

## **Chapter -II**

### **Review of literature**

Vir Bala Aggarwal and V.S. Gupta (2001) in their book "*Handbook of Journalism and Mass Communication*" defined the characteristics of the contemporary society and the role played by mass media. The functions of mass media are elaborated and the functional requirements of a society. According to them, the role of media in a society is very important and functions of media are surveillance of the environment, correlation of the society in responding to the environment and transmission of cultural heritage.

Dominick (1990) in his book "*The Dynamics of Mass Communication*" has described the main functions of media –surveillance, interpretation, linkage, transmission of values and entertainment. These functions according to him are not mutually exclusive. The actual content or activity representing the functions will also vary a good deal. According to him, mass communication can bring about many changes in a society. Society and communication are interlinked. Media has the power to bring about changes in a society.

Wimmer and Dominick (2006) in their book '*Mass media research*', write about the tools needed to use mass media research. He explains the uses of communication theories and its implications in the field of research.

Ram Ahuja (Reprinted 2010) in his book *'Research Methods'*, writes about social research which requires clarity of concepts and theoretical knowledge of scientific studies. He establishes the relation between society and media and the role played by a researcher.

VirBalaAggarwal (2002) in her book *Media and Society* describes the challenges and opportunities media have in bringing about a social change. According to her media can bring a positive change towards the process of development. She mentioned, "the Indian press by far the freest press in South Asia", can bring about awareness among the masses regarding any issues.

Watson James (Second Edition 2003) in his book *Media communication* writes about the role and influence of mass media in contemporary society. According to him, the study of media cannot be isolated from an understanding of wider social, cultural, political, and economic contexts. The book gives a conceptual framework for understanding the process of media communication. The book explains how a media theory and media practices are interrelated. The agenda-setting role of media is well elaborated in the book.

In 1949, Aldo Leopold (1887-1948) published *A Sand County Almanac* – often regarded as the most influential book on conservation ever written. He believed humans should extend to nature the same ethical sense of responsibility that we extend to each other. Whether we can or should expand the ethical circle to encompass nature is a subject of continuing debate. But it wasn't until the 1960s that concern for the environment was

galvanized into an organized force. Many would agree that the milestone marking the birth of the environmental movement was Rachel Carson's 1962 book *Silent Spring*.

A content analysis methodology was employed enabling an objective, systematic, quantitative description of the content (Berelson, 1954) and assessment of the relative extent to which specified references, judgments, attitudes, or themes permitted the items (Stone, 1964). Content analysis is a standard methodology in the social sciences for studying the content of communication. Earl Babbie defines it as “the study of recorded human communications, such as books, websites, paintings and laws”. This method of content analysis enables the researcher to include large amount of textual information and systematically identify its properties, yet such amounts of textual information must be categorized according to a certain theoretical framework, which will inform the data analysis providing at the end a meaningful reading of content under scrutiny.

Lee Wilkins, University of Missouri School of Journalism, Columbia, Missouri 65205, USA ,did a research on coverage of print media coverage on Green House Effects named “Between facts and values: Print media coverage of the greenhouse effect, 1987-1990”. Using as a baseline, Herbert Gans' work on values in the news, his qualitative study of US print media coverage of the Greenhouse effect between 1987 and 1990 asserts there are at least three additional values that help frame news of the greenhouse effect: progress, the institutionalization of knowledge, and innocence. These values replicate in some crucial ways the values of the scientific community doing research on the greenhouse effect. However, the impact of these values tends to de-emphasize a view of the future and the role of ethical value choices in covering this story, both of which are essential to public understanding of the issue.

Gail E Kennedy, Lisa A Bero, University of California, San Francisco, did research on print media coverage of passive smoking. They did content analysis of some newspapers and magazines and found that print media coverage of passive smoking research has increased over time and has been fairly prominent. Print news media articles can shape public opinion, influence policymakers, and influence the direction of scientific research, (Pg- 51–54) thus the increasing coverage of passive smoking research may have contributed to growing public interest in this issue. Even after strong scientific evidence existed supporting an association between passive smoking and disease, newspapers and magazine coverage continued to construct the conduct of research on passive smoking as controversial.

