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Rapid Issue Tracking: A Method for Taking the Pulse of the Public Discussion of Environmental Policy

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Environmental communication professionals and other decision makers need to understand public sentiment toward environmental issues to effectively carry out their stewardship responsibilities. However, it is often difficult to obtain timely and reliable information about public discussion and debate regarding these issues. This paper describes an approach designed to address this dilemma: Rapid Issue Tracking is a method for quickly "taking the pulse" of public and other stakeholder discussion. The data source for Rapid Issue Tracking is online media stories, including traditional news media, social media, and other textual data such as public comments received by an agency. Two US Forest Service cases of Rapid Issue Tracking are presented to explicate the method and its usefulness in environmental communication and decision making.

Keywords: Monitoring the Social Environment; Environmental Policy; Content Analysis; News Media; Social Media

Introduction

Environmental communication professionals and other decision makers need to understand the social context for environmental policy to improve communication strategies and make well-informed, justifiable, and durable decisions. However, the

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social context for environmental policy is a moving target—environmental attitudes, beliefs, and values evolve, new environmental issues arise, and many other aspects of the social context change over time, often rapidly. A dilemma facing environmental communication professionals today is that being responsive to stakeholders in a constantly changing world requires continuous monitoring and assessment of relevant issues and trends, but most social science methods for monitoring the social environment (e.g., traditional and Web-based surveys and focus groups) are slow, often producing results long after they are relevant. Social information may be needed in a matter of days or weeks rather than months or years. In addition, traditional social science methods provide only a snapshot of public attitudes and opinion at a point in time rather than a dynamic picture, often have limited geographic representation and do not lend themselves to multi-scale comparisons, and are costly.[1]

This paper describes an approach designed to address this dilemma. Rapid Issue Tracking is a method for quickly "taking the pulse" of public discussion about environmental issues and generating valid and actionable social information in a timely manner. The data source for Rapid Issue Tracking is online media stories, including traditional news media (e.g., newspapers, newswires, news magazines, television and radio news transcripts) as well as social media (e.g., blogs, Internet discussion forums, wikis). Other textual data (e.g., public comments received by an agency, press releases, and white papers from stakeholder Web sites) can also be used in Rapid Issue Tracking if readily available.

Potential users of this approach include communication professionals, public affairs specialists, planners, policy analysts, and others interested in quickly assessing the nature, extent, and timing of public discussion on important environmental management and policy issues. Rapid Issue Tracking can be used for a wide range of purposes, including designing and refining key messages and communication strategies, identifying stakeholders and their concerns, assessing the extent to which messages contained in policy rollouts and press releases are being conveyed, evaluating response to new policies and programs, and improving overall understanding of the social context in order to be more responsive to public values and stakeholder concerns.

Background

The rationale for using the news media and social media to monitor the public discussion about environmental issues is as follows. Environmental issues are discussed and debated in a variety of forums in society, including the courts, legislatures, public meetings and hearings, protests and rallies, Internet discussion forums, and the news media. The media—both traditional news media and social media—serve as both a direct forum for public discourse through editorials, letters to the editor, blog postings, etc. and report on debates occurring in other forums. Social theorist Jürgen Habermas defined the public sphere as a realm of social life in which citizens can come together as a rational body and discuss and debate issues of public

concern and in which public opinion can be formed. In 1974, Habermas stated that, "... newspapers and magazines, radio and television are the media of the public sphere" (p. 49). Today we would add Internet-based social media to Habermas' list. Analysis of the media therefore allows us to quickly take the pulse of ongoing debates and discussion about environmental issues to inform environmental communication and policy.

The media are socially significant, both reflecting and shaping social life (Altheide, 1996). Analysis of the content of the news media has repeatedly been shown to produce results that parallel the findings of attitude surveys for many public policy issues (e.g., Fan, 1997; Gamson & Modigliani, 1989; Page, Shapiro, & Dempsey, 1987; Salwen, 1988; Shah, Watts, Domke, & Fan, 2002), including environmental and natural resource issues (e.g., Bengston, Xu, & Fan, 2001; Kepplinger & Roth, 1979; Liebler & Bendix, 1996; Williams, 2000; Wilson, 1995). For example, Cockerill (2003) found that the tone and language of news articles significantly affect public attitudes about policy actions for river management, and Elliott, Regens, and Seldon (1995) found a significant impact of changes in media coverage on public support for environmental protection. Other studies have found that the news media strongly influence agenda-setting for public policy issues (Dearing, Rogers, & Chaffee, 1996; McCombs, 2004), i.e., there is a relationship between the relative emphasis given by the media to issues and the degree of salience these topics have for the general public. Therefore, analysis of the public debate about issues contained in the news media is not mere "media analysis," but a window into the broader social debate and a means to gauge, indirectly, public and other stakeholder attitudes and concerns.

