no confidence in the Chancellor must at the same time be a vote in favor of a successor; of the two attempts to bring down a Government in this way, only the one in October 1982 successful.
4. With the exception of one parliamentary question, Ulrich's report had no instant policy influence; the question was answered appeasingly by the Interior ministry (Ell & Luhmann 1995).
5. With 30% of its land area in forests, they have traditionally been very important in German culture and they have a central role in the folklore. Moreover, the country has strong economic interest in preserving forests. Hence, reports of large-scale damage drastically increased societal attention to acid rain causing an atmosphere of crisis to descend upon West Germany.
6. It was a very powerful and innovative piece of legislation and presents as a major policy change because 1) it included existing plants as well as new ones; 2) it included plants down to 50 MW; and 3) the SO<sub>2</sub> emissions limit was strengthened to 400 mg/m<sup>3</sup> instead of the originally proposed 850 mg/m<sup>3</sup>. Follow-up measures including amendments to the Federal Air Quality Control Act and the Technical Guidelines for Air, set much tighter ambient air pollution standards and provided a strict timetable for implementation. By 1988, plants as small as 1 MW were also subject to the same tight controls.
7. The ministry was created both in response to the Chernobyl disaster in April and in response to upcoming elections in the Province of Lower Saxony.
8. These views are expressed in BDI press releases, e.g. BDI 1/3/1983 or 22/4/1983, or quoted in the articles collected for this study, e.g. SZ 25/10/1983 or FAZ 2/11/1983.
9. In 1990, 46% of West German forests are in private ownership, 24% are owned by municipalities or other corporations, and 30% are state owned.
10. This section is based on Humphreys 1990.
11. All these guidelines are reprinted in Humphreys 1990
12. There is no electronic database for press articles in Germany.
13. Articles from the regional part of the *Süddeutsche Zeitung* were excluded since the *Frankfurter Allgemeine Zeitung* has no comparable part in its main (national) edition. Letters to the editor were also excluded from the analysis.
14. As an exception, the editor who had written most of the FAZ articles could not be interviewed.

15. The Chernobyl disaster in 1986 draw a lot of attention away from environmental topics.

16. See section 3.2.6 for the differences between the two newspapers with respect to environmental organizations.

17. An exception is Keppner of the DPA who stated that he, due to his assignment in Bonn, hardly ever gets any statements from industry; these are covered by his colleagues of the economics department at the agency's headquarters in Hamburg.

18. In her empirical study of the coverage of the politics of North-Rhine Westfalia in the regional press, she found public relations measures (press releases or press conferences) were the origin of 55 percent of the wire service articles and 57 percent of the newspaper articles. The rest of the sources were non-public events, public events, and journalistic research the latter amounting to only 8 percent in wire service articles and 11 percent in newspaper articles.

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