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A comparative content analysis of environmental news coverage in Time and The Weekly review

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by

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INTRODUCTION

Statement of Problem

April 22, 1990, was not merely the 20th anniversary celebration of Earth Day 1970. The second Earth Day clearly indicated that environmental problems had already emerged as one of the most controversial issues not only in the United States, but also in the international forum.

The main purpose of the first Earth Day was to organize a national rally to demonstrate public concern for ecological destruction especially in the United States (Nelson, 1990). About 20 million Americans around the country responded on Wednesday of April 22, 1970, by turning out to speak up against environmental destruction, as the press reported:

> People took time out from school and work to be part of the parades, rallies, protests and teach-ins that spotlighted America's environmental ills.... The protesters--many impatient, idealistic and young--bashed autos with sledgehammers, wore gas masks and called polluters nasty names (Bukro, 1990:1).

The focus of Earth Day 1970 was apparently on such easily observable pollution as smoggy skies and polluted beaches (Bukro, 1990). Two decades later, environmental hazards have become far more serious and complex than ever. For the past few years, the earth has experienced serious environmental

deterioration. Droughts in the Midwest region of the United States and disastrous floods in Bangladesh were examples of the phenomenon, which were closely linked to the changing weather patterns of the globe. Such issues as seals dying in the North Sea in Europe due to water pollution and famines in Ethiopia and Sudan were too critical for one nation to cope with (Hertsgaard, 1989; Dahlan, 1989). The population boom and limited farmlands in Mexico led to Mexicans migrating illegally looking for jobs in the United States even if only temporarily (Myers, 1990). Furthermore, highly debated problems like the ozone depletion and the greenhouse effect, whose consequences may not be felt for several generations, also have received great attention internationally.

The threat to the environment finally resulted in Earth Day 1990, the largest grass-roots demonstration in history. Approximately 200 million people in 140 countries took part in various activities to show their support in the worldwide campaign to save the planet. The events were reported:

> In the United States, some 3,600 American cities and towns mustered forces to rejuvenate the environmental movement 20 years after the first Earth Day.... Students carried a globe on a stretcher, symbolizing a sick earth, in a parade in Hong Kong's twin city of Kowloon.... Ice sculptors sculptured a giant thermometer from a French glacier to protest global warming resulting from air pollution.... In Japan, about 35,000 people gathered on Yumenoshima, or Dream Island, an artificial island in Tokyo Bay made from landfill consisting mostly of garbage from Tokyo.... In Gdansk, Poland, students bicycled through the Baltic port's Old Town to protest air pollution.... Trees were planted in far-flung corners of

the globe, including 2,000 in the suburbs of Cairo (The Des Moines Register, April 23, 1990:1A; McFadden, 1990:1).

The success of Earth Day would not have been possible without the media attention it received. The principal function of the mass media is to inform the public about what is going on in society. The media have the capability to fulfill this objective by reporting events in society to the mass (McQuail, 1987). In this regard, the media should be responsible for keeping people informed about environmental deterioration in order to increase their awareness on this issue.

The emergence of environmental problems in the 1980s inspired the goal of this study. Even though there have been a number of studies conducted on the mass media and the environment, most of them have emphasized the relationship between the issue and the media in developed countries, particularly the United States. The media in developing countries have rarely been examined. The lack of study in these areas was the basis for this paper.

Purpose of Study

The purpose of this study is to make a comparison between the role of the press in developed and developing nations in providing what David Rubin and David Sachs called an "early

warning system" in reporting environmental deterioration to society.

The two news magazines selected for analysis are Time and The Weekly Review. As far as this paper is concerned, Time is treated as a magazine from a developed country because of its origin in New York. The Weekly Review, published in Nairobi, Kenya, is chosen to represent a news magazine from a developing nation.

Magazines were used in this paper because they have more time to look into issues and situations than daily newspapers. As a result, they usually provide more in-depth reporting on issues than do newspapers (Emery et al., 1961; Funkhouser, 1973). An examination of magazines should give an indication of the type of information reaching the public.

The studied period was from May 1989 to April 1990. The twelve-month period was selected on the basis of the availability of the complete twelve-month run of The Weekly Review. A content analysis of Time was conducted from the issue of May 1, 1989, through April 30, 1990, and that of The Weekly Review was carried out from the issue of May 5, 1989, through the issue of April 27, 1990.

The results should help communicators and environmentalists alike to find out the role of the press in developing and developed countries in informing the public about environmental development. This significance is based on the concept of the agenda-setting theory, which assumes

that the more the press disseminates environmental news, the more the public will pay attention to environmental problems.

About the Magazines Studied

Time is owned by Time Inc. Magazines. The New York-based magazine has a circulation of 4,648,454 (United Nations, 1990). It is regarded as the most widely read news weekly in the United States. The magazine is among the American elite press that has influence on setting agenda for newspapers in the country.

The Weekly Review is published by The Weekly Review Ltd. in Nairobi. Its editor-in-chief is Harvard-educated Hilary Ng' weno, a native Kenyan, who has been the editor of the magazine since it was established in 1975 (Wilcox, 1982). Its circulation of 352,345 makes The Weekly Review the most popular news magazine in the African nation (United Nations, 1990). The magazine is also seen as the most prestigious weekly because its readership mainly is high ranking government officials and opinion leaders. Furthermore, The Weekly Review and The Nairobi Times, a Sunday newspaper published by the same company, are regarded as the leaders in trying to improve the standard of journalism in Kenya because:

> (1) they are owned and are operated by a native Kenyan instead of foreign interests, (2) they are professionally edited and are a cut above the rest of the Kenyan press

> in news treatment and analysis, and (3) readership is concentrated among the highly educated and affluent (Wilcox, 1982:571).

Despite its national reputation, The Weekly Review has to operate in accordance with governmental regulations. In Kenya, all news media, except the broadcast media, are privately owned either by native residents or foreigners. Although Kenya has one of the freest press systems in developing countries, The Weekly Review and other publications have to perform under a governmental philosophy that calls for constructive criticism and commitment to nation building. This philosophy was initiated by Jomo Kenyatta, the nation's founder and its first president, who constructed the nation after decolonization (Wilcox, 1982).

Legally, the Kenyan press is under the control of the Book and Newspaper Law in effect since 1960. The government has the power to arrest reporters, confiscate newspapers and even ban any publication. Such actions rarely happen, however, because reporters have a degree of self-regulation and try to keep their distance from any conflict between the government and the press. It can be said that Kenyan journalists have to balance themselves between being nation-building supporters and investigators at the same time (Wilcox, 1982).

Limitation of the Study

The availability of news publications from developing countries was a main concern of this research. A few overseas newspapers and magazines, especially from developing nations, were available. This availability restricted the selection of choices. Additionally, the time delay of The Weekly Review's overseas delivery obstructed the selection of the period of study for this paper. The April 1990 issue was the latest edition of the Kenyan magazine that was available for the research.

LITERATURE REVIEW

The Press and the Environment

Despite posing threats to society since the beginning of the Industrial Revolution, environmental problems have long suffered from near-neglect by the press. The mass media in the United States are regarded as the first anywhere to establish environmental reporting. It began when the book Silent Spring was published in 1962 to challenge Americans to start worrying about ecological destruction (McCormick, 1989).

Written by Rachel Carson, Silent Spring gave warnings about the negative effects of chemical pesticides and insecticides on human beings and the environment. The book was well accepted by the public, although its content was widely debated by some critics who disagreed on its scientific evidence (McCormick, 1989). In addition to its impact on turning the public's attention to the environment, the debut of Silent Spring was also seen as the beginning of the era of the current environmental movement (Rubin and Sachs, 1973).

Though ecological issues were broadly discussed, the reporting of environmental stories still remained low in the early 1960s partly because the environment was somewhat a new beat for reporters. Not until 1969 did the environment become one of the most frequently covered stories in the American and Canadian press. For example, the number of stories in Time

expanded from four articles in 1961 to 14 in 1969 and 19 in 1970 (Funkhouser, 1973; Rubin and Sachs, 1973; Schoenfeld, 1977; Parlour and Schatzow, 1978).

