

Press Coverage of Science: Comparing the Montreal Protocol and the Basel Convention

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Introduction

The Montreal Protocol on Substances that Deplete the Ozone Layer is an international environmental treaty that eventually phased out the use of chemicals shown to be depleting the ozone layer. The Protocol was negotiated in 1987 and entered into force in 1989. The United States ratified the Montreal Protocol on April 21, 1988 and later ratified the Protocol's four amendments (UNEP 2004). The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is an international environmental treaty restricting international trade of hazardous wastes and urges sound management of hazardous wastes (UNEP Basel). Signed in 1989, the treaty entered into force in 1992. A ban on hazardous waste exports from all OECD to all non-OECD states agreed in 1995 has not yet entered into force.

The United States is not a party to the Basel Convention. Although the U.S. Senate consented to its ratification on August 11, 1992, Congress has not passed legislation necessary to put the Convention into practice (Murphy 1993). Once the ban was adopted by the parties to the Basel Convention, the recycling industry in the United States withdrew its support of the ratification of the Convention (Tiemann 1998).

The Basel Convention and the Montreal Protocol both evolved in the 1980s, a time of increasing commitment to environmental concerns. As Dmitrov (2006) points out, states have negotiated more than three hundred multilateral ecological agreements in recent decades. Despite this burgeoning international cooperation on environmental issues, however, the United States is only a party to the Montreal Protocol. Both treaties grew out of the same time period, but had different outcomes in the United States.

Explanations of this difference in outcomes in the United States focus on industry concerns about additional regulations imposed by the Basel Convention. As pointed out by Lipman (2002), a contentious issue in the United States is a lack of differentiation between waste exported for recycling and recovery as manufacturing materials and waste destined for final disposal. Economic explanations of U.S. foreign policy decisions are hard to dismiss because they resonate so strongly with the increasingly pro-business orientation of post-1970 U.S. administrations. Such explanations, however, cannot fully explain why the U.S. would ever support international environmental agreements that impose significant costs on U.S. industry, such as the Montreal Protocol.

As Dmitrov (2006) and others have argued, explaining the formation of international environmental regimes requires paying attention to science's contribution to political debate and action independently of political and economic variables. It would be naïve to think that science always trumps economic and political clout. Research on the formation of international environmental regimes suggests, however, that demonstrably false political arguments face a stiffening headwind as scientific knowledge about the consequences of a given environmental problem become more widely understood by the public. There comes a point in the lifespan of many environmental problems where enough evidence is in to persuade most people to support government action.

In modern democracies, the task of disseminating scientific knowledge about environmental problems falls largely to the mass media. Thus, I examine the role of media science reporting in the ratification debates of the Basel Convention and the Montreal Protocol. Specifically, I ask whether science was treated differently in U.S. news coverage of the two treaties. How did science-based arguments and evidence compare in the coverage of the

Montreal Protocol versus the coverage of the Basel Convention, and how did knowledge about the extent, causes, and consequences of the problem figure into the news coverage (see Dmitrov 2006)?

First, I situate the analysis in research on the relationships among science, the media, and politics. This research argues that media framing shapes public opinion and that framing policy issues in terms of science can confer on them a level of tractability that is absent from more political frames, which generally encourage reasonable people to disagree about the nature of a problem and its solutions. Next, I set up the analysis by looking at possible science-based arguments that could have been used by the media. I then analyze the differences between media coverage of the Basel Convention and the Montreal Protocol in *The New York Times* and *The Washington Post*. My analysis shows there was a difference in the way science appeared in news coverage of the two treaties. Besides attracting greater overall media attention than the Basel Convention, news reports about the Montreal Protocol featured scientific arguments very prominently. I argue journalists' appeals to the authority of science helped build public and political support for the Montreal Protocol; reporting on the Basel Convention, in contrast, was framed more frequently in political terms. I conclude with suggestions for improving news coverage of the Basel Convention.