James Shanahan and Katherine McComas in their article *Telling Stories about Global Climate Change, Measuring the Impact of Narratives on Issue Cycles* had tried to show that a theory of cyclical patterns in media coverage of environmental issues must account for more than intrinsic qualities of the issues themselves: Narrative factors must be considered. A content analysis of *The New York Times* and *The Washington Post* stories from 1980 to 1995 shows how media construct narratives about global warming and how these narratives may influence attention cycles. Empirically, the frequency of newspaper coverage shows cyclical attention to global warming. The content analysis further reveals that implied danger and consequences of global warming gain more prominence on the upswing of newspaper attention, whereas controversy among scientists receives greater attention in the maintenance phase. The economics of dealing with global warming also receive greater attention during the maintenance and downside of the attention cycle. The discussion offers a narrative explanation and suggests the outcome of the "master story" of global climate change may discourage future attention to global warming.

Colin Sparks (2007) in his book *Globalization, Development and the Mass Media* gives a comprehensive and critical account of the theoretical changes in communication studies from the early theories of development communication through to the contemporary critiques of globalization. He dwelt on the ways in which the media can be used to effect change and development.

Jeremy Cohen and Timothy Gleason (1990) in their book *Social Research in Communication and Law* describe the role of a researcher in today's world. They explain the relationships among communication theory. According to him, "social research in communication" requires integration of two distinct disciplines. Media is an integral part of our society and media can bring about positive changes in the society.

N Bhaskara Rao and G N S Raghavan (1996) in the book *Social effects of Mass Media in India* provides an analysis of the media as a researcher of media content, and other as a practitioner and teacher of development communication. They also emphasize on the origin and the initial role as well as the post-independence growth of each of the mass media as a part of the country's developing political economy. According to them, the Indian developmental plan was not sustainable. Nature was not considered in the ruthless process of urbanization, which took place in India after the post independent era. They further added the changing role of media in today's society. The media has grown immensely from the time of independence.

A research "The role of Media in deepening Democracy" by Sheila S Coronel (2005) wrote about the fact that a true democracy requires the

participation of the government and a free press is positive step towards a healthy democracy. Press is the fourth estate of democracy and if it plays its role, it can lead to the positive development in a society.

Maxwell McCombs University of Texas at Austin (2001) conducted a research on the “*Agenda Setting role of Media*”. He writes on the role of media as agenda setters and responsibility of priming public opinion. The researcher writes that media has the potential to influence the attitude and behavior of an individual. The researcher found the pictures in people’s mind about the outside world are significantly influenced by mass media, both what those pictures are all about, and what those pictures are. The agenda setting effects of mass media also have significant implications beyond the pictures created in people’s head.

“*The genesis of Civic Awareness: Agenda Setting and Political Socialization*” by Spiro Kiouisis, Michael McDevitt and Xu Wu (2002) conducted the research on the Agenda Setting role of media and its scope in the society. They found that attention to news is connected with political knowledge; activation of partisan’s attitude and political discussion. According to them, the agenda-setting role of media can change the way people look towards an issue. Gate keeping in media plays a very important role. Media has the authority to provide only the amount of information they want to provide to the masses.

K.S. Padya and R. N. Sahu (1997) in their book ‘*Press in India:perspective in development and relevance book description*’. They attempt to explain the present roles

and responsibility as a communicator, its freedom, and measures adopted by the authorities, executives, legislative, and judiciary to suppress it.

*“The Press in India, An overview”*, states about the various aspects of the press in India, its history, government indulgence, ownership and the control. G. S. Bhargava (2005) also mentions how journalist in India had gone through hard phase in the process of reporting news.

Rangaswami Parthasarthy (2001) in his study *‘Journalism in India’* look insight into the historical phase of journalism. The study begins from the earlier times to the present status of journalism in India.

*“Press & Media the global dimensions”* by Subhas Chakravarty(1997) describes about the press and media in the overall communications perspectives of the global village. The other area of the study is about the international perspectives of the press and media in a rapid changing world.

Y. K. D’souza (1999) in his study of *‘Functions & Areas of Journalism’* made an attempt to understand as how the journalists ought to be cautious to safeguard the freedom of the press and on the other they must see that this freedom is used and never misuse, that they always act with a great sense of responsibility.

Srinivas R Melkoteand ChandrasekharVallath (1992) in their book *“Communication Gap in Development”* distinctly discussed the communication gap in the third world countries with special reference to India. The book attempts to focus on the different approaches of

communication in rural area for development. Since the inauguration of the first development decade by the United Nations in 1960, the government in many of the developing nations have sought to increase their efforts of providing *inter alia*, adequate food for their people especially those living in rural areas. The book identifies certain approaches of communicating new knowledge and skills to the rural people of the Third World countries for development.