While the quantity of stories about the environment was undoubtedly high, the quality of the messages journalists were disseminating to the public was doubtful. The press was blamed for reporting the environmental movement instead of environmental subjects. So some important issues were overlooked. For example, only a few American newspapers reported the news about the National Environmental Policy Act in 1969, which was seen as one of the most far-reaching laws concerning the environment in the United States during that time (Schoenfeld, 1980). In addition, the press was also criticized for sensationalism and a lack of understanding about the environment (Witt, 1974; Friedman, 1983):

> Editors apparently regard sensationalism as a good criterion in the selection of science news, as they perceive little difference between a science story and a story about a new battleship or a political demonstration (Tannenbaum, cited in Witt, 1974:703).

Moreover, local newspapers in the United States were blamed for treating ecological affairs as "Afghanistanism" because they tended to focus on geographically distant problems instead of those in local areas (Friedman, 1990).

The information explosion in 1970 seemed to demonstrate that the 1970s would be the decade of the environmental agenda

for the press. The press jumped on the bandwagon and got the information across extensively. Yet ecological stories dramatically declined in 1971. For instance, the total number of environmental reports in eight mass circulation magazines, including Time, Harper's, National Geographic and McCall's, was down from 48 stories in 1970 to 29 a year later (Bowman and Fuchs, 1981).

There has been no strong evidence to explain why the press turned its back on environmental affairs in favor of other news beats. The Economist pointed out that the ecological excitement was almost forgotten partly because of the misprediction of environmentalists on disasters:

> The Club of Rome was wrong to predict the imminent exhaustion of raw materials. A year after The Limit to Growth was published, the oil price had quadrupled. Suddenly it was worth sucking oil out of the North Sea. A year later The Population Bomb appeared; the world's births at last began to rise more slowly. Predictions of disaster that rely on extrapolating past trends are easily wrong (The Economist, September 2, 1989:S4-5).

Some scholars thought the changes were the nature of the press. They thought that the coverage of the environment dropped because the press turned to other interesting issues, such as unemployment and inflation in the early 1970s (Parlour and Schatzow, 1978). In spite of the doubtful quality of the reporting and the decrease of environmental reporting in 1971, overall the press in the next decades actually paid more

attention to environmental issues than it had done in the 1960s. The total number of stories about the environment in eight leading general interest magazines, such as Reader's Digest, Time, and National Geographic, increased from 158 between 1961 and 1970 to 291 between 1971 and 1980 (Bowman and Fuchs, 1981).

There were some differences between ecological reporting in the 1960s and the 1970s. The American press in the 1970s heavily centered on the energy resource management topic more than ever, jumping from only one story in the ten-year period beginning 1961 to 1970 to 121 between 1971 and 1979. The increase in the coverage of the management of resources probably resulted from the impact of the energy crisis the world faced in the early 1970s. Water pollution and environmental additives were also covered more. In contrast, the attention to population problems, the most popular issue in the 1960s, began to fall (Bowman and Fuchs, 1981).

In the 1980s, energy resource management had remained high on the press reporting agenda in the United States whereas some issues such as environmental movements had been decreased considerably (McGeachy, 1987). Moreover, economic issues apparently dominated environmental news stories, taking over typical stories about protection or degradation of the environment (Howenstine, 1982).

As the earth encountered many critical natural disasters, environmental problems undoubtedly became the most significant

issue in 1988. The environmental events in the year were so dominant that Time chose them as the issue of the year, as the magazine explained:

> This week's unorthodox choice of endangered Earth as Planet of the Year, in lieu of Man or Woman of the Year, had its origin in the scorching summer of 1988, when environmental disasters--droughts, floods, forest fires, polluted beaches--dominated the news (Time, January 2, 1989:3).

In the last few years, ecological issues have been reported extensively. A survey by the Center for Media and Public Affairs indicated that environmental stories on the networks in America climbed from 130 news stories in 1987 to 453 in 1989 (Detjen, 1990). In addition, the coverage of this news beat in five leading U.S. newspapers (The New York Times, The Washington Post, Los Angeles Times, Chicago Tribune and The Wall Street Journal) and three news weeklies increased to 5.8 percent of the space in the medium in the first half of 1990 from 5.3 percent of the year of 1989, according to a survey by Executive Trend Watch, a newsletter for corporate executives in journalism (Stocking and Leonard, 1990).

Many newspapers in the United States have begun to have space for regular environmental news on a regular basis. For instance, The New York Times provides permanent space in its Tuesday science section for environmental issues, and The Dallas Morning News has environmental articles printed on a

regular basis (Stocking and Leonard, 1990). Aside from newspapers, many new magazines about the environment have come out on newsstands in the United States. New titles like Garbage, Buzzworm, E Magazine and Design Spirit have been on newsstands, joining other journals like Audubon, Mother Earth News, and Sierra, which place an emphasis on environmental consciousness (Gabriel, 1990; Whitaker, 1991). Although environmental reporting may or may not be compared with popular news beats like politics and economics, it can be said that the increasing coverage since 1988 at least raises the environment to a similar level as education and health news beats (Porritt, 1991).

Though the American press is paying more attention to the environment than ever, there is little evidence about the development of environmental reporting in the press of less developed nations. Actually, in developing nations the mass media have just begun to realize the importance of environmental journalism. For instance, in Asia, the Asian Forum of Environmental Journalists was established in 1988 by the United Nations' Economic and Social Commission for Asia and the Pacific (ESCAP). Its main purpose is to increase the journalists' knowledge of the environment and scientific information and to be a center for the exchange of environmental information among reporters in the continent. However, it can be said that the environment does not create such extensive discussions in the press of developing nations

as it has done in the West (Shrestha, 1990).

Though the coverage of environmental issues reemerged as an important issue, the press is still blamed for the same problem as it was in the late 1960s: the reports are inaccurate and sometimes even misinform the readers. For instance, scientists accuse the media of a lack of understanding and cite the issue of Alar, a chemical substance widely used by apple growers to prevent pre-harvest fruit drop, to promote color development, and to increase storage life. The media are accused of misleading the public and exaggerating the negative effects of Alar on human beings (Rosen, 1990).

Theoretical Perspective

Process of environmental communications

Mass communication generally is a dynamic process involved with transfer of meaning, transmission of social values, and sharing of experiences between a communicator, who may or may not be an individual, and other people. Environmental mass communication is defined as having a common content dealing with environmental issues (Schoenfeld, 1975).

Environmental communication involves a two-way flow of environmental information; communicators not only send the message about the environment to the public, but also receive

the feedback, which is the response of the audience to the message. The end result of environmental communication is to establish public awareness of environmental problems, to increase public understanding of issues, and possibly to make a commitment to what is seen as the public interest (Schoenfeld, 1975).

To study environmental communication is to study communication about science because they sometimes can relate to each other, as William Witt explained:

> Science and environmental information are sometimes one and the same, sometimes not. Though certainly including the environment, the range of scientific investigation extends beyond those items bearing directly upon the natural environment. In its own right, too, environmental information might just as well have a political or economic focus as a scientific focus at any particular moment (Witt, 1973:58).

There are two major sources for disseminating information about the environment to society: through environmental agencies and the mass media (see Figure 1).

Environmental agencies usually have some contact with scientists through field personnel. They communicate with the public by using their own channels, namely Information and Education (I and E) offices. I and E offices also send messages such as news releases to the mass media while reporters still keep in touch with agency personnel to get the news (Witt, 1973).