Science, Media, Politics

Science is held in high regard in the United States. Jasanoff explains that science is “favorably regarded by large majorities in Western societies” and that it “is the transcendental cognitive authority of science that most powerfully complements political authority” (2005, 288, 252). Gieryn reflects this notion when he writes that “in modern Western societies, science has

considerable cognitive authority” (1995, 405). The cognitive authority of science stems from its “application of certain formal methods founded upon rationality and empirical observation to gain knowledge and understanding of the world around us” and its claims to be “value-free and politically neutral” (Harrison and Bryner 2004, 3; Kleinman 2005, 4). Starr has defined cultural authority as “the probability that particular definitions of reality and judgments of meaning and value will prevail as valid and true” (1982, 13). According to this literature, science has cultural authority in the United States.

Science also plays a part in the forming of international environmental regimes. Litfin (1994) explains that international environmental policy relies heavily on cognitive factors like scientific knowledge. The cultural role of science serves as a central source of legitimation and political debates become framed as scientific ones. Harrison and Bryner (2004) explain that scientific knowledge provides an important foundation for possible solutions to an environmental problem. Andresen (2000) points out that scientific knowledge is actually a necessary condition for operating an effective international environmental regime. Dimitrov (2006) examines the type of scientific knowledge in shaping outcomes and reveals that the scientific knowledge about negative transboundary consequences of a problem is critical to the formation of international environmental regimes.

The media disseminate such policy-relevant scientific knowledge to the public. Recent scholarship about the media and their role in the political process has shown that the mass media are not passive agents. Instead, the media, playing a crucial role in the modern democracy, shape the way the public perceives issues. The media decide how to frame an issue, what information should be included in debate, and teach the public about the actions a democratic government may take or has decided to take (Friedman 2003).

Discourse analyses of media influence on politics and the public reject the theory of minimal media consequences, which claims that the media simply reinforces the public's preexisting political choices and that interpersonal communication is the only influence on the attitudes and opinions of the public (Callaghan and Schnell 2005). Discourse provides frames of meaning and constructs systems of order, and political discourse "applies such frames to the exercise of power" (Apter 2002, Introduction section, para. 1). Callaghan and Schnell define framing as "selecting and highlighting some facets of events or issues, and making connections among them so as to promote a particular interpretation, evaluation, and/or solution" (2005, viii). They note that altering news frames can change public perceptions of an issue (2005). The media set the public agenda by deciding what issues to cover, which then influences the public's perception of the importance of the issue (Callaghan and Schnell, 2005). The media also influence public perceptions by "'priming' or elevating certain issues over others" (Callaghan and Schnell 2005, 2).

Vigorous democracy requires "multiple voices and multiple viewpoints [...] for informed political debate" (Callaghan and Schnell 2005, 12). Theorists of the public sphere (Habermas 1989) and public journalism advocates (Dzur 2002) look to the mass media as facilitators of informed political debate. For instance, McKinney et al. (2005) view democracy as a "civic dialogue" in which there is an ongoing conversation between and among elected leaders or candidates and the citizens they lead or wish to lead. The mass media play a central role in promoting this civic dialogue. Citizens' ability to judge the merits of proposals to solve environmental problems depends on the quality of news coverage on environmental policy debates available to them. Media coverage may draw public attention to a previously obscure issue or frame the terms by which the public will evaluate a policy (Powlick 1995). Mediated

discourses have significant political consequences, particularly for public perceptions of science-based foreign policy issues far removed from the personal experience of most citizens. As Kollmuss (2001) has shown, the media play a crucial role in the system of international environmental treaty-making by shaping the way the public perceives and prioritizes the issue of climate change.

Possible science-based arguments

What science-based arguments and evidence might have been used in covering the Basel Convention? Specifically, what consequences of disposing of hazardous waste might have been reported? My analysis focuses on how the press reported on the *consequences* of unregulated hazardous waste disposal because science-based claims about the consequences for human health and the environment tend to be more decisive for environmental regime formation than claims about a problem's causes and extent. Knowledge about negative consequences notably improves the odds that states will take international cooperation seriously (Dmitrov 2006).