GyanSwarup Gupta (1999) in his book "*India From Indus Valley Civilization to Mauryas*", unveils the age of Ancient Indian History which stretched from 4000 BC to the beginning with the birth of Christ. A vivid picture of the life and people of the age is depicted and the four Vedas discussed thoroughly in the book. History of India begins with the Vedas. The Vedas depicted the society. Vedas revealed a society through various phases. The aspects of the Indus valley civilization were reflected in the Vedas. The Vedas reflect the spirit of the age, the portrait of the society. The state of society its evolution from which it evolved and up to the stage where it matured. The book gives a clear description of all these aspects.

Edward Maibach Rozanne Louiselle Parrott (1995) in his book "*Designing Health messages*" discussed the role played by media in dissemination of health messages. The book explains that health concerns are of prime importance to humankind and proper and accurate distribution of information is benefit to humankind. The book analyses the role-played by media in genre of health. The first sections of the book analyses the theory driven approach to health related information. The second section describes the health campaigns like cancer and Aids. The volume concludes with the policies and



administrative practices for health messages. It gives an in-depth study of the health scenario in the developing countries.

Rabin Khemchand (2000) in his book "*Journalism and Human Development*" described the role of media person in the development of humankind. According to the book journalist can play a major role in the development of the society. The media is attached with the complex process of development. Media constitute a powerful force in modern society. Power also carries responsibility. The role-played by media in the process of development is analyzed in the book.

P.S Bright (2003) in his book "*Indian History*" describes the ancient Indian history from a different perspective. In describes the society the people and stress more on the civic life of the people. The constructions of the era in all aspects of the society are elaborated in the book. The book enhances the civic life of the people regarding drainage system usage of water and other civic aspects of life. The civic lives of the people are elaborated in the book. The book stresses more on the community and social system of the era.

Hannah Hoerisch (2002) conducted a research entitled "*A comparative study in environmental awareness and environmentally beneficial behavior in India*". The researcher conducted a comparative study between India and Germany related to environmental issues. The researcher divided the research in three stages. The special aspect of the study was to find out the most decisive factor in creating environmental awareness and to find out how much time media is spending on environmental issues. The research conducted is very relevant to my research. The methodology used in the research includes survey interviews and environmental education provided in schools. The study

gives clear evidence that the role of media in creating environmental awareness is definitely a dominant one.

The research entitled "*The role of mass media in promotion of environmental awareness along with skill development in rural area*", conducted by Nimish Kapoor (2011) enhances the role of media in a contemporary society. The thesis elaborates on how media can spread awareness, as they are the medium to carry information. The media decides what should reach the public and what should not. It plays a major role in creating awareness in the society regarding any issues. The thesis establishes that it can play a major role in creating awareness about environment in a society and can play a major role in the development of environmental consciousness among its citizen.

"*Media Coverage of Climate Change: Current Trends, Strengths, Weaknesses*" a research conducted by Maxwell T. Boykoff and J. Timmons Roberts (2007) highlights on key feature on media and its role in setting current trends. This paper provides a comprehensive survey of the role of the media in informing and communicating climate change. The paper looks at how media coverage has shaped discourse and action – in complex, dynamic, and non-linear ways – at the interface of climate science and policy. Moreover, the work explores influences of media on practices, politics and public opinion and understanding related to climate change. Research on these interactions are delineated through work that has been undertaken in the United States, Canada, the United Kingdom, France, Germany, Japan, New Zealand, Australia, Honduras, Mozambique, Jamaica, Sri Lanka and Zambia, and explorations of newspaper coverage in forty English-language newspapers in seventeen countries, across five continents. The research paper is of immense help as it

establishes the role on media in a contemporary society with highlighting the major feature of how media can set a trend, spread awareness, and influence public opinion.

*“Attitude towards Mass Media and its role in promoting Environmental Consciousness: An Empirical Investigation”* carried out by TsheringDorji (2004). The research establishes the fact that Communication remains the most fundamental element of society and its progress. The society has evolved due to communication and it an integral part of our society and if we want to preserve our society, we need to keep our doors of communication open. Mass media has an immense impact in the society. The impact of mass media communication perceived at two ends of a spectrum. At one end, the impact would be readily absorbed as a progressive socio-economic feature and the way of life that is characteristic of an individual and a society, without causing perceptible change in the way, an individual functions or the way a society is structured. While at the other end, the introduction of an ostensibly innocuous technology would gradually result in cumulative imperceptible change to the unique way of life perfectly adapted and flourishing prior to the advent of mass media. The outcome of such a change would cause a major shift in the individual’s attitude and outlook towards the social fabric and cultural setting that might underpin the essential values and convictions deeply held by the individuals.