The idea of monitoring the social environment through analysis of the news media dates back, at least, to sociologist Alvan Tenney's (1912) proposal and attempt to systematically survey newspaper content to gauge the "social weather" (see also Lasswell, 1941; Woodward, 1934). Tenney reported the results of a content analysis that examined the percentage of total news space devoted to various social issues in 17 New York City daily newspapers published in four different languages. The first large-scale attempt to construct quantitative social indicators based on content analysis of the news media was a pilot study carried out at Stanford's Hoover Institution from 1947 to 1952 (Pool, 1970). These early efforts—carried out in the pre-computer era—were extremely labor intensive and time consuming, and produced highly generalized findings with little relevance for decision making about specific policy and management issues.

Recent studies have used content analysis of news media stories about particular issues to broadly inform environmental policy decisions. For example, Howland, Larsen Becker, and Prelli (2006) developed a content analysis coding system related to Lasswell's (1971) policy sciences framework and applied it to news media stories about the Montreal Protocol ozone treaty. The goal was to describe and map broad trends in the social processes around the development of this policy. Webb, Bengston, and Fan (2008) used computer-coded content analysis to analyze expressions of three forest value orientations in the Australian news media discussion about the management of Australian native forests from 1997 to 2004. Over this period, they

found shifts in the relative shares (frequency of expression) of different forest value orientations, suggesting changing public attitudes toward native forests and the need for native forests to be managed for multiple values.

Although these studies and others that have examined the news media discussion of environmental issues have produced theoretical insights and scholarly findings, they have fallen short when it comes to providing timely and practical results for communication professionals and other decision makers in the midst of urgent policy and management deliberations. Like the pre-computer era studies, these studies have tended to produce generalized findings with limited usefulness for real-time decision making because of the time and resources required to carry them out. The instant availability of geographically diverse online media discussion and other online sources of public debate about environmental issues today suggest an opportunity for new approaches to monitor the social context for environmental decision making and provide timely analyses.

The following section outlines the methodology of Rapid Issue Tracking. The method is then illustrated with two cases analyzing the media discussion of US Forest Service policies: The Recreation Site-Facility Master Planning (RS-FMP) process and the rollout of the 2008 national forest planning regulations. A final section provides concluding comments and observations.

Overview of Rapid Issue Tracking

The aim of Rapid Issue Tracking is to quickly shed light on the public discussion about pressing environmental policy and management issues in order to help communication professionals and other decision makers gain a reliable picture of the social context surrounding these issues and make more informed decisions. Experience with methods such as traditional content analysis (Krippendorff, 2003; Neuendorf, 2001), content analysis of the World Wide Web (McMillan, 2000; Weare & Wan-Ying, 2000), computer-assisted qualitative data analysis (Lewins & Silver, 2007), qualitative or quantitative media analysis (Altheide, 1996; Riffe, Lacy, & Fico, 2005), or environmental discourse analysis (Dryzek, 1997; Killingsworth & Palmer, 1992) may be helpful but are not required to carry out Rapid Issue Tracking. More important than a familiarity with various types of textual analysis or other qualitative research methods is dedication to the quality of the analysis and trustworthiness of the results.

Rapid Issue Tracking involves five main steps which are given in the following sections.

Define the Problem

The first step is to clearly identify the issue and its dimensions that are most relevant for decision making. In most cases, the specific policy or management issue of interest will be identified by the decision maker who needs the information. For example, a manager or policy maker may contact the communication analyst with a request for an analysis of the public discussion of a new policy initiative or a current

conflict over a management issue. In our experience, however, decision makers often have a vague or incomplete notion of what they need to know (as well as what they can know) and it is therefore important to work with them to clearly define the issue and identify their information needs. Important dimensions and questions to discuss include the following:

Timing. When do decision makers need information about the issue? If the analysis involves events occurring at specific times, such as a policy rollout or press release, what are the expected dates and timing? Would it be useful to look back in time by analyzing the public discussion expressed in stories that are archived in databases and, if so, how far back would be necessary to establish a meaningful baseline? Were there any key events or possible turning points in the public discussion about the issue that should be identified and examined?

Geographic focus. Is the issue one of nationwide public discussion and interest, or is discussion likely to be limited to a particular region or state? Is there a particular region that may be a flashpoint for conflict over the issue and therefore merit special attention, or are attitudes and beliefs similar across wide geographic scales? For national issues, is a regional breakdown of the public discussion of the issue needed?

Types of messages. What types of messages expressed in the public discussion are of interest to decision makers? For example, is it important to identify and analyze favorable and unfavorable attitudes toward the issue? Should alternative framing of the issue be examined (i.e., identify the sets of specific beliefs and arguments supporting favorable and unfavorable views of the issue)? Are decision makers interested in knowing the extent to which key ideas or messages about the issue (e.g., the talking points in an agency communication plan) are expressed in the public discussion?

Stakeholders. Would it be helpful to identify groups who have a stake in the issue and are mentioned or quoted in the public discussion (e.g., mainstream environmental groups, outdoor recreation organizations, industry associations or representatives, various government agencies and their spokespersons, university or government scientists)? Would it be useful to include a breakdown of the perspectives and attitudes of key stakeholder groups? Are there minority groups that typically do not participate in formal planning processes or policy discussions but which may be affected?