Knowledge about the negative health and environmental impacts associated with hazardous wastes is well established scientifically. As Singh (2001) points out, hazardous wastes have been shown to pose both short-term and long-term threats to humans and the environment. Increased risk of birth defects, neurotoxic disorders, leukemia, cardiovascular abnormalities, respiratory and sensory irritation, and dermatitis are a few examples of the effects on humans (Johnson, 1994). Eye irritation, rhinitis, bronchitis, nausea, vomiting, headache, insomnia, vertigo, and asthenia are also reported at sites of hazardous waste (Zmirou 1994). Singh also explains that underground and surface water can become polluted, and toxic wastes can make

their way through the food chain. These are just some of the scientific arguments that could be expected to surface in press coverage of the dangers of hazardous waste.

What were the scientific arguments surrounding the Montreal Protocol? As Dmitrov explains, the effects of higher UV light due to ozone depletion fell into three categories (2006). Those categories were health effects on humans, effects on plants and bacteria, and effects on marine life. Health effects on humans included skin disease, eye disorders, and immune system suppression (Dmitrov 2006). Two out of every three plants were shown to have sensitivity to UV radiation, which can lead to a stunting of growth and decline in plant productivity (Dmitrov 2006). Plankton was found to be damaged by increased UV light, which affects the aquatic food chain (Dmitrov 2006). These are just some of the scientific arguments one might expect to encounter in media coverage of the dangers of higher exposure to UV rays.

The Montreal Protocol and the Basel Convention in *The New York Times* and *The Washington Post*

I examine coverage of the Basel Convention and the Montreal Protocol in *The New York Times* and *The Washington Post*. These newspapers have a centrist ideological position; *The New York Times*, moreover, is the most important and influential newspaper in the United States (Kollmuss 2001). Both *The New York Times* and *The Washington Post* have circulations in the top five of all newspapers in the country (Infoplease 2006). If one expects to see quality press coverage of science-based policy debates anywhere, one would expect to find it here. By confining the analysis to these two newspapers, I limit my ability to generalize about science reporting in the mass media. Clearly, though, both newspapers are influential voices familiar to policymakers and many politically interested citizens alike.

I used the LexisNexis database to identify relevant newspaper articles from *The New York Times* and *The Washington Post*. I searched for the terms “Montreal Protocol” and “Basel Convention” in the full text of the newspaper articles. Because the United States has not ratified the Basel Convention, I included all relevant articles identified in the Basel Convention search. For the Montreal Protocol, I only looked at articles published prior to December 17, 1988, the date the Montreal Protocol entered into force. Following elimination of letters to the editor, op-eds, and irrelevant articles, my search yielded seventeen news stories on the Montreal Protocol and ten stories on the Basel Convention.

What shall count as science in coverage of the two environmental treaties? Clearly, science includes many diverse areas of expertise, and even scientists sometimes have trouble defining the term (Ziman 1991). As noted earlier, however, a general definition of the scientific method holds that science applies “certain formal methods founded upon rationality and empirical observation to gain knowledge and understanding of the world around us” (Harrison and Bryner 2004, 3). This definition is precise enough to allow separation of scientific arguments and evidence from economic and moral justifications or arguments. Economic arguments involve statements about the monetary costs and benefits associated with alternative courses of action. Moral arguments assess the desirability of alternative courses of action in terms of basic norms such as justice, liberty, and so on.