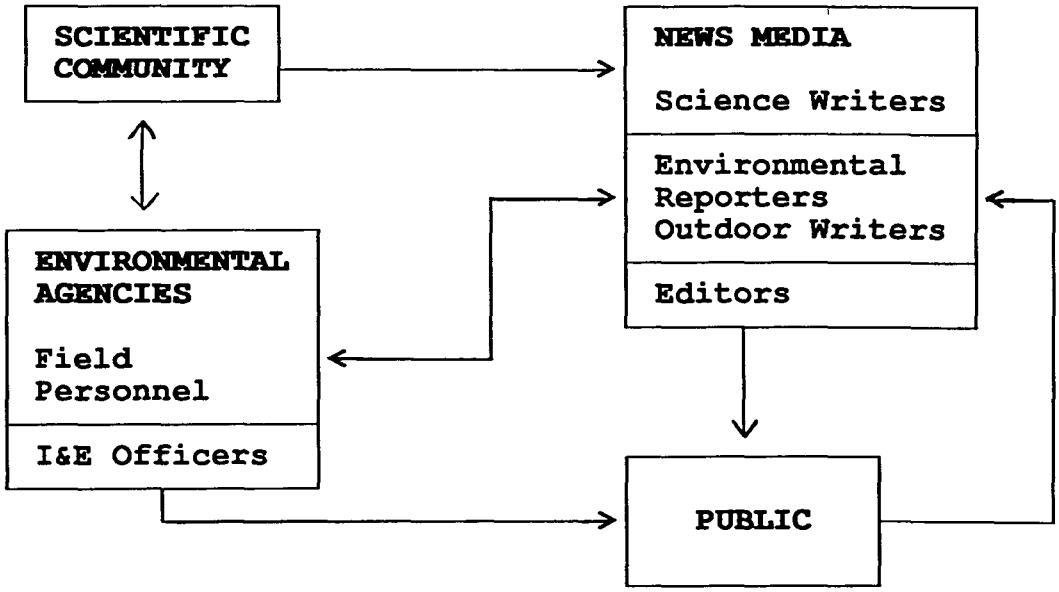

Figure 1. Science and environmental communications model (Witt, 1973)

The messages of the reporters flow through the editors for editing before passing through to the public. In contrast, substantially all of the feedback from the public goes back to the writers and reporters rather than to the editors because journalists have more daily relations with the public as a part of their job. Hence, the flow of feedback creates a problem. That is to say, the editors, who are the main gatekeepers of the news flow, become less aware of public wants and needs, and least responsive to change (Witt, 1973).

Reporters dealing with the field can be divided into environmental, outdoor and science journalists. Only the last have regular contact with scientific communities, either by

personal relationship or scientific journals, because of some common scientific backgrounds (Witt, 1973).

Although scientists also communicate with their counterparts, this kind of information hardly gets to the public. They contact each other mainly through scientific journals which certainly are unknown to ordinary people (Witt, 1973).

The most widely recognized concept of environmental communication is created by J. W. Parlour and S. Schatzow (1978), who believe that the two-step flow of information plays an important role in the mass media coverage of ecological issues.

The two-step flow theory was initiated during the 1940 U.S. presidential campaign by Paul Lazarsfeld, Bernard Berelson and Hazel Gaudet. It hypothesized that information sent by the mass media does not go to the public directly. Instead, it is passed through people who relay their interpretation of it. This group of people is called opinion leaders, who are likely to be highly educated (Bittner, 1980).

However, the concept of the two-step flow of environmental information is different from the original idea, as it is shown in Figure 2.

Contrary to the basic idea of the two-step flow of information, environmental problems are initially perceived by opinion leaders, most of whom hold influential positions either in governmental agencies or universities, instead of

directly perceived by the media.

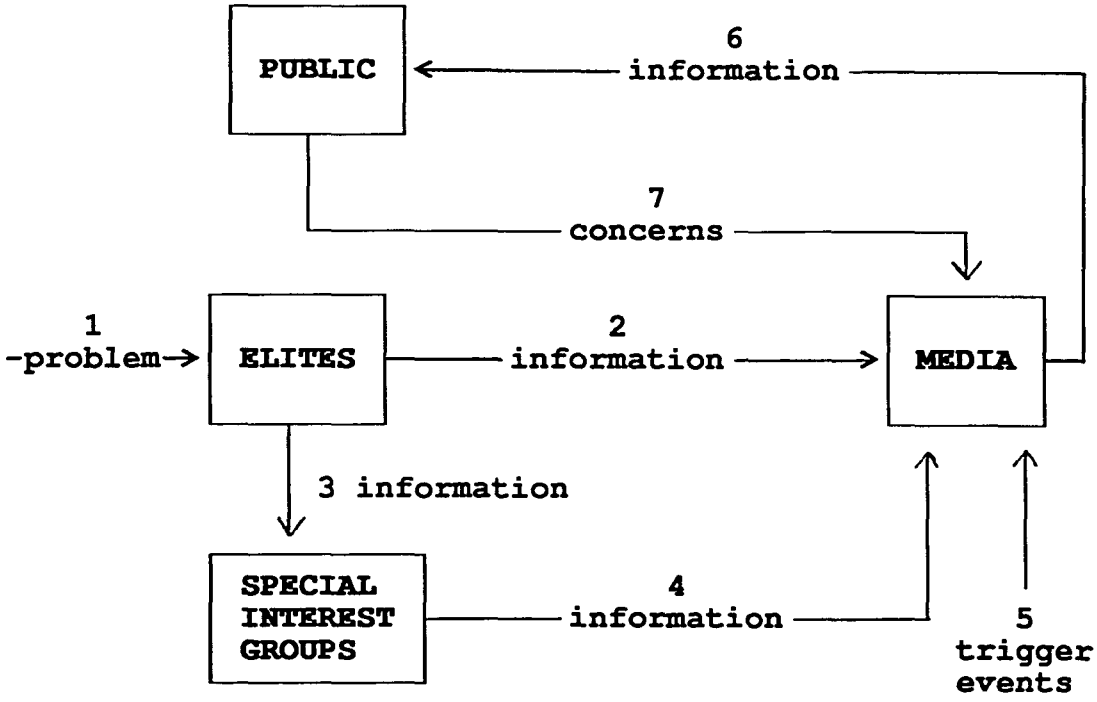

Figure 2. Mass media-public interaction model (Parlour and Schatzow, 1978)

The elite members then communicate their concern to the media and/or interest groups such as environmental organizations. The combination of opinion leaders, interest groups and trigger events--in the study done by Parlour and Schatzow (1978), the trigger event was the publication of the report to the International Joint Commission on Pollution of the Lower Great Lakes in Canada--creates the mass media response, resulting in increased reporting on environmental issues to the public. The increase in the media coverage

finally generates public concern, which in turn reinforces the perception of the media about the seriousness of the issues and the need to reflect them in their reporting (Parlour and Schatzow, 1978).

The agenda-setting theory

The agenda-setting theory is a study of the impact of press coverage on the perceived salience of issues by the public (McCombs, 1981). Maxwell McCombs and Donald Shaw (1972) tested the influence of the mass media on the perception of the audience during the U.S. presidential campaign in 1968, finding that there was a high correlation between what the press emphasized and what the audience thought was important. This approach was originally developed from political communication; nonetheless, social scientists have been successful in applying the theory to explain the effects of the media in other areas.

The theory proposes that the mass media are capable of setting any given agenda for the public (McCombs and Shaw, 1972). People exposed to the information of the media tend to be influenced by the messages. That results in focusing the attention of the public on particular problems or issues. Nevertheless, the press may or may not be powerful enough to influence the attitudes and behavior of readers, as Bernard Cohen mentioned:

> The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about (Cohen, 1963:120).

Although the effect of the mass media in changing existing attitudes is still unclear, the media can have a strong influence on opinions and attitudes concerning new issues which are not correlated with existing attitude clusters (Klapper, 1974).

According to the agenda-setting concept, the press can play a crucial part in creating public awareness on environmental deterioration. The more the press increases its coverage of environmental stories, the more likely it is that readers who have been receiving the messages will increase their knowledge of ecological problems and will include the problems in their agendas. The reliance of the public on the mass media causes at least an increase in environmental awareness of the public and perhaps leads to changing attitudes and behaviors. However, that is possible only if the public receives information about the environment through some mass communication channel.