Budget issues. Finally, the funding and other resources available to carry out a Rapid Issue Tracking analysis are an essential part of the discussion. The amount of detail related to the previous dimensions will have to be in balance with the resources available to carry it out. If resources and personnel to carry out the analysis are minimal and the information is needed quickly, the analysis will by necessity be "bare bones," but can still produce useful information for decision makers.

Identify Online News Sources

The second step is to identify the specific online sources that will be used to capture the public discussion about the issue. There are many options, including commercial

online news databases such as LexisNexis™, Dialog®, and Datastar®, and niche online news databases such as Ethnic NewsWatch™ and GenderWatch™. Advantages of these traditional online commercial news databases include the fact that news stories are archived, making it possible to create a baseline of past media discussion about the issue, and the ease of searching for and compiling the full text of stories for large downloads. A disadvantage is that these databases focus on traditional media (e.g., newspapers, newswires, magazines, radio and TV news transcripts), and they do not include social media (e.g., blogs, Internet discussion forms, wikis), which are an increasingly important part of the public debate. Cost can also be a disadvantage of the commercial online databases, depending on the resources available.

Another option is commercial Internet news and blog monitoring services or online "clipping services" such as BurrellesLuce.com, CyberAlert.com, eWatch.com, MetroMonitor.com, NewspaperClips.com, Rocketinfo.com, Scoop.com, TVeyes.com, and WebClipping.com. News monitoring services such as these search tens of thousands of Internet news and discussion sources, and subscribers usually receive daily email updates of news stories about a given topic based on a set of keywords or Boolean search command provided by the subscriber. Some news monitoring services provide a summary and analysis of the Internet discussion of the issue, but at a significant additional cost.

Finally, there are numerous free news search engines such as Google News, RocketNews.com, and Yahoo News, and free blog search engines such as BlogPulse.com, Google Blog Search (blogsearch.google.com), and Technorati.com.[2] These search engines typically allow the user to compile a watch list or create a news alert (the user provides a list of keywords that the search engine automatically monitors and generates periodic email updates when news stories or blog postings are found). A drawback to these search engines is that they require more work—cutting and pasting stories into a word processing document—to create a database of news stories about the issue of interest.

The best choice for an online data source or set of data sources will depend on the specific questions to be addressed in the analysis, as well as time and budget constraints. Using multiple online data sources will generally result in more stories about the issue, but typically not so many additional stories—the point of diminishing marginal returns is quickly reached.

Develop Search Terms and Download Stories

Next, search terms must be developed to accurately identify stories about the policy or management issue of interest. The most effective search strategy may not be immediately obvious. In many cases, the use of highly specific search terms that use only the official terms for the issue or policy will fail to capture a portion of the stories about the issue. For example, a widely circulated Associated Press (AP) story (Barnard, 2008) about the pending release of the 2008 Forest Service land management planning rule (see Case 2 below) did not contain the term "planning rule," which is the most widely used official term for this issue. Instead, this article referred to the 2008 planning rule with a number of synonyms such as "new rules,"

"rulemaking revisions," and "rules implementing the National Forest Management Act" (NFMA). A narrow search term such as ("Forest Service" AND "planning rule") would have missed key news stories.

A strategy that is usually effective is a simple Boolean search term that includes one or more words or phrases that will necessarily be in every relevant news story (e.g., "Park Service" for a policy issue involving the National Park Service, "Forest Service" for a policy issue involving the US Forest Service), combined with a wide-ranging list of synonyms for the issue. An example would be: ("Agency Name" AND ("synonym 1" OR "synonym 2" OR "synonym 3")), with as many synonyms as possible developed through brainstorming with persons knowledgeable about the issue and examining news stories, stakeholder Web sites, and other sources discussing the issue. Inevitably, a search term with many synonyms will result in capturing some irrelevant stories, which must be deleted after downloading the full text of stories.

An alternative search strategy that is appropriate when a short time frame is of interest is to search a narrow time window for the "organization name" (e.g., "Environmental Protection Agency," "World Bank") and some other terms that will be in all stories about the issue. For the example of the US Forest Service 2008 planning rule, the search term for a short time frame could be either "Forest Service" AND planning, or "Forest Service" AND rule. Broad search strategies such as these will likely result in a large proportion of irrelevant stories, which can then be deleted upon inspection.

The number of stories about policy or management issues will vary widely, depending on the geographic scope of the issue (local, regional, national, and international), political sensitivity, relevant time frame, unrelated major events in the news that occur during the time frame (such as a catastrophic wildfire or other natural disaster) that crowds out discussion of the issue of interest, and many other factors. For most issues involving a short time frame, we typically would expect less than 50 stories about most local or regional environmental issues, less than 200 stories about most national issues, and more than 200 stories about national or international issues of great significance and public interest. Except in rare and extremely narrowly defined cases, it is not possible to obtain the entire "universe" of media discussion about a policy issue. A realistic goal is to capture the bulk of the stories, but not every last story.