Science is featured much more prominently in the coverage of the Montreal Protocol than in coverage of the Basel Convention. Several differences in science coverage stand out. First, scientific evidence and knowledge appear in different places in stories about the two treaties. Not one of the newspaper articles about the Basel Convention begins with a reference to science. In contrast, five articles covering the Montreal Protocol start with references to science. For

example, a March 20, 1988 article by James Gleick in *The New York Times* begins with “the destruction of the earth’s protective ozone layer, set in motion by the release of industrial gases into the atmosphere, will continue for decades despite the best efforts of governments and industries to control it, scientists now agree.” Another starts by explaining that “the atmosphere’s protective shield of ozone ebbed rapidly from 1979 through 1986, not just over Antarctica, where the depletion has been sharpest, but over nearly the whole globe, researchers said yesterday” (Gleick, 1 January 1988). According to Callaghan and Schnell, “the process by which frames bring certain values and other beliefs to mind is called priming” (2005, 14). Beginning a news story with a reference to science invokes the cultural authority of science, strengthened because these stories also report that scientists agree that atmospheric ozone depletion is a real phenomenon with serious health and environmental consequences. Placing science front and center conveys that atmospheric ozone depletion is a well understood phenomenon amenable to amelioration by rational, unbiased expertise.

Second, in news coverage of the Montreal Protocol five stories were devoted to imparting information about a new scientific study. In contrast, in coverage of the Basel Convention there were no stories about a scientific “study,” but there were two articles about the release of a “report” published by environmental organizations. Although the meaning of the terms study and report can overlap in casual usage, the consistency of using “study” in stories about the Montreal Protocol and “report” in stories about the Basel Convention is striking. A study implies greater rigor than a report. Defining a publication as a study puts a body of knowledge on a scholarly footing; characterizing a publication as a report implies a less authoritative process of knowledge production. Scientists produce studies; advocacy organizations write reports.

Third, in stories on the Montreal Protocol, “science,” “scientist,” and “researcher” appear frequently. In statements on the effects or extent of the problem of hazardous waste in coverage of the Basel Convention, in contrast, the words “environmentalist” and “activist” are used. For example, a *New York Times* article from October 1, 1987 begins with “the ozone shield over Antarctica dwindled this month to the lowest level observed since measurements began more than a decade ago” (Shabecoff). In contrast, a *Washington Post* article from January 21, 2005 reports that “environmentalists say the rising tide of electronic waste is slowly degrading in landfills and rivers here and abroad, posing a serious threat to water and air” (Eilperin). Reporting atmospheric ozone depletion as a scientific fact while reporting the degradation of electronic waste as an environmentalist claim closes debate on the former the while emphasizing political conflict on the latter. That many of the “environmentalists” who monitor the international trade in hazardous waste are themselves qualified scientists with advanced degrees goes unreported. There is no consistent framing in Basel Convention stories of the problem as either (legitimate) international trade in materials intended for recycling and recovery or (illegitimate) dumping in developing states by developed states. Rather, the picture that emerges from these stories is one of a political struggle between the waste management industry that profits from exporting hazardous wastes and environmentalists who claim the international hazardous waste trade causes a great deal of harm to public health and the natural environment in developing countries where these wastes ultimately end up. Where stories on the Montreal Protocol invoke the authority of science to suggest that government action is urgent and feasible, coverage of the Basel Convention takes a more neutral, “here is what’s happening” slant.

How do stories cover knowledge about the consequences of the environmental problems addressed by each treaty? Stories about the Montreal Protocol always at least refer to

consequences of high levels of UV exposure. The causes and extent of damage are usually reported as well. For example, an article in *The New York Times* from March 25, 1988, contains references to the scope, cause, and consequences of exposure to UV rays (Shabecoff). This article talks about the cause of damage to the ozone layer, explaining that “chemicals, which are widely used in refrigerants, foam insulation and cleaning solvents, among other products, are believed to combine with and destroy ozone molecules in the upper atmosphere” (Shabecoff, 1988). It also explains the consequences when it writes that “the ozone shield blocks harmful ultraviolet rays from the sun that can cause skin cancer in humans, damage plants and harm animals” (Shabecoff 1988). It refers to the extent of damage when it refers to “new scientific evidence that the threat to the atmospheric ozone layer was worse than had been thought” (Shabecoff 1988). Many of the articles about the Montreal Protocol made reference to the increased danger of skin cancer and also to eye disease.