*“The people of Meghalaya – Study on The People and their Religo- Cultural Life”* by Capt B.S Rana (1989) describes the social and cultural life of the tribes. The book describes the social and civic life of the people. The community, the social system and the attitude of the people are explained in the book. The book gives an overview of the social system of the tribes.

*“Practicing Journalism- Values, constraints, implications”*, by NaliniRajan(2005) elaborates on the role played by journalist in a society, the core values of journalism is highlighted in the book with special reference on the practice and the constraints faced by the journalist in a society. The watchdog functions of media, the educational function of media and the agenda- building function of media are explained in the book. The agenda building function of media is a major function that the journalist plays and they should be responsible to carry the function well for the benefit of the society. The agenda set by the journalist should be in favor of the positive development of the society.

*“Internews’ Earth Journalism Network”* (2006) commissioned the Institute of Health, Environment and Development – a Hanoi-based research organization headed by Prof. Pham Huy Dung – to carry out a baseline assessment of environmental journalism in Vietnam. The goal of the study was to assess the extent to which the Vietnamese mass media reported on key environmental issues, to look at the strengths and weaknesses of such coverage and provide recommendations on how to improve such coverage. The study was designed to help inform a capacity-building project being carried out by Internews, a non-profit media development organization, and the Vietnam Forum of Environmental Journalists.

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institutionalization of knowledge, and innocence. These values replicate in some crucial ways the values of the scientific community doing research on the greenhouse effect. However, the impact of these values tends to de-emphasize a view of the future and the role of ethical value choices in covering this story, both of which are essential to public understanding of the issue.

James Shanahan and Katherine McComasin in their article "*Telling Stories about Global Climate Change, Measuring the Impact of Narratives on Issue Cycles*" (2004) had tried to show that a theory of cyclical patterns in media coverage of environmental issues must account for more than intrinsic qualities of the issues themselves: Narrative factors must be considered. A content analysis of The New York Times and The Washington Post stories from 1980 to 1995 shows how media construct narratives about global warming and how these narratives may influence attention cycles. Empirically, the frequency of newspaper coverage shows cyclical attention to global warming. The content analysis further reveals that implied danger and consequences of global warming gain more prominence on the upswing of newspaper attention, whereas controversy among scientists receives greater attention in the maintenance phase. The economics of dealing with global warming also receive greater attention during the maintenance and downside of the attention cycle. The discussion offers a narrative explanation and suggests the outcome of the "master story" of global climate change may discourage future attention to global warming.

When, how and with what effect the media cover issues in the news, and how that coverage relates to the public agenda (measured in recent years by surveys), are topics that have intrigued researchers for much of this century, beginning roughly with the publication of *Public Opinion* by Walter Lippmann (1922). It was early postulated that the mass media (in those days large circulation daily newspapers, magazines, radio, and films) had a

powerful and direct effect on public opinion. In the context of *The Times*, during and after World War I, the effects of propaganda were feared. In the late 1930s and early 1940s, researchers came to a different conclusion: that people tended to be more influenced by local opinion leaders than directly by the press. This is commonly referred to as the Limited Effects Model of Mass Communication

Researchers in the late 1960s and into the 1970s, however, came up with a new formulation for the media's power to influence public opinion. McCombs and Shaw and others began showing how mass media (large newspapers, magazines, and television) affect public opinion by setting the public agenda, not by telling people what to think, but by influencing what issues people tend to think about or believe are important (1972). This original agenda-setting study compared issues covered by North Carolina newspapers with survey research ranking what the public felt was important during an election cycle, and found a near perfect positive rank order correlation between the two (1997).

In this dissertation, the researcher has studied when and how environmental issues are depicted in media content, using many of the same techniques, methods, models, and theories employed by other scholars in sociology and Mass Communications. Much of this research has focused on media effects on public opinion, using the agenda-setting model.