Analyze the Textual Data

Analysis of the textual data is the core of Rapid Issue Tracking. A first step in the analysis is to use the full text file of downloaded stories to compile a chronological list that, for each story, includes the date of publication, title of the article, name of the news source, type of news source (e.g., newspaper article, stakeholder press release, blog posting), place of publication, and the URL for the story. A chronological list such as this can be compiled quickly, facilitates the rest of the analysis, and is useful by itself. By perusing the list, it is possible to quickly get a rough idea of: (1) the flow and volume of media discussion day by day; (2) how soon the discussion drops off after the initial burst of coverage (e.g., after the release of a new policy); (3) the

geographic distribution of the discussion; (4) the overall tone of the stories based on their titles; and (5) the extent to which one news source or story has dominated discussion of the issue, and so on.

To get a more rigorous perspective on these and other aspects of the public discussion, the next step is to create summary figures or tables by tabulating information in the chronological list. Examples of such figures are presented in the two cases in the following section. Depending on the objectives of the analysis, these charts could include a line chart showing the number of news stories published day by day, a pie chart depicting the share of stories originating in different regions or states, or a bar chart illustrating the number of different news sources represented in the public discussion. Simple summary charts such as these often help to make trends and patterns evident.

In addition to summary charts compiled from the chronological list, systematic coding of the full text of the stories for concepts of interest may be needed to address some of the relevant dimensions of the issue identified in Step 1. This requires careful and often multiple readings of the full text of news stories and coding for key concepts, such as the specific stakeholder groups represented in the stories, expressions of favorable and unfavorable attitudes, and so on. Coding the text can be a burdensome and time-consuming job if there are a large number of stories. As a general guideline, if there are more than 50–100 average length stories it may save time and effort to use computer-assisted qualitative data analysis software (CAQDAS) to assist with the coding and analysis. There are many CAQDAS programs to choose from and resources to help select and learn how to use an appropriate software package (e.g., CAQDAS Networking Project, 2008; Lewins & Silver, 2007).

Two caveats should be mentioned regarding CAQDAS programs. First, there is a relatively steep learning curve involved in many of these computer programs and it is therefore essential to learn how to use the software before beginning a Rapid Issue Tracking analysis, in which producing a timely report for decision makers is the goal. Second, although CAQDAS packages may be helpful in organizing and analyzing textual data, they cannot do the actual analysis—unfortunately, there is no "analyst in a box." Just as a word processing program facilitates writing and editing but does not do the actual writing, text analysis software can make the job easier in many ways but cannot do the thinking or analysis by itself.

Regardless of whether the stories will be coded by hand or with the assistance of software, a number of basic decisions must be made. First, what specific ideas will be coded? These will be directly related to the objectives identified in the first step, but there may be unanticipated concerns or subjects that emerge during the analysis that should also be coded. For example, if a lawsuit is unexpectedly filed that changes the public discussion of the issue, it may be important to know how many stories discuss the lawsuit and what is said about it. Second, what unit of analysis will be used for coding? Is it sufficient to know the overall tone of a story (favorable, unfavorable, or neutral) so that entire stories are the appropriate unit of analysis? Or is a more detailed accounting of the favorable and unfavorable views within each story of interest, so that individual paragraphs or sentences are more appropriate? Third, will

a single coder or multiple coders analyze the stories? Multiple coders may be required to analyze large numbers of stories in a short amount of time, and this approach has the advantage of guarding against bias from a single coder for sensitive or complex issues. But multiple coders complicate an analysis because inter-coder reliability becomes a concern. If multiple coders are used, it is important to ensure consistent coding across members of the coding team by developing clear coding instructions and testing the consistency of coding.

Presentation of Findings

In most cases, a short-written report and/or an oral presentation is sufficient for delivering the findings of a Rapid Issue Tracking analysis to decision makers. A written report for busy policy makers should be in the form of an executive summary with bullet points summarizing key findings. Shorter is better for such reports, generally no more than two or three pages of text plus a few pages of figures or tables. Appendices can be attached that include items such as the chronological list of stories and details about the methodology.

Two US Forest Service Cases of Rapid Issue Tracking

The following cases illustrate how Rapid Issue Tracking was used in analyzing the public discussion about the US Forest Service policies surrounding the RS-FMP process and the rollout of the 2008 national forest planning regulations.