The press does play an active part in diffusing information about the environment to society. Television, newspapers and magazines are the public's main sources of information, but there is no strong evidence to conclude which of these media is the most important channel.

Arwin Murch (1973), Parlour and Schatzow (1978), and T. Atwater et al. (1985), on one hand, found that television is the primary source that people use. For example, in Canada, over 50 percent of respondents selected television as the most important channel to obtain messages about the environment; 22 percent chose newspapers and less than 1 percent selected conversation with friends (Parlour and Schatzow, 1978). Furthermore, television is the principal source for students to obtain information about the environment (Aliamo and Doran 1980).

On the other hand, studies by Magaretta Cronholm and Rolf Sandell (1981), and by Ronald Ostman and Jill Parker (1986) discovered that people prefer newspapers to television as the most important source of environmental knowledge. Those who rely on the print media also have a tendency to be well-educated and have higher income than people choosing the broadcast media as their main source. They even believe that television is not a reliable source of scientific information about the environment and rate books and magazines higher than newspapers as their believable sources. In spite of the differences of information sources, the study has something in common with other investigations: interpersonal communication is hardly mentioned as the primary base for the environmental awareness in both groups.

Communication studies clearly show that the media are able to set environmental agendas for the public. But whether

the media create the agendas by themselves is questionable. In fact, environmental issues have been created by interest groups and opinion leaders. The idea is supported by a study by David Weaver and Swanzy Elliot (1982), who found that local newspapers in Indiana did not create environmental agendas independently. On the contrary, the issues had been set by the city council, who acted as an agenda creator. On the national level, statements of highly placed governmental officials, politicians and environmentalists were an important factor to attract attention of reporters to report environmental stories in the late 1960s (Rubin and Sachs, 1973). This concept fits with a study by Parlour and Schatzow (1978), who believe that factors like interest groups and trigger events can influence the media coverage on ecological news.

However, the concept is being challenged by some American journalists who wonder about the quality of the press coverage and think that the media should be more committed to and more active in being an environmental protector. Ultimately, their contention leads to the concept of "advocacy journalism" (Naj, 1990). This idea defies the traditional ideal of objective and balanced reporting and has been approved by some supporters like Barbara Pyle of the Turner Broadcasting System, Mark Hertsgaard of Rolling Stone and Lester Brown of the Worldwatch Institute. They all agree that the current reporting style is not aggressive enough to encourage the

public to save the endangered environment. Brown expressed this concept:

> We don't have time for the traditional approach to education--training new generations of teachers, to train new generations of students--because we don't have generations, we have years. The communications industry is the only instrument that has the capacity to educate on the scale needed and in the time available (Brown, cited in Detjen, 1990:75).

But a number of reporters still oppose the idea. They argue that advocacy journalism is one-sided reporting and will be likely to mislead the readers. Actually, it is not the traditional reporting that is an obstacle to the environmental coverage. On the contrary, opponents of advocacy journalism say those in the media industry themselves should give the beat a higher priority and keep on reporting ecological affairs. Jim Detjen, a science and environmental reporter at The Philadelphia Inquirer, argued:

> It is important for the media to maintain their tradition of healthy skepticism, continuing to question government, corporations and even environmental groups (Detjen, 1990:76).

The press and environmental awareness

Besides being the main source of information, the media also have an influence on people's perceptions of the

problems. When the mass media concentrate on national rather than local issues, people are likely to regard environmental pollution as a national instead of a local-level problem (Murch, 1973). The media also are responsible for changes in concern over environmental issues. When the media intensify their coverage of any particular environmental problem, they also reinforce public awareness about that issue (Parlour and Schatzow, 1978; Sekar, 1981; Dworkina and Pijawka, 1982; Preston-Whyte, 1987). On the other hand, public concern declines following the media's abandonment of the issue. For instance, 70 percent of surveyed Canadians stated that they felt pollution was a serious problem in 1970, the year the coverage of environmental problems reached its peak in Canadian newspapers. A year later, the percentage of the public concerned dropped by 50 percent when the reporting dramatically declined; and by late 1972, only six percent of Canadians viewed pollution as a major national problem (Parlour and Shatzow, 1978).

In India in 1973, the frequency of newspaper coverage of the threat of the power project on Silent Valley, which has 8,950 hectares of rain forests with rare plants and animals, correlated with an increasing awareness of people--from teachers to scientists--who protested the project until it had to be reexamined by the government (Sekar, 1981; Gupta, 1988). The press in South Africa is also a major factor in arousing public awareness about environmental issues. In

1981, The Daily News and The Natal Mercury in Durban, South Africa, played a crucial part in catalyzing and maintaining public concern over the sludge dumping experiment initiated by the local government. The press kept reporting about the issue so that the project had to be canceled due to the pressure from Durban residents. Robert Preston-Whyte pointed out the way that the protest related to the papers' coverage:

> Twenty-two press reports over the 25 days preceding the public meeting kept the issue alive. Approximately 1,000 people attended the meeting held in the City Hall and voted overwhelmingly in favor of discontinuing the experiment (Preston-Whyte, 1987:25).

Although the press has been capable of increasing awareness of the public, there has been no conclusive evidence about what amount of press coverage has effects on readers' perceptions. One study, by M. Salven (1988), discovered that it takes about five to seven weeks of news coverage for American audiences to acknowledge the importance of environmental issues taken to be salient by the mass media. Still, any generalization from a single finding, especially at the international level, is doubtful due to the difference of media access and low literacy rate in less-developed countries.

When the press coverage of environmental issues reached its zenith in the late 1960s and the early 1970s, the increasing awareness was a factor leading to many events.

Besides the establishment of many environmental groups, such as the Club of Rome, the first environment-oriented Green Party was formed in New Zealand. Probably the most important event was the United Nations conference held in Stockholm, Sweden, at which representatives of 113 countries discussed the problems of the global environment for the first time. The meeting resulted in the establishment of the United Nations Environmental Program (UNEP). The organization was founded to provide general policy guidance for the direction and coordination of environmental programs within the United Nations, according to United Nations Resolution 2997 (McCormick, 1989).

In the 1980s, even though press coverage had declined from its heyday in 1970, public awareness about ecological problems remained impressive. Surveys by the Organization for Economic Cooperation and Development (OECD) between 1981 and 1984 showed that expressed concern has been higher for national and global environmental problems than local problems, especially in a number of its members which are industrialized countries--namely America, Japan and European nations (OECD, 1985).

The surveys indicated that 36 percent of the public expressed concern about extinction of some plants or animal species in the world, 36 percent also expressed concern about the depletion of the world's forest resources, while 30 percent of the public have been concerned about possible

climate changes brought about by an increase in carbon dioxide and other greenhouse gases. Polls in 1982 in the United States, Japan and Finland revealed that a large number of people believe things have worsened rather than improved over the past 10 years. For example, 41 percent said that the quality of the environment had "grown worse" over the last 10 years compared with 29 percent who believed it had "improved" and 28 percent who felt it "stayed the same" (OECD, 1985).

The increasing awareness of the environment in developed countries can be seen from the rising popularity of environmental organizations in the United States and Europe. In America, the Wilderness Society has seen its membership increase from 40,000 in the early 1980s to 328,000 nowadays (The Economist, September 2, 1989:S2). The Green Party is gaining popularity in many European countries. In the European election in 1989, the party was unprecedentedly popular, being elected to 15 percent of the seats of the parliament (Porritt, 1991).

While people in industrialized countries regard ecological deterioration as a global concern, people in developing nations are more concerned with national problems than with international issues. People are more concerned about water pollution, municipal solid wastes, noise, and, to some extent, industrial wastes in their own country, for example (El-Hinnawi and Hashmi, 1987).

To increase global awareness of environmental problems

and have them receive appropriate and adequate consideration by governments and the public, UNEP assessed "The State of Global Environment" for 1988 (UNEP, 1987). UNEP concluded:

> In general, awareness of human impact on the natural environment has grown rapidly since 1980. It has been manifest in countless conferences, meetings, publications, and debates. News media and non-governmental organizations have been instrumental in promoting this increasing awareness. Many countries have now instigated television and other mass communication programs to inform their citizens about specific environmental issues and about their environmental responsibilities (El-Hinnawi and Hashmi, 1987:174).