CMSENVIS, India conducted a study of leading English dailies of the country to understand their role in shaping up the public opinion and their ability to redirect readers thinking pattern on a significant issue like environmental concern. Their main objectives were to understand the frequency of environmental reporting in leading English dailies, to understand the average monthly space and to understand the frequency of these kinds of stories on the front page. Nine leading newspapers including business newspapers were scanned on daily basis for 45 days to collect information/data on different parameters so

that the analysis of all the newspapers could be done on similar lines. The issues & news items selected were politics, crime, education, climate/weather, sports, entertainment, International news, environmental news, health & hygiene and business that appear mainly in these newspapers. Information on appearance of the news items on these issues and on which page number it has got the space was collected. To assess the coverage, all news items of the newspaper were measured column by column in centimeters. The advertisements space was not considered. The total space of the newspaper was also calculated in column and centimetre (cm). They found that environmental news gets the least priority as compared to other news. The coverage is limited to only 4.35 percent in the overall comparison. Environment success stories, best practices, initiatives of communities, local movements, campaigns etc. are rarely highlighted in these dailies. It was observed that in *'The Times of India'* maximum environment news has appeared i.e. 7.49% in the study period. Environmental issues that were reported were wildlife, water, Yamuna, bio-diversity, water management, climate change, water conservation awareness, watershed management, rain water harvesting, air pollution, government initiatives etc.

In 2006, Internews' Earth Journalism Network commissioned the Institute of Health, Environment and Development – a Hanoi-based research organization headed by Prof. Pham Huy Dung – to carry out a baseline assessment of environmental journalism in Vietnam. The goal of the study was to assess the extent to which the Vietnamese mass media reported on key environmental issues, to look at the strengths and weaknesses of such coverage and provide recommendations on how to improve such coverage. The study was designed to help inform a capacity-building project being carried out by Internews, a non-profit media development organization, and the Vietnam Forum of Environmental Journalists (VFEJ). The entire project, including the report was funded by a grant from the John D. and Catherine T. MacArthur Foundation.

In addition to carrying out interviews with representatives of some mass media organizations, the researchers collected and analyzed samples of environment-related stories produced by 30 Vietnamese journalists, from 30 different media organizations around the country. These journalists, some of whom were selected to attend environmental journalism training courses carried out in 2007, claimed to have written a total of 197 articles on environment-related issues during September and October, 2006 (accounting for about 19% of their total news output during those two months). Of these, the researchers were able to collect 172 articles for study, the vast majority of them print and online articles.

After combing through the output of 5 of Vietnam's representative newspapers published in September and October of 2007, the study found there were 24 print articles on climate change during the two-month period, which means on an average each newspaper produces 2-3 articles per month on the subject.

The content of Voice of Vietnam's daily radio broadcast on "Resources and Environment" was also studied. An examination of 26 of the programs revealed that there were a total of 79 different reports on environment, of which 3 directly related to climate change. A study of Hanoi TV's weekly "Urban Issues" program over an 8-week period revealed that there were 11 reports on the environment included in the program, but at most one of them focused directly on climate change.

The research concludes that these Vietnamese mass media organizations report on climate change as a very broad problem, on national and global scales, without linking it to any local situations or issues; most print articles on climate change are reports on conferences and on what leaders, authorities say and do about climate change. The articles are sometimes very long but the focus seems distant to ordinary people, especially farmers (at



least 70% of Vietnamese people are farmers); the stories generally react to news events and comments by leading officials, particularly at UN and other international conferences; there is virtually no enterprise reporting on the topic; the stories do not generally report on any debates, differing viewpoints, or alternative perspectives regarding climate change as would stories on other types of environmental problems.

This was a cross-sectional study which includes three components: (1) Content analysis of 653 environmental print articles published by five selected print newspapers in Vietnam, 79 environmental reports broadcast by the Voice of Vietnam a radio network on its daily “Resources and Environment” program, and 11 stories aired by a television station, Hanoi TV on its weekly “Urban Issues” program, all during the months of September and October, 2007; (2) Policy analysis through interviews with officials in the ministries in charge and analyses of legal documents on environmental journalism; and (3) Institutional analysis through interviews with representatives of seven selected media organizations on their editorial policies on climate change, their awareness and interest in the topic, and through interviews with 30 journalists from 30 newspapers throughout the country about their newspapers’ policies, settings, regarding environmental journalism, their experience, their focus in writing about the environment, and their opinions as well as their recommendations regarding environmental journalism focusing on climate change.