Case 1: Recreation Site-Facility Master Planning (RS-FMP)

RS-FMP is a US Forest Service administrative process for evaluating developed recreation facilities on national forests and aligning recreation infrastructure with the recreation niche of particular forests and the anticipated budget (Ludlow, 2007).[3] The RS-FMP process is a part of government-wide asset management efforts and Office of Management and Budget (OMB) direction to the Forest Service to reduce the deferred maintenance backlog on all facilities (administrative, fire, recreation, and other). Policy for the Fire, Administrative and Other (FA&O) Facility Master Planning process was developed first, and the RS-FMP process evolved from this earlier work and shared some of its goals for managing facilities. Forest Service regions and national forests were directed by Deputy Chief Tom Thompson in 2002 to complete facility master plans for recreation by September 2007. Within the Forest Service, RS-FMP was considered an internal agency assessment intended to help managers understand the gap between existing and desired conditions, and then to develop proposals that would be taken through public involvement and environmental analysis to arrive at decisions to be implemented. Systematic public participation was not required as part of the RS-FMP process prior to fall 2006 (USDA Forest Service, 2007).

But concerns about the RS-FMP process began to be raised by recreation stakeholders and interest groups in 2005, mainly in the western USA. These concerns

included discontent about the timing and limited amount of public participation (only coming late in the process), and the view that the RS-FMP would lead to greater commercialization of recreation on public lands. A news article published in *The Oregonian* on April 12, 2005 titled "U.S. forests look for sites to close down" (Milstein, 2005) was the first to raise concerns about the RS-FMP and subsequent news stories in 2006 transformed it from a largely unnoticed internal agency assessment into a controversial public issue.

In response to growing concern and criticism, a national review team was appointed by the Chief of the Forest Service in late January, 2007. The RS-FMP review team included Forest Service personnel and external outdoor recreation professionals, and was charged with two main objectives: to assess the actual public participation in the RS-FMP process at the level of individual national forests, and to provide recommendations for improving public participation in the future. The review team also had the secondary tasks of identifying other RS-FMP issues that might merit attention, suggesting changes in process terminology, and collecting recommendations from national forest staff or others. Multiple methods were used by the review team, including analyses of agency policy and management documents on RS-FMP and related issues, a review of public involvement efforts related to RS-FMP, and interviews of Forest Service personnel, stakeholders, and interest groups.

One of the authors was contacted in mid-February, 2007 by a member of the review team support staff and was asked to conduct an analysis of the public discussion of the RS-FMP expressed in the news media. The timeframe for this analysis was tight—a report was needed by mid-March at the latest to contribute to the national review team report. In a conference call to clarify our task, it was determined that our analysis was to look broadly at the nature of the public debate about the RS-FMP process, especially concerns being expressed about public participation, as well as the geographic focal point of these concerns, e.g., Were they limited to the western USA or more widespread across the country?

With this broad assignment, we began by searching several databases for news stories about the RS-FMP from its inception in 2002 until mid-February 2007. The databases included: (1) "Forest Service Issues in the News," a Web-based news monitoring system which includes a large and growing database of news stories about the US Forest Service obtained from the online media clipping service CyberAlert.com®; (2) the "All News" database of LexisNexis; (3) Google News Alerts; and (4) Ethnic NewsWatch. Several search strategies were used to locate news stories about RS-FMP in these databases. First, a Boolean search string was used that required stories to contain both the phrase "Forest Service" and at least one of a list of terms referring to RS-FMP:

> "Forest Service" AND ("facility master plan" OR "facility master-plan" OR "facilities master plan" OR "master planning process" OR "master plan process" OR "recreation master plan" OR "recreation planning process" OR RS-FMP OR RSFMP OR "site master plan")

This search command was successful at accurately identifying news stories about the RS-FMP, but relatively few stories (only 75) were found. This was fewer than expected

for an increasingly contentious policy issue such as this. Therefore, we searched again using the following much broader search term: "Forest Service" AND (recreation AND planning). This resulted in a large number of stories, the vast majority of which were not about RS-FMP. By scanning through the news stories and deleting the irrelevant ones, we found a handful of additional stories about the RS-FMP that did not mention the policy explicitly and therefore were not captured by our original search term. This brought the total number of news stories about the RS-FMP to 82. After downloading the full text of these 82 stories, a chronological list summarizing key dimensions of the stories was compiled. A single coder read the full stories, many of which were short, and coded the main beliefs and favorable/unfavorable attitudes about RS-FMP expressed in the stories.

This Rapid Issue Tracking analysis revealed several findings that were relevant for policy. First, RS-FMP is a highly localized issue: 61% of news stories about RS-FMP were published in just three states: with Colorado accounting for 30%; Montana 18%; and Oregon 13% of all news stories about this issue (Figure 1). Unlike most forest policy issues of national scope, no national newspapers (e.g., *New York Times, Wall Street Journal, USA Today*) had published news stories about RS-FMP. Second, RS-FMP is a recent issue, with more than 65% of the news stories published since November, 2006 (Figure 2). Third, a turning point in the public discussion of RS-FMP occurred in November, 2006. There was a shift from mostly neutral discussion to more expressions of opposition and conflict when a US Senator requested public meetings and input before the closure of any recreation facilities.