Environment and developing countries

Even though environmental protection is widely accepted as a national policy in many countries, less developed countries are often accused of not paying enough attention to environmental affairs. People in less developed nations do not regard the environment as a primary concern, for they are still struggling to at least meet basic needs like food, clothing and shelter (Sekar, 1981). Poverty in developing countries is recognized as a major cause of and main effect on global environmental problems (Brundtland, 1989). For example, in Kenya, the overpopulation has caused people to penetrate the national parks, resulting in widespread deforestation (Wilcox, 1982). Similarly, the forest destruction of the Amazon basin in Brazil resulted from

Brazilians migrating from populated urban areas to the dense forested lands, which contain one-fifth of the bird species in the world. The ecological destruction in less developed nations partly stemmed from international organizations dealing with development in poor nations. For instance, the World Bank used to take the view in the late 1960s and early 1970s that poor countries had large unexploited areas that could be cleared for economic improvement (The Economist, 1989:S11).

There have been some conflicts between economic development in developing countries and the goal of environmental conservation. While poor nations have been condemned by environmentalists and industrialized countries for their ignorance of the environment, developing nations accuse industrialized nations of interfering in their internal affairs and of trying to delay the economic advancement by forcing poor nations to slow down the development in the interest of restoring the environment which the rich have polluted (Laver, 1990). At the same time, there is a contrast between the complaints and practices of developed nations themselves. At a time when rich nations are demanding the preservations of the environment and clean air, most of the pollutants in the globe are coming from industrialized nations. Industrialized countries emit 78 percent of greenhouse gases, according to the Center for Science and Environment's research (Hutchings, 1991). The Worldwatch

Institute also reported that people in the United States, which has only 5 percent of the world's population, consumes 26 percent of the global oil and produces 22 percent of the world's carbon dioxide--the gas causing the greenhouse effect (Worldwatch Institute Report, cited in Linden, 1989:63). Furthermore, rich nations have been seen as countries trying to export pollutants to poor nations. For instance, the fact that many American companies have relocated their factories to Mexico is seen as taking advantage of less-restricted environmental policies of poor countries (Reilly, 1991).

In response to environmental problems, a concern with the environment is becoming part of economic development (Botkin and Keller, 1987). Environmental assessment is now required by development organizations like the World Bank whenever development projects are to be implemented in poor nations (The Economist, September 2, 1989:S17). Such requirements acknowledge the need for international efforts to prevent the environment from deteriorating. Few environmental issues can be addressed without international collaboration. To curtail ecological deterioration is almost impossible without the money to reduce pollution through the application of new technologies and government-supported policies (Brundtland, 1989; Reilly, 1991). Gro Harlem Brundtland, chairman of the World Commission on Environmental and Development, suggested:

> Those of us who live in the industrialized world have an obligation to ensure that international economic relations help rather than hinder the prospects for sustainable development. It is our duty to do so. Commodity prices must be adjusted to provide a fair international distribution of income. Official development-assistance programs and private loans to developing countries, as well as private investment, must be improved, both in quality and quantity. Policies--both national and international--will have to be changed so that capital transfers are sensitive to environmental impacts and can contribute to long-term sustainability (Brundtland, 1989:190).

Moreover, for developing nations themselves, an essential step toward preventing environmental degradation is awareness and involvement at various levels. Local and national governments, the press, and the business community all have to realize the importance of ecology and its effects on the people. For example, the media can provide a framework to investigate environmental issues and cultivate public consciousness or awareness of these issues (Gupta, 1988). The mass media, in the context of developing countries, should include not only the mass-audience broadcast and print media, but also local publications which may be more appropriate instruments for emphasizing the social values or norms that may encourage behavior to preserve the environment (Chokor, 1987).

Not only do scholars think that the press is playing an active role in increasing ecological awareness, but those in administrative positions in developing nations also accept this role of the media. Qadeer Udin Ahmad, one-time governor

of the Pakistani state of Sind, said:

> The media are the most effective organ for mass-communication and they can be instrumental in awakening public awareness of the environment and developing an insight into environmental problems so far as to help people reorient their life and living to survive and flourish in the face of new challenges and opportunities (Ahmad, cited in Friedman and Friedman, 1989:8).

In the case of journalistic practice, reporting on environmental affairs in developing countries has many constraints. There are limited opportunities for reporters in less developed countries to get environmental stories into newspapers. Unlike the press in the United States, the press in less developed nations faces many obstacles on reporting. Censorship is one of the most crucial instruments many governments in poor nations use to curb the flow of information of newspapers (Friedman and Friedman, 1989).

A lack of specialized environmental reporters and the absence of a data base on environmental information also have an effect of ecological reporting and deter the flow of information about the environment from the press to society. Environmental data are available in the West whereas developing countries still lack reliable quantitative information about this area or at least do not have up-to-date data (El-Hinnawi and Hashmi, 1987; Friedman and Friedman, 1989; Shrestha, 1990). The press in poor nations also lacks environmental journalists because these countries usually

cannot afford specialization at this level (Dahlan, 1989).

Moreover, the competition for space in the newspapers in developing countries is very high. For example, the average Asian newspaper is only 16 pages, which is much smaller than the average major newspapers in America. Accordingly, the limited space results in less coverage of environmental news, which is regarded as less sensational than political or criminal news. A study of 29 Indian editors, senior correspondents, and reporters found:

> A commonly held view was that the Indian press (including senior editors) was interested only in party politics and terribly disoriented vis-a-vis the environment. While middle-level media-men (in the 25-45 year age group) were generally sensitive to the subject of the environment, the elderly staff (such as subeditors and news editors) who decided the placement and selection of stories were most often ignorant about the subject. As a result, environmental stories were not included on the important pages (Singha, cited in Friedman and Friedman, 1989:33).

A survey of environmental articles in English-language newspapers from India, Nepal, Singapore, Hong Kong, Thailand and the Philippines between 1986 and 1987 revealed that most of the environmental stories were less than 10 paragraphs long. For this reason, the stories were unlikely to provide enough information to readers (Friedman and Friedman, 1989). Another study of the two English-language newspapers in Thailand also discovered that environmental reporting in the Thai papers--Bangkok Post and The Nation--rated relatively low

compared with other news categories. While such routine news as economic, sports, and political news consumes more than 50 percent of the space in the newspapers, news about the environment is less than 2 percent. It is rated lower than criminal and juridical and than disaster news in both newspapers (Sawetawan, 1990).

All of the constraints result in a low priority of environmental stories in the press in developing countries.

Hypotheses

The problem to be explored in this paper was "What is the difference between Time and The Weekly Review in their coverage of environmental news during the period starting May 1, 1989, and ending April 30, 1990?"

The following research question was developed to look into the problem:

Research Question

> What are the environmental problems that received the greatest coverage in Time and The Weekly Review during the period studied?

Because the people in developing countries are more likely to be interested in national problems about the environment than international ones, and on the basis of the agenda-setting theory, which assumes that people obtain knowledge of the environment from the mass media, the following hypothesis was created:

Hypothesis 1

> The environmental coverage in The Weekly Review includes national more than international news compared with that in Time.

Because the press in developing countries gives environmental news a low priority, an additional hypothesis was developed:

Hypothesis 2

> In terms of length of story, Time allots more attention to environmental news stories than does The Weekly Review.

And, finally, if the press in industrialized countries put more emphasis on environmental news than its counterparts in developing nations, the third hypothesis, which is based on the rationale that the more important the story is, the more the story is likely to be placed in prominent display (Budd, 1964), was created:

Hypothesis 3

> In terms of placement of news items, Time gives more prominence to environmental news stories than does The Weekly Review.

METHODOLOGY

The objective of the study was to investigate the press coverage of environmental issues in Time and The Weekly Review. Accordingly, content analysis was the most appropriate research approach to accomplish the purpose.