Coverage of the international hazardous waste trade does not ignore consequences for human health and local environments. Several stories on the international hazardous waste trade highlight heavy metals contamination of soil and water associated with the unregulated dumping of discarded consumer electronics from the United States in Nigerian and Chinese coastal cities, where poor men, women, and children eke out a dangerous livelihood by searching landfills composed of discarded electronic appliances for valuable materials. In a December 12, 2005 Washington Post story we learn that “Intact computer equipment is not hazardous, but when computer and television screens, circuit boards, batteries, and other high-tech electronics are broken up or burned or degrade, they release toxic materials that include lead, cadmium, barium, mercury and chromium” (Grossman 2005). But the focus in the Basel Convention stories is on the economic and moral dimensions of the international waste trade, not on straightforward

policy solutions advocated by scientific experts – such as, for example, designing electronics that contain less hazardous material or designing them in ways that lower the ease and cost of their recovery when the equipment has reached the end of its lifespan.

This focus partly reflects the economic and technical complexity of handling toxic wastes: industrial societies generate vast quantities and types of toxic wastes. Reducing the rate of atmospheric ozone depletion requires phasing out a limited number of chemicals from industrial production and consumption, but regulating let alone banning the international trade in hazardous wastes would have repercussions throughout the economy. Convincing readers to bear the costs of reducing the impacts of their behavior on people in developing countries may be a hard sell for newspapers. Everyone is at risk for skin cancer, and while most readers of *The New York Times* and *The Washington Post* likely own (and often discard) products and appliances that contain hazardous materials, few will ever experience the health effects associated with exposure to toxic chemicals dumped in unregulated landfills.

The focus on science in coverage of the Montreal Protocol conveys to the public that atmospheric ozone depletion is a problem amenable to scientific analysis and science-based solutions. Science is largely absent from coverage of the Basel Convention. Rather, the international hazardous waste trade is portrayed primarily in terms of competing political and economic interests: governments, waste exporters, and environmentalists disagree on the causes, the extent, and the consequences of the problem. Proposed solutions run the gamut from industry self-regulation, to government regulation, to an outright ban. Where news coverage of the Montreal Protocol portrays a well-defined problem with well-understood consequences and a straightforward solution backed by scientific evidence, coverage of the Basel Convention suggests a more contentious policy debate, with waste management industry actors defending

practices they call “recycling and recovery” from environmentalists’ accusations of “dumping.” News coverage of the international hazardous waste trade points to an ongoing struggle among competing political interests to define the terms of the problem and its solutions.

Implications for Civic Dialogue and Recommendations for Improving Coverage of the Basel Convention

As pointed out earlier, a vigorous democracy relies on “civic dialogue,” which requires “multiple voices and multiple viewpoints [...] for informed political debate” (McKinney, et al., 2005; Callaghan and Schnell 2005). The “communicative transformation of individuals into a democratic political sphere,” McKinney explains, is where “informed citizens, dependent largely on mass media interpreters for needed information, have access to forums and mechanisms in order to deliberate on issues of consequence for the public’s well-being” (McKinney, et al., 2005, 6).

Political issues are complex. They require discussion facilitated by a mass media that consider all aspects of a problem. Yet, the media usually reduce complex issues into a simplistic frame (Callaghan 2005, 186). I have shown that in coverage of the Basel Convention, news stories were framed more frequently in political rather than scientific terms. This need not be a bad thing for civic dialogue. Privileging science in policy debates may effectively exclude perspectives that are not easily framed as amenable to scientific analysis, most notably questions of justice and equity (see Young, 1990, 2000). Highlighting the politically, economically, and ethically contentious nature of a given policy debate, as coverage of the Basel Convention has done, arguably helps to avoid cutting off debate before all relevant positions and perspectives have been considered. This too is a responsibility of the media in a democratic society. The

potential socially exclusionary consequences of scientific discourse, however, are not the focus of my analysis. I have tried to show that downplaying science in news coverage of a major international environmental treaty has contributed to the Basel Convention's time in political limbo in the United States.