Fourth, as with all contentious policy issues, RS-FMP has been framed very differently by supporters and opponents (Figures 3 and 4). Framing an issue involves choosing the language and ideas to define the debate and fitting individual issues into the contexts of broader story lines. The goal is to present an issue in a way that will likely get the most agreement from others. Those opposed to the RS-FMP process expressed the beliefs that the process lacked or had inadequate public input, and would result in inferior recreation experiences, privatization of recreation on public lands, closures of sites, and higher fees (Figure 4).

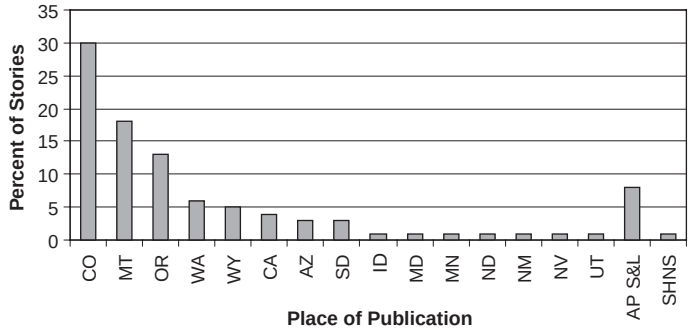

Figure 1. Percent of total news stories about Recreation Site-Facility Master Planning (RS-FMP) by place of publication. (AP S&L is the Associated Press State & Local News; SHNS is the Scripps Howard News Service).

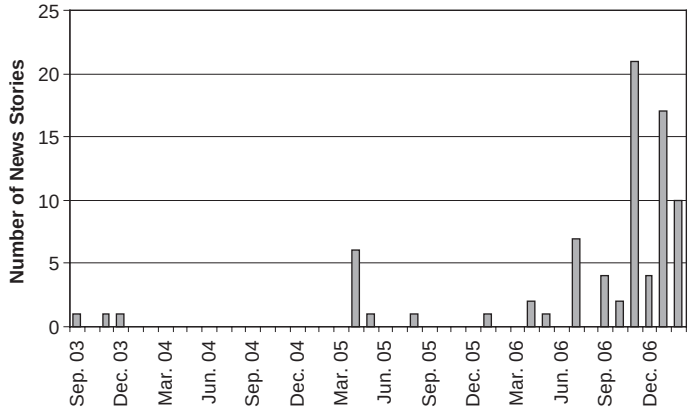

Figure 2. Number of Recreation Site-Facility Master Planning (RS-FMP) news stories over time, September 2003 through mid-February 2007.

Finally, we found that the underlying values of RS-FMP supporters in the news media discussion (mostly representatives of the US Forest Service) appear to be mainly utilitarian and pragmatic in nature. For example, they argued that the RS-FMP process was created out of financial necessity (e.g., due to a large maintenance backlog on recreation sites), and that some site closures and higher fees were required for good financial management. In contrast, RS-FMP opponents base their arguments mainly on rights-based, fairness, and wilderness or "wildness" values. Claims based on rights, fairness, and wilderness values tend to be more deeply held than claims based on utilitarian and pragmatic grounds.

Our Rapid Issue Tracking analysis was appended to the report of the RS-FMP national review team (USDA Forest Service, 2007). Given the short time frame for the national review team's work, our report filled in important pieces of information about the public discussion and concerns about RS-FMP and was deemed to be a valuable addition to the work of the review team. A memo from the Deputy Chief for the National Forest System Joel Holtrop dated June 20, 2007 described our analysis as

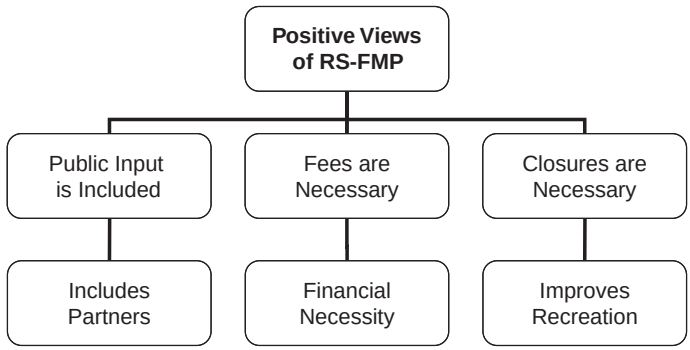

Figure 3. Positive framing of Recreation Site-Facility Master Planning (RS-FMP) in the news Media discussion.

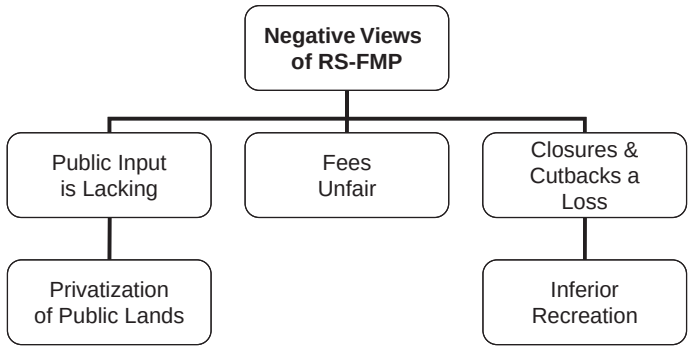

Figure 4. Negative framing of Recreation Site-Facility Master Planning (RS-FMP) in the news Media discussion.