Content analysis provides an efficient way to investigate the content of the mass media. It is a procedure designed to examine and analyze the content of recorded information in a systematic, objective and quantitative manner for the purpose of measuring variables (Kerlinger, cited in Wimmer and Dominick, 1983:166).

Systematic, in this regard, means the researcher has to use consistent rules to select the content, code the data and analyze the results. The term objective indicates that the researcher must not introduce bias and that the procedure can be replicated by other researchers to obtain the same results. Quantitative refers to the goal of the technique, which is the accurate representation of a body of messages. Quantification is crucial in fulfilling the objective because it aids researchers in the search for precision. Moreover, quantification allows researchers to summarize results and report them with greater accuracy (Kerlinger, cited in Wimmer and Dominick, 1983:166). In addition, the content should be manifest; it must be coded as it appears rather than as the analyst feels that it is intended. Researchers using the

method, accordingly, must be concerned with reliabilities or the consistency of the classification (Berelson, cited in Stempel III, 1981:120).

Unit of Analysis

Units of analysis generally used in the analysis of media's contents are: words, themes, characters, items and space (Berelson, 1952). The most appropriate unit to be employed for this study is the space measurement. Additionally, frequency distribution was also used. Frequency means every occurrence of a given characteristic which is recorded (Holsti, 1969).

The analysis involved the environmental stories appearing in Time and The Weekly Review beginning May 1, 1989, and ending April 30, 1990. The total number of issues was 104: 53 for Time, and 51 for The Weekly Review. The difference was due to the different day the magazines appear on newsstands. Time is on newsstands every Monday; The Weekly Review is on sale on Thursday. Excluded from the analysis were advertising, poetry, puzzles and reviews (except when they were run as news or feature articles).

Each issue of the studied magazines was coded as to the number of environmental articles, the subject classifications of each environmental article, and the setting, length and position of the article.

Categorization

Environmental issues were divided into eight categories based on studies by Rubin and Sachs (1970) and Lois McGeachy (1987). The categorizations were:

1. Air Quality: articles dealing with such problems as smog, carbon monoxide, sulfur dioxide, and other pollutants from automobile exhaust, factory emissions and other stationary sources; their effects on animal health and plant life; their costs to the economic system; and the methods of control. Added to this category were articles dealing with deterioration of the ozone layer and acid rain stories concentrating on air quality over water quality.

2. Water Quality: articles or stories dealing with such problems as factory wastes, sewage disposal, and thermal discharges; their effects on animal health and plant life; their costs to the economic system; and methods of control. Added to this category were acid rain articles that concentrated on water quality over air quality.

3. Human Population Explosion and Control: articles or stories dealing with the concept of overpopulation and ways to prevent or cope with the increase. For example, an article or story on the legal problems of abortion without reference to abortion as a method of population control would not be coded.

4. Environmental Additives: articles or stories about natural or chemical compounds artificially introduced into the ecosystem that concentrate through successive food chain levels or cause upset in the ecosystem through destruction of a species with possible detrimental effects to plant and animal life. For example, DDT and other pesticides, herbicides, mercury, and radiation but not cigarette smoking, fluoride, or cyclamates. As a further specification to this category, articles dealing with toxic waste where the additives, rather than air or water quality, were the emphasis.

5. Management of Energy-Producing Resources: articles or stories discussing the supply of flowing water, coal, oil, natural gas, steam or fissionable materials

available for the production of electricity, from the perspective of expanding power needs and decreasing resources.

6. Wildlife or Wilderness Conservation: articles or stories dealing with the protection of endangered or threatened species or the protection of wilderness areas, including forests, parks, etc., without concentrating on cause by environmental additives, etc.

7. The Environmental Movement or Environmental Organizations: articles or stories dealing with the environmental movement or an environmental organization without concentrating on another specific environmental subject (Rubin and Sachs, 1973:55-56; McGeachy, 1987:14). Included in this category are stories about individual environmentalists without emphasizing another particular environmental subject.

The following category was added in the research:

8. Uncategorized stories: articles or stories that do not deal with any specific environmental subject. They are classified as miscellaneous.

After the story was defined as environmental news, it was further examined for the geographical focus, length and placement.

Geographical focus

This study also determined the geographical focus of the article. The location was identified in accordance with the scheme used by Gary Leoffler (1975):

1. National: any article or story dealing with environmental issues within the boundary of the studied nations, namely the United States for Time and Kenya for The Weekly Review.

2. International: any article or story dealing with environmental issues outside the boundary of the studied countries, the United States for Time and Kenya for The Weekly Review.

In addition, actual countries were recorded in order to find out whether the two magazines focused on the same or different nations.

Length of the story

Once any article was designated as "environmental" or fit into one of the categories mentioned above, it was measured for its length. The size of the analysis was determined by measuring each categorized story, including the body and headline, and converting all measurements to standard column inches (VanLeuven and Ray, 1988).

Both Time and The Weekly Review have the same format and the same column width. The Weekly Review, as well as Time, is printed in an 8.5x11 inches format and is regarded as a newsprint version of Time (Wilcox, 1982).

Placement of the story

The position of the new stories also indicates its importance. Usually, any news item thought to be most important is placed in the most prominent place. For the broadcast media, the more important the story is, the closer it is placed to the beginning of the newscast (Shah, 1988). For newspapers, items are judged to have high or low priorities based on an item's placement within the paper because different parts of a newspaper have different attention values (Budd, 1964; Gabriel, 1988). And for magazines, the placement can be divided into: the cover story, the highlighted story and the regular story. Any story appearing on the front cover of the magazine is regarded as the most important one (Click and Baird, 1984). Any story mentioned in blurbs on the cover or on the contents page is less important than the cover story but is still more prominent than regular stories in the issue.

To examine the importance of environmental stories in Time and The Weekly Review, the placement was classified as:

1. Cover Story: any environmental article having a photograph appearing on the front cover of any studied magazine is in this category.

2. Highlighted Story: any environmental news story having blurbs highlighted or mentioned either on the front cover or on the contents page is in this category.

3. Regular Story: any environmental story that is neither on the cover nor highlighted.

Intercoder Reliability

Intercoder reliability is designated to find out whether the same result can be replicated (Wimmer and Dominick, 1987). To test the reliability of the categorizations of the study, three graduate students from Journalism and Mass Communication, Agronomy, and Economics were used for coding. Each student had to code the same five news stories about the environment in Time and five from The Weekly Review without seeing the results of the other and the researcher.

Intercoder reliability in this study was calculated by using Holsti's formula. The formula determines the reliability of the test in terms of percentage of agreement:

$$\text{Reliability} = \frac{2M}{N_1 + N_2}$$

M represents the number of coding decisions on which two coders agree, and N_1 and N_2 refer to the total number of coding decisions by the researcher and one coder (Holsti, 1969).

The result between the researcher and the first coder was 94 percent, the second was 92 percent, and the third was 89 percent respectively. Over all, the reliability between the

researcher and the coders was 92 percent, which was very high. For content analysis, if the percentage of agreement among the coders is between 70 to 80 percent, it is acceptable and the reliability is adequate (Lasswell et al., 1952).

FINDINGS

The study attempted to find out the difference between Time and The Weekly Review in reporting environmental news. A twelve-month period, from May 1989 through April 1990, was selected to accomplish this purpose. Every issue of both magazines from the first issue of May 1989 to the last issue of April 1990 was examined. The total number of articles about the environment found in the magazines studied was 152: 94 for Time, and 58 for The Weekly Review.

Time and The Weekly Review have the same format; their page size is 8.5x11 inches, and they have identical column width and length. Accordingly, the column measurements were the same for both publications. The measurements were carried out by multiplying the length of a column by the number of columns.

To find the result for the Research Question, running frequencies was conducted. For Hypotheses 1 and 3, cross-tabulations were used because the level of measurement of the data was nominal. A t-test was used for Hypothesis 2 because the data were interval. The significant level to accept or reject the hypotheses was 0.5 for the statistical methods.