The seven mass media organizations targeted for research were selected because they are prestigious with very large scopes of coverage, large audiences and good influence in terms of political implications and experience in environmental journalism. The selection was based on geographical representation as well as accessibility to the audio-visual records. For print media, five newspapers were selected with the criteria that each of them is representative of different groups. They are Labor newspaper (*Lao Dong*), Youth

newspaper (*TuoiTre*), People newspaper (*Nhan Dan*), New Hanoi newspaper (*Hanoi moi*), and *Dong Nai* newspaper from the South. *Lao Dong* is a national daily newspaper from the North, managed by the Vietnam General Laborers Union, and is among the newspapers with the highest circulation (up to 350,000 copies) in the country. It targets all laborers. *TuoiTre* is a national daily newspaper from the South, and is among the newspapers with the highest circulation in the country (up to 400,000 copies). It targets the younger generation, and is managed by Ho Chi Minh City's Ho Chi Minh Young Communists Union. *Nhan Dan* is the mouthpiece of Vietnam's Communist Party (managed by the Politburo of the Vietnam Communist Party). *Hanoi moi* is a representative of local newspapers in the North and it is the mouthpiece of the capital city, run by the Hanoi Communist Committee. *Dong Nai* is a representative of local newspapers in the South, and is run by the Dong Nai Communist Committee. Hanoi Television is in the capital city and is managed by the Hanoi People's Committee. The Voice of Vietnam (VOV) is the national radio network. For audio-visual data, the research team had to rely on the two stations to provide all available archived records of September and October 2007. The team requested copies of the VOV's daily program on "Resources and the Environment", but received only 26 of the 61 programs aired during the two-month period. The 26 programs contained 79 separate reports (or "segments") which were analyzed for their climate change content. Similarly, the research team requested copies of TV's weekly "Urban Issues" program, which often covers environmental issues. It received 8 of the 9 programs aired during September and October, 2007 and analyzed the 11 environmental reports contained therein. The research team found print data much easier to collect, examining all the environmental articles produced by the 5 newspapers studied.

The study of environmental coverage in the Vietnamese mass media during September and October, 2007, indicates that although climate change is sometimes mentioned as a topic, it

is rarely a focus of coverage. Only 3 VOV reports and 24 print articles reported directly on climate change. All these reports were general and discussed the topic on a global scale. Seventeen of the 24 print pieces were about UN and APEC conferences' deliberations on climate change. In other words, they were largely reactive news stories as opposed to enterprise pieces. Three stories were about climate change's direct effects on very broad scales with only one from one radio story about such effects in Vietnam. Four stories included discussions about solutions to climate change. One radio segment was about the UN IPCC report on climate change. None of the stories discussed climate change profoundly and professionally, looked at vulnerability, or ways to prevent climate change or adapt to it in Vietnam. None of the reports related climate change to local issues, local situations and local responses.

Almost all the newspapers covered climate change in an indirect way, but even here coverage was more limited than it could have been. There were many articles about natural disasters, mostly about floods, storms and spring waters. Climate change is thought to affect these events, but no journalists linked the disasters with climate change. Most articles reflected how people coped with the disasters, but the solutions covered are temporary and come in the form of emergency response. Very few discussions were on sustainable solutions to floods, spring waters and storms. Articles' contents focused on three main aims: (1) most of them reported on how people handled the onset of the floods, and coped during and after the disasters, how they used resources, supported each other, survived through floods and floods' impacts, etc. (2) A smaller number of articles on flood topics described how much people had to suffer in floods and outcomes of floods; they reported on losses, damages, the cost of these disasters and problems caused by them; and (3) A certain number of articles were produced to inform people of incoming floods, warn people of danger, problems, risks, etc. Hanoi TV's "Urban Issues" program did not have a

broadcast on natural disasters during the two-month study period, although other news and scientific programs are likely to have covered such events.

Regarding the quality of articles on climate change, regardless whether they tackled the topic directly or indirectly, the standard was judged to be acceptable for the target audiences (mostly the general public) for 23 of the 24 print articles. Twenty-two of the 24 articles had clear sources of information, and were written in standard structures (21 of 24 print items). The indicators of quality that need improving include: explanations of scientific knowledge were limited (only 8 of 24 print articles on climate change satisfied this indicator); and few different viewpoints were reflected (only 11 of 24 print articles showed different stances/viewpoints for the topic). More than half of the print articles on climate change used from 60 to 90% of foreign terminology for climate change jargons (13/24). A bit fewer of them used Vietnamese terminology (11 of 24 print articles). For audio broadcasts, all three climate change were of good quality. However, one limitation is that none of them reflected different viewpoints.

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discussion offers a narrative explanation and suggests the outcome of the "master story" of global climate change may discourage future attention to global warming.