"a key component of the review" and an example of the successful incorporation of research into management.

Case 2: The 2008 National Forest Management Act (NFMA) Planning Rule

The US Forest Service manages the National Forest System, which consists of about 192 million acres of public land on 155 national forests and 20 national grasslands. Management involves a "planning rule" or set of regulations which specify broad guidelines for the development of management plans for individual national forests. As required by the NFMA of 1976, the Forest Service adopted its first set of planning regulations in 1979, which were substantially revised in 1982. Wilkinson and Anderson (1987) provide a comprehensive history of national forest planning up to the mid-1980s.

The 1982 rule stood until 2000 when the Secretary of Agriculture issued a new planning rule in which ecological sustainability was established as the key objective to guide national forest planning, a significant departure from the 1982 rule. In May 2001, the new Bush Administration suspended the 2000 rule, and in November 2002 proposed a new rule with a more flexible planning framework and which reversed several changes in the 2000 rule (Hoberg, 2004; Nie, 2006). This new rule was finally issued on January 5, 2005, and it quickly became the target of legal challenges by conservation groups and the State of California, who argued that the 2005 rule violated the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA) and the Administrative Procedures Act (APA). On March 30, 2007, a federal district court sided with the plaintiffs and enjoined the Forest Service from using the 2005 planning rule (Davis, 2008). The court-required Final Environmental Impact Statement (FEIS) and the 2008 planning rule was the Forest Service's response to the court ruling and an attempt to put in place viable planning regulations as required by the NFMA.

Given the long history of controversy and conflict over NFMA planning rules (Davis, 2008; Manring, 2004, 2005; Nie, 2006), communications officers and policy

makers in the Washington Office of the Forest Service were interested in gauging the public discussion about the final 2008 planning rule and its associated FEIS. We were contacted in mid-January, 2008 with a request to conduct a Rapid Issue Tracking analysis of the impending release of the FEIS in early February and, about 30 days later, an analysis of the rollout of the final 2008 planning rule.[4] The analysis of the FEIS was needed within two weeks of its release to allow communications officers enough time to make adjustments in the strategy for the subsequent planning rule rollout. In the interests of brevity, we focus only on the FEIS analysis and not the later 2008 planning rule analysis in this paper.

The FEIS for the 2008 planning rule was released on February 7, 2008 (USDA Forest Service, 2008a). As in the case of the RS-FMP analysis, news stories about the FEIS were obtained primarily from: (1) the "Forest Service Issues in the News" database; (2) the "All News" database of LexisNexis; and (3) Google News Alerts. We also searched Technorati.com and Google Blog Search for Weblog discussion of the FEIS. Given the short time frame of interest in this case—at most a two-week period beginning on the February 7, 2008 FEIS release date—we used the following broad search term and then deleted irrelevant stories: "Forest Service" and "environmental impact." Using this search term, we found a total of 107 stories discussing the release of the FEIS for the period February 7–19.

Analysis of these stories uncovered several noteworthy findings that were of interest to communications officers and others involved in the FEIS release and planning rule rollout. Only the key findings are highlighted here. First, to our surprise, we found that 94 out of the 107 stories (88%) were either complete re-publishings or edited versions of a single AP story (Daly, 2008). The dominance of the AP story is in contrast to the news media discussion of the 2005 planning rule rollout, in which a large number of different stories were published. This change may reflect recent fundamental changes in the structure of the news media affecting the way in which national issues are covered. Cost pressures on newspapers are resulting in fewer reporters, the closing of Washington, DC news bureaus, replacement of staff-written articles with stories from wire services, and a shift to more local coverage (Meyer, 2004; Pérez-Peña, 2008; Sanchez, 2007). Of the 107 stories we found, there were only five distinct stories: 94 stories based on the AP story; six stories based on a Forest Service press release; four based on an Earthjustice press release; two based on a story from Greenwire; and one Environmental News Service story. Each of the non-AP stories was also posted on a handful of stakeholder Web sites.

The narrowness of the news stream for the FEIS release was surprising, with a single original news story accounting for almost 90% of the news media and blog discussion. It will be important to substantiate this trend with other analyses and assess its long-term implications for national environmental management and policy issues. If it is verified that the public discussion about other national environmental policy issues is similarly abridged, this may suggest an impoverished public discussion about these issues. Implications of this trend for environmental communication professionals may be a heightened need to develop and maintain

relationships with key environmental reporters, and the need to develop alternative communication strategies.

Second, the AP story was published widely across the USA, including newspapers and TV or radio news Web sites in 26 states and the District of Columbia. Both large newspapers (e.g., *New York Times, Washington Post, LA Times*) and smaller newspapers (e.g., *Lima News, Mid Columbia Tri City Herald, The Bellingham Herald*) carried the AP story.