Research Question

> What is the environmental problem that received the greatest coverage in Time and The Weekly Review during the period studied?

Table 1 and 2 indicate that both Time and The Weekly Review had both similarities and differences in reporting environmental news. The American and Kenyan magazines gave their priority to the problem of wildlife or wilderness conservation. Time devoted 36.2 percent of the stories to this category while The Weekly Review used 67.2 percent of all the environmental stories. In terms of length, the total length of the news about wildlife or wilderness conservation was 53.2 percent in the U.S. magazine and 73.9 percent in the African magazine.

Moreover, the issue of the environmental movement or environmental organizations was ranked second in both magazines. About 14.9 percent of the environmental stories in Time were under this category, and 13.8 percent in The Weekly Review belonged to this issue. As far as the length of environmental news was concerned, 14.5 percent of the total length of the stories in the U.S. magazine and 10.7 percent in the Kenyan magazine were about the environmental movement or organizations.

Management of energy-producing resources was another issue to which the two magazines paid almost the same attention. For Time, 8.5 percent of the stories dealt with this area compared with 6.9 percent of The Weekly Review. From another perspective, 3.8 percent of the length of the stories in the American and African magazines were used for this category.

Time paid attention to the issues of air quality and water quality almost equally. In terms of environmental articles by subject, 12.8 percent of Time's articles covered air quality and 12.8 percent covered water quality. In terms of length of environmental articles, 10.1 and 13.1 percent of its length of environmental articles were used for the two categories respectively. In contrast, the problem of air quality was less significant in The Weekly Review. Only 1.7 percent of the environmental articles and 0.1 percent of the length of the articles of the Kenyan magazine were covered with this subject. Furthermore, the issue of water quality was completely ignored by the Kenyan magazine.

In contrast, population problems were of more significance in the Kenyan magazine than in the U.S. magazine. Almost 7 percent of the stories of The Weekly Review and only 2.1 percent of Time were about population issues. In terms of length, the African magazine's articles about this issue were 9.8 percent of the total length compared with 0.2 percent for the American weekly.

Environmental additives were another category absent from The Weekly Review, but the same category was rated as the fourth most important in Time, both in terms of the total number and length of the stories. The U.S. magazine devotes 10.6 percent of its total articles about the environment, and 4.7 percent of its length of environmental articles to this category.

Table 1. Number of environmental articles by subject matter category in Time and The Weekly Review

Environmental Category	Time		The Weekly Review	
	n	percent	n	percent
Air Quality	12	12.8	1	1.7
Water Quality	12	12.8	0	0
Human Population Explosion and Control	2	2.1	4	6.9
Environmental Additives	10	10.6	0	0
Management of Energy-Producing Resources	8	8.5	4	6.9
Wildlife or Wilderness Conservation	34	36.2	39	67.2
The Environmental Movement or Environmental Organizations	14	14.9	8	13.8
Uncategorized	2	2.1	2	3.5
Total	94	100%	58	100%

Table 2. Percentage of length of environmental articles by subject matter category in Time and The Weekly Review

Environmental Category	Time		The Weekly Review	
	column inches	percent	column inches	percent
Air Quality	362.4	10.1	2.3	0.1
Water Quality	468.1	13.1	0	0
Human Population Explosion and Control	7.7	0.2	225.5	9.8
Environmental Additives	169.3	4.7	0	0
Management of Energy-producing Resources	137.8	3.8	87.2	3.8
Wildlife or Wilderness Conservation	1906.4	53.2	1692.2	73.9
Environmental Movement or Environmental Organizations	520.1	14.5	245.3	10.7
Uncategorized	10.6	0.4	36.5	1.7
Total	3582.3	100%	2288.9	100%

Hypothesis 1

> The environmental coverage in The Weekly Review includes national more than international news compared with that in Time.

According to Table 3, Hypothesis 1 was supported because the P-value of 0.0122 was smaller than the significance level of 0.05. The table shows that even though both Time and The Weekly Review emphasized domestic environmental issues over international issues, a greater portion of the news stories in The Weekly Review were national-oriented. Of all the stories in the African magazine, 81 percent related to the problems in Kenya; only 19 percent were dedicated to environmental issues on the international level. On the other hand, 61.7 percent of the environmental news in Time was national and 38.3 percent was international.

Table 4 presents the coverage of international environmental news in Time and The Weekly Review. Time's reporting covered more countries. Interestingly, the stories in the U.S. weekly mentioned Kenya more than any other country; Brazil and Japan were ranked second. The Weekly Review's stories emphasized the stories about Internationalland, the name of the places which does not belong to any country, such as the United Nations' sites. Besides Internationalland, the coverage of the stories relating to the United States and Japan was treated equally in the Kenyan magazine.

Table 3. Setting of environmental news items in Time and The Weekly Review

Setting	Time		The Weekly Review	
	n	percent	n	percent
National	58	61.7	47	81.0
International	36	38.3	11	19.0
Total	94	100%	58	100%

Chi-square= 5.40354
p= 0.0122

Table 4. Countries mentioned in the articles about international environmental issues

Country	Number of Mention in Magazine	
	Time	The Weekly Review
Antarctica	2	0
Brazil	4	0
Canada	1	0
European Community (E.C.)	0	1
Hong Kong	1	0
Iceland	1	0
Iraq	1	0
Japan	4	2
Kenya	5	-
Malaysia	1	0
Norway	1	0
Peru	1	0
Romania	1	0
South Korea	2	0
Syria	1	0
Taiwan	2	0
Tanzania	2	0
United States	-	2
Soviet Union	3	0
Zambia	2	1
Zimbabwe	2	0
Internationalland	2	4
Unspecified country	7	4

Hypothesis 2

> In terms of length of story, Time allots more attention to environmental news stories than does The Weekly Review.

Hypothesis 2 had predicted that environmental stories in Time would be longer than those in The Weekly Review. Instead, the stories in the Kenyan Magazine were longer than those in the American magazine.

According to Table 5, the average length of environmental stories in Time was 38.2 column inches; that of The Weekly Review was 39.5 column inches. That means environmental news in the African magazine was 1.3 column inches longer than environmental reports in the American magazine. However, the t-test groups indicated that there was no statistical difference between the length of environmental news in both the U.S. and Kenyan magazines because the one-tail probability of the t-test was .45, which exceeded the significance level of 0.05.

Table 6 shows that there was almost no difference between the percentage of space devoted to environmental news in Time and The Weekly Review. The American magazine used 4.5 percent of its space for stories about the environment. Similarly, The Weekly Review devoted 4 percent of its space to environmental topics.

Table 7 confirms the comparability of the two magazines' allocation of space. Table 7 demonstrates that the average length of environmental news in Time per issue was 67.4 column

inches compared to 45.1 column inches of the length of ecological topics in The Weekly Review. So the space in Time was 22.3 column inches longer than that in The Weekly Review. However, the one-tail probability of the t-test was 0.093, exceeding the significance level of 0.05. Accordingly, Hypothesis 2 was rejected, or there was no difference between the length of environmental stories Time and The Weekly Review allot to environmental news.

Table 5. Average length of environmental news per story in column inches

Magazine	Mean	Difference mean	t-value	df	1-tail prob.
Time	38.2	1.3	-0.13	150	0.45
The Weekly Review	39.5				

Table 6. Space used for environmental news in column inches

News Category	Time		The Weekly Review	
	column inches	percent	column inches	percent
Environmental news	3582.3	4.5	2288.9	4.0
Nonenvironmental news	75,449.6	95.5	54,275.0	96.0
Total news hole	79,031.9	100%	56,563.9	100%

Table 7. Average length of environmental news per issue in column inches

Magazine	Mean	Difference mean	t-value	df	1-tail prob.
Time	67.4	22.3	1.33	102	0.093
The Weekly Review	45.1				

Hypothesis 3

In terms of placement of news items, Time gives more prominence to environmental news stories than does The Weekly Review.