The media plays an important role in influencing public opinion and even galvanizing political involvement, which can then influence foreign policy. Scholarship has shown that public opinion is "rational" and "pretty prudent" (Powlick 1995; see also Page and Shapiro 1992). Journalists' appeals to the authority of science helped build public and political support for the Montreal Protocol. More news coverage of science in regards to the Basel Convention could perhaps build support for this international environmental treaty. Powlick points out that foreign policy officials regard news coverage as conveying the mood of the broader public and that public attitudes are often thought to be reflected in the "tone and intensity of news coverage" (Powlick 1995, 434). Research has shown that harmony usually exists between public opinion and government foreign policy on most issues (Powlick 1995, 428). Media coverage that portrays the Basel Convention in political terms may be regarded as mixed in its support of it. Media coverage in political terms may also send mixed messages to its readers, leading to a lack of coalescing around the issue.

Because there are good reasons for the United States to become a party to the Basel Convention, I include some recommendations for improving news coverage of it so as to build public awareness and, possibly, public support. One recommendation is an increased quantity of news coverage about the convention. As noted earlier, Callaghan and Schnell explain that "by deciding which issues to cover, the media set the public agenda, which in turn influences the

importance citizens ascribe to reported issues” (2005, 2). By increasing the amount of news coverage, citizens will ascribe more importance to the issue of exporting of hazardous wastes.

A second recommendation is an increase in quantity and quality of the scientific arguments and evidence that highlight the effects and extent of the problem of hazardous waste. Due to the cognitive authority of science in the United States, it is important for the public to read about the scientific aspects of the hazardous waste problem. An increased quantity of scientific arguments and evidence will help frame the problem of hazardous waste differently. Also, increasing the quality of arguments and evidence, such as decreasing the usage of “environmentalist” and “activist” can help to give more validity to scientific claims.

A third recommendation is for journalists covering the Basel Convention to engage in public journalism. Kolmuss explains that public journalism is a movement that began in the early 1990s in the United States (2001). It is a type of journalism that moves beyond just “information delivery” and instead takes on the civic role of educating citizens (Kolmuss 2001, 259). She notes that a reporter engaging in public journalism asks the question “what would make it easier for people to learn the facts they have to know to make informed decisions?” (2001, 259).

Kolmuss, drawing on the work of Charity, outlines a three-step model the public goes through in forming an opinion and deciding on subsequent actions. The first step is “consciousness raising” which is the stage in which the public becomes aware of an issue and learns about its meaning and implications (Kolmuss 2001). The second stage is the “working through” stage. During this stage, the public gains an understanding of the issues and what must be done about them. Kolmuss explains that “journalists are responsible for informing and facilitating public debate in these two phases of opinion formation” (2001, 260). Due to the importance of journalists during these two stages, journalists should focus more on scientific

evidence and arguments in presenting information about the Basel Convention. This will enable the public to gain a deeper understanding of the issue. Also, journalists can encourage participation in the political arena. Journalists can explain the options available to citizens in pushing for ratification of the Basel Convention.

Conclusion

I have analyzed how *The New York Times* and the *Washington Post* have reported news and specifically scientific arguments and evidence about the Basel Convention and the Montreal Protocol. I have argued that there was a difference in both the amount of coverage of the two treaties, as well as a difference in the way science was reported about the two treaties. Based on the importance of public opinion on foreign policy, it is crucial to give as much information to the public in order to aid in formation of an informed opinion. Improving quantitatively and qualitatively the news coverage of the Basel Convention may help change the public's perception of the problem of hazardous waste. Becoming a party to the Basel Convention is advantageous to the United States, and a shift in news coverage about science surrounding the Basel Convention may help in the goal of pushing the United States to become a party to the treaty. Differences in science reporting in coverage of the two treaties may be a piece to the puzzle of why the United States is only a party to the Montreal Protocol, though both treaties evolved during a time of increasing international environmental cooperation.

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