Third, the main views expressed in the unfavorable framing of the FEIS were: (1) *more logging* (i.e., the view that the planning rule is part of an effort to increase logging in national forests); (2) *inadequate wildlife and environmental protection* (i.e., previous proposed Forest Service policies were rejected by court rulings because of inadequate protection of wildlife and the environment, and the new planning rule suffers from the same defect); and (3) *less public input* (i.e., the new planning rule will give Forest Service managers greater discretion in decision making about controversial issues, which implies less public input in these decisions). These three most salient unfavorable views will need to be addressed in subsequent Forest Service communication efforts about the planning rule.

Finally, only five blog postings about the FEIS were found and all of them were simply re-publishings of news media stories or press releases: two of the blog postings were the AP story; two were the Earthjustice press release; and one was a posting of the Forest Service press release. Recent research shows that blogs are currently a small and supplemental source of news, although blog use is greater among young people and will likely increase in the future (Hargrove & Stempel, 2007). We have observed that most bloggers who write about environmental and forestry issues currently post news media stories about these issues rather than write original stories.

Our analysis of the FEIS release was conveyed to Forest Service communications officers less than two weeks after its release, and prompted them to develop an alternative strategy to communicate the final 2008 planning rule, which was released after some delay on April 9, 2008 and published in the Federal Register on April 21, 2008 (USDA Forest Service, 2008b). The FEIS rollout had been handled by the Washington Office of the Forest Service with no involvement from field offices. In light of our findings, a more decentralized approach was taken to the planning rule release. Forest Service managers at regional offices were encouraged to contact local news outlets and reporters to provide their perspectives and generate local and regional news coverage.

Concluding Comments

Environmental communication professionals and other decision makers need to understand public sentiment toward policy issues and management actions to effectively carry out their stewardship responsibilities. However, they often experience difficulties in obtaining timely and reliable information about the public discussion and debate regarding these issues because traditional social science methods (1) are typically slow, often producing results long after they are relevant for decision

making, (2) provide only a snapshot of public attitudes and opinion at a point in time rather than a dynamic picture, (3) often have limited geographic representation and do not lend themselves to multi-scale comparisons, and (4) are costly.

As described in this paper, Rapid Issue Tracking aims to circumvent these shortcomings. The goal is to produce timely, actionable, valid, and cost-effective social information to inform environmental decision making. The intent is not to replace traditional approaches to generating social science information, but to provide a more rapid social assessment in cases where time is of the essence. Even in cases where traditional social science methods are also used, Rapid Issue Tracking can complement these methods in providing valuable information to decision makers. For instance, in the RS-FMP case discussed earlier, the national review team conducted a limited number of interviews of Forest Service personnel, stakeholders, and interest groups, but the Rapid Issue Tracking media analysis provided important supplemental information about the broader public debate about this issue.

The data needed to carry out a Rapid Issue Tracking analysis are readily and abundantly available from online traditional news media, social media, and other sources. However, the availability of online information can be a benefit and hindrance for decision makers, as too much information can be overwhelming. The problem of information overload has long been recognized. Pool (1970, p. xix) observed long before the advent of the Internet that "One of the greatest problems facing policy makers is the vast flow of unprocessed information that pours past them." This information overload presents a dilemma for environmental managers in an information-based society that demands accurate and reliable social information upon which to base decisions. Extracting useful and relevant information from the growing volume of online data is a staggering task. Rapid Issue Tracking can help address this dilemma by reducing the volume and organizing the cacophony surrounding public debate on environmental policy issues.

Rapid Issue Tracking may be useful for many purposes, including evaluating public discussion and response to new policies and programs, identifying stakeholders and their concerns, designing and refining key messages and communication strategies, and assessing the extent to which messages contained in policy rollouts and press releases are being conveyed. Perhaps the most important use of Rapid Issue Tracking, however, is improving decision maker understanding of the social context in which their decisions are being made, thereby resulting in well-informed decisions that are more responsive to the changing social environment. Weiss (1977, 1980) has termed this the "enlightenment function" of social research, in which findings from social research are used indirectly in policy making as a source of ideas and orientation to the world.

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Notes

[1] For US federal agencies, the issues with traditional methods are further compounded by the requirements of the Paperwork Reduction Act of 1995 (Public Law No. 104-13), which requires OMB review and approval of survey instruments and focus group questions (Relyea, 2007). OMB clearance typically takes 6–9 months, but may take more than 12 months due to the large number of survey instruments submitted and limited staff to evaluate the submissions.

[2] See Thelwall (2007) for descriptions of a variety of blog searching techniques.

[3] The term RS-FMP was changed to simply Recreation Facility Analysis (RFA) in spring of 2007, because the phrase "master planning" implied to some that this was a decision-making process rather than an analytic one.

[4] The 30-day separation between release of the FEIS and publishing the final rule is required by Council of Environmental Quality regulations when the decision is not subject to appeal.

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