Hypothesis 3 was based on the rationale that the more significant the story is, the more likely it will be put in a prominent position in a medium. Table 8 shows that environmental news in Time was put in a more outstanding position in the magazine than was the case with The Weekly Review.

The U.S. magazine had 4.3 percent of the stories as the cover stories whereas there were none in the Kenyan magazine. In addition, environmental news was two times more likely to be highlighted either on the cover or the table of contents in Time and in The Weekly Review, 19.1 percent in Time and 8.6 percent in The Weekly Review. In contrast, 91.4 percent of the stories in The Weekly Review were only regular stories in the issues. They were neither mentioned on the cover nor on the contents pages. At the same time, only 76.6 percent of

the stories in Time were regular stories.

However, to test the hypothesis statistically, cover and highlighted stories were combined to avoid a lack of sufficient cell entries. The results of Table 8 clearly reveal that Hypothesis 3 was accepted because the P-value of the table was 0.0205, which was smaller than 0.05, the significance level set as standard for this research.

Table 8. Placement of environmental stories in Time and The Weekly Review

Placement	Time		The Weekly Review	
	n	percent	n	percent
Cover	4	4.3	0	0
Highlighted	18	19.1	5	8.6
Regular	72	76.6	53	91.4
Total	94	100%	58	100%

Table 9. Placement of environmental stories in Time and The Weekly Review after combining variables

Placement	Time		The Weekly Review	
	n	percent	n	percent
High (Cover and Highlighted)	22	23.4	5	8.6
Low (Regular)	72	76.6	53	91.4
Total	94	100%	58	100%

Chi-square= 4.40210
p= 0.0205

CONCLUSIONS

According to the findings, both Time and The Weekly Review were most interested in the same environmental issue. Both magazines paid more attention to the problem of wildlife or wilderness conservation than other categories. Sixty-seven percent of the environmental news in The Weekly Review focused upon this problem compared, however, to only 36 percent of Time. The subject of the environmental movement or environmental organizations was rated as the second most important issue in the American and Kenyan magazines.

Although the two magazines were similar in terms of main interest, environmental news reporting in the U.S. magazine had more variety. The stories in Time covered all categories from water quality, air quality, environmental additives, management of energy-producing resources, to population explosion besides the topics of wildlife or wilderness conservation, and environmental movement or organizations.

Unlike Time, The Weekly Review's articles, excluding the reports about wildlife or wilderness conservation and environmental movement or environmental organizations, mainly emphasized the population explosion, management of energy-producing resources and air quality. The issues of water quality and environmental additives were completely ignored.

Not only did Time report more issues about the environment than The Weekly Review did, but the American

magazine's coverage was also less national-oriented than that of the Kenyan magazine. Only 61.7 percent of the stories in Time related to national issues whereas 81 percent of The Weekly Review dealt with its own nation. At the same time, in terms of geographical focus in the international stories, environmental stories in the American magazine covered more countries than its counterpart. As far as individual nations were concerned, international environmental reporting in Time included 20 countries compared with only four countries in The Weekly Review. Time's stories covered Antarctica along with countries in Africa, Asia, Europe, North America and South America, but The Weekly Review's articles reported only countries in Africa, Asia, Europe and North America.

Surprisingly, in spite of the difference in environmental reporting, there was no difference in the magazines studied about the length of the stories. Contrary to Hypothesis 2, which said that Time allots more attention to environmental news stories than The Weekly Review, it could not be said that the U.S. weekly paid more attention to environmental issues than the Kenyan magazine as far as the length was concerned. The lengths of stories both per story and per issue in the two magazines were similar according to the statistical test. Also there was almost no difference between the space Time and The Weekly Review devoted to environmental reporting. Though Time has more pages than The Weekly Review has, the percentage of the space the American and Kenyan weeklies used for

environmental coverage was the same. Time devoted 4.5 percent of its space for this news beat compared to 4 percent of The Weekly Review after its news hole was created.

Nonetheless, it was difficult to conclude that the magazines studied paid the same attention to the environment. Taking into account the placement of environmental articles, Time still put its stories in a more prominent position than The Weekly Review. Only 76.6 percent of the stories in Time were treated as regular stories in the issue; the others were either the stories on the cover or the highlighted articles. But nine-tenths of the environmental stories in The Weekly Review were regular stories, and only one-tenth were highlighted. Moreover, no articles about the environment in the Kenyan magazine were put on the magazine's front cover. So while there was no conclusive evidence to sum up that Time pays any more attention to the environment than does The Weekly Review, the American magazine treated environmental news as more important than the Kenyan magazine did when it came to placement.

Discussions

That Time and The Weekly Review emphasized the same area about the environment--wildlife or wilderness conservation--reflected that this issue may be of greatest concern both in developed and developing nations as long as this assumption is

based on the duty of the media to report what is going on in society (McCall, 1987). The results of the research also agree with a study in Thailand which discovered that wildlife or wilderness conservation is the most frequent environmental issue reported in nine Thai daily newspapers (Srisawarng, 1989).

Besides the concern about wildlife or wilderness conservation, the environmental movement or environmental organizations received more attention than other subjects. It probably means that the role of environmentalists and environmental organizations nowadays is highly accepted by the public and the press. Perhaps they are playing a prominent part in both developed and developing nations in preventing environmental deterioration.

However, the press reporting about the environment in developed nations still has more variety than that in less developed countries. It can be seen from the coverage of Time, which included all the categorized issues of, whereas that of The Weekly Review excluded mention of water quality and environmental additives.

The press in developing nations focuses upon domestic issues more than its counterparts in developed nations, as was shown when Hypothesis 1 was accepted. In the case of Kenya, the most serious environmental problems the nation is facing are some wild animals, especially elephants, which are on the edge of extinction, and the population explosion. The

elephant population has been reduced by 70 percent over the past 10 years, declining from 70,000 in the early 1980s to about 18,000 late in the same decade (Allman and Schrof, 1989; Wainaina, 1990). This problem has become not only of national but also of international concern. It relates to some other nations, such as Hong Kong and Japan, which are the main importers of ivory sent from African countries. Even the international coverage of the environment in Time reported the stories about Kenya more than other countries.

The problem of an increasing population is also evident in the African nation. Kenya's population rate was the fastest growing in the world. The population growth was 4.1 percent annually, compared to the average rate of 2.1 percent of developing nations. Kenya's population was 25 million in 1990, increasing from 11 million in 1969. The national average number of children that women bear is 6.7. The United Nations predicted that the population would surpass 77 million in the year 2025 if the birth control program is still ineffective (Steinhart, 1991). Moreover, the World Bank assessed that this problem would affect economic advancement and development of the country in the future if the birth rate continues high (Ozzane, 1990). Accordingly, this issue was quite dominant in the Kenya magazine whereas it is almost overlooked in the American magazine. The results related to a study by J. S. Bowman and T. Fuchs (1981), who found that the population issue was less important for U.S. magazines during

the 1960s and 1970s. Their population coverage decreased from 23 to 13 news stories. This implies that industrialized nations no longer have the problem with population growth as many poor nations are encountering nowadays.

The findings of the present study also call into question the assessment of Sharon and Kenneth Friedman (1989). They thought that the print media in developing countries have less of a chance than those in developed nations in reporting environmental news because of space limitation. However, the results from this research showed that the differences in the number of pages between Time and The Weekly Review do not affect the chance that environmental news will be published in the press. Time and The Weekly Review used almost the same proportion of news hole for the environment; the difference in the proportion between the two magazines was only 0.5 percent. In addition, there was no difference in statistical significance between the length of the stories in the two magazines. The only difference is that Time gave environmental news more prominent placement than The Weekly Review did. At least some of the stories in the magazines of developed nations are so important that they are accepted as the cover stories compared with none in the magazines of less developed nations.

Interestingly, both Time and The Weekly Review had more than one environmental story per issue on average. On the one hand, one could conclude that environmental issues have

already gained popularity in the news media in both developed and developing nations. On the other hand, the results might be due to the selection of the study period, from May 1989 to April 1990. The year 