An empirical content analysis of a decade of coverage of climate change in five national newspapers in the US is presented by Craig Trumbo in his article *Constructing climate change: Claims and frames in US news coverage of an environmental issue*. The analysis is based on the perspective, drawn from social problems theory, that the content of news discourse can be understood in terms of claims-making and framing. Climate change is also discussed in terms of Downs' issue - attention cycle, a five-stage model describing the rise and fall of social attention to important issues. Climate change, as a news story, is described as exhibiting three phases that are related to the sources quoted and the frames presented in the news coverage. Results of the analysis show that scientists tend to be associated with frames emphasizing problems and causes, while politicians and special interests tend to be associated with frames emphasizing judgments and remedies. Results also show how scientists declined as news sources as the issue became increasingly politicized.

**Julia B. Corbett and Jessica L. Durfee** of University of Utah did an exploratory study *Testing Public (Un)Certainty of Science, Media Representations of Global Warming* which tried to examine whether readers' assessments of the certainty of scientific findings depend on characteristics of news stories. An experimental design tested whether adding controversy and/or context to a news story about global warming influenced readers' perceptions of its certainty. Respondents (N = 209) were randomly assigned to read one treatment and answer a questionnaire. Overall, there was a significant difference in readers' assessment of the certainty of global warming across treatments ( $F = 12.59$ ,  $p = .00$ ). The context treatment produced the highest level of certainty about global warming

and differed significantly from the control treatment (with neither context nor controversy) and from the controversy treatment. Control and controversy treatments resulted in the lowest levels of certainty. There was an interaction effect between treatment and environmental ideology upon certainty ( $F = 1.64$ ,  $p = .03$ ) and a correlation between environmental ideology and prior certainty about global warming ( $r = .35$ ,  $p = .01$ ), suggesting that those with pro environmental ideology were less swayed by the treatments.

The amount of coverage accorded to an environmental risk topic is unrelated to the seriousness of the risk in health terms. Instead, it relies on traditional journalistic criteria like timeliness and human interest.

The observation that journalism focuses more on big controversies than on big health risks is neither novel nor debatable. There is a niche for public-service features about smoking, seat belts or radon, but in the absence of a news peg these perennials are bound to get less attention than a hot local Superfund fight. Journalists are in the news business, not the education business or the health protection business.

For example, Peter M. Sandman did a content analysis of network evening news coverage from January 1984 to February 1986. Using the Vanderbilt University Television News Index and Abstracts rather than the coverage itself, he identified 564 environmental risk stories, 1.7% of the total air time in the evening newscasts. During the same period, networks ran only 57 stories about tobacco and an astounding 482 stories about airplane safety and accidents. Based on number of fatalities, there should be 26.5 minutes of tobacco coverage for every second of airplane accident coverage. Instead, the ratio was 7:1 in the wrong direction. Acute environmental accidents like Bhopal received plentiful coverage (and deserved it); chronic environmental problems like asbestos contamination received much less, typically requiring an "acute" news peg (new and timely information)

on which to base the story. Geographical proximity was also a major factor. During the study period, Alabama, Louisiana, Mississippi and West Virginia had about the same number of oil spills as California, Massachusetts, New York and Texas. Yet almost three times as many spill stories were reported from the latter states (where the networks have bureaus and many viewers) than from the former (where they do not).

Seriousness (or "consequence") is only one of a host of traditional journalistic criteria for newsworthiness. Most others -- timeliness, proximity, prominence, human interest, drama, visual appeal, etc. make a big controversy intrinsically newsworthy even if it is not a serious health threat.

He has used "hazard" and "outrage" to refer, respectively, to technical and non-technical (a composite of such factors as control, fairness, familiarity, trust, dread and responsiveness) seriousness of a risk. In these terms, the mass media are in the outrage business: They don't create it, as clients sometimes suppose, but they amplify it.

Within individual risk stories, most of the coverage isn't about the risk. It is about blame, fear, anger and other non-technical issues -- about "outrage," not "hazard."

In 1985, he asked the editors of New Jersey's 26 daily newspapers to send his team of researchers their best environmental risk news stories from the previous year. The 248 stories that were submitted were content analyzed for risk information. 68% of the paragraphs had no risk information at all. Another 15% dealt with whether the potentially risky substance was present or absent, and only 17% of the paragraphs dealt with whether the substance was risky or not. A panel of one environmental reporter, one activist, one industry spokesperson and one technical expert was convened to assess the stories more subjectively. The panelists, who disagreed about most things, emphatically agreed that



environmental risk information was scanty in these stories. Technical content was especially lacking. What risk information was provided came mostly in the form of opinions, not evidence.

Many factors contribute to the scarcity of technical risk information in risk stories, among them the relative inaccessibility of technical sources and the "technophobia" of many reporters, editors and audiences. It is easier, more comfortable and more productive to cover environmental politics than environmental risk.

When technical information about risk is provided in news stories, it has little, if any impact on the audience. Getting technical information into the media isn't only difficult; it is also close to useless.

Technical information might be expected to reassure people that the experts are on top of the situation; or it might frighten them with all those polysyllabic words and scary possibilities; best of all, it might reassure them when the hazard was low and frighten them when it was high. Instead, it simply doesn't matter -- or, at least, we have yet to find a way to make it matter. In their focus on outrage rather than hazard, journalists are at one with their audience.

Alarming content about risk is more common than reassuring content or intermediate content -- except, perhaps, in crisis situations, when the impulse to prevent panic seems to moderate the coverage.

Environmental activists commit the same distortion, with less reason. A recent booklet in the debunking of environmentalist claims, led by Keith Schneider of *The New York Times*, has triggered endless teeth-gnashing about an "anti-environmental backlash" among

activists and environmental journalists (groups whose values and concerns are surprisingly similar). Of course credulously reassuring news stories are no more admirable than credulously alarming ones -- and they are more dangerous. But they are also scarcer.

A case study analysis of newspaper coverage of dioxin contamination at an abandoned factory in New York, New Jersey found that "alarming" and "reassuring" are not really characteristics of the coverage itself; they are characteristics of the interaction between the coverage and the audience

Another study asked students to respond to hypothetical news stories about a chlordane spill. Once again, the amount of technical data in the stories had no effect on resulting risk perceptions. The tone of the stories -- predominantly alarming, balanced, or predominantly reassuring -- mattered more. Alarming stories yielded alarmed readers. Reassuring stories yielded reassured readers, however, only if they were asked to assume that they lived near the site of the spill and faced practical, immediate decisions such as whether to evacuate. Subjects who were asked to assess pesticide risks in a more generalized way were alarmed by both the alarming and the reassuring story; the intermediate, balanced story produced the most positive responses. Apparently one-sidedly reassuring risk information is likely to strike readers as incredible and therefore produce a boomerang effect -- unless they face a decision about what to do, in which case their response may be much less skeptical.

Reporters lean most heavily on official sources. They use more predictably opinionated sources -- industry and experts on the "safe" side, activists and citizens on the "risky" side - - when they need them.

Government is the number one source of environmental risk news. This was especially clear in the New Jersey content analysis discussed earlier. When unattributed paragraphs

are eliminated, government officials accounted for 57% of all paragraphs in the New Jersey study. Industry spokespersons, by contrast, accounted for 15% of the attributed paragraphs; citizens accounted for 7%, advocacy groups for 6% and experts for 6%. On network television, government officials still led, but by much less. They were 29% of the on-air sources. When the networks used only one source for a story, that source was a government official 72% of the time. Two-source stories most typically paired government and industry, citizens and industry, or citizens and government. Activists and experts turned up most often in stories with three or more sources.

Different types of sources reliably provide reporters with different types of content. In the New Jersey study, for example, experts and individual citizens were likeliest to address the riskiness issue; industry and government tended to talk about other things. Not surprisingly, activist groups were the likeliest to assert risk; they did so 33 times as often as they denied it. Industry sources, on the other extreme, denied risk 5 times as often as they asserted it. Although the competition for journalistic attention is tougher for sources seeking to reassure than for those seeking to alarm, coverage depends even more on a different distinction: skillful sources versus inept ones.

In a variety of ways, most journalists are naturally more allied with their alarming sources than their reassuring ones. This is not mostly because reporters are anti-establishment activists in disguise. It is more because reporters are interested in their careers, and a scary story is intrinsically more interesting, more important, "better" by journalistic standards than a calming one.

The main effect of the "natural antagonism" between journalists and reassuring sources is on the source side of the dialogue. Industry spokespersons and technical experts stereotype journalists far more negatively than vice versa. They anticipate much worse treatment than

they get; imagine mistreatment when it didn't happen and provoke mistreatment by acting defensive or demanding. Ultimately, this may be the biggest reason why the reassuring side of the risk debate gets inadequate coverage -- even bigger than the journalist's natural affinity for bad news: The sources of alarming information tend to be cooperative and canny, while the sources of reassuring information are mostly lousy sources. They can, and should, learn to do better.

In general, in the opinion of Peter M. Sandman, four biases prevail, both in media risk coverage and in readers' and viewers' responses: (1) alarm over reassurance, (2) extremes over the middle, (3) opinions over data, and (4) outrage over hazard.

There isn't much a source can do to adapt to the first bias. The other three, however, can be productively deferred to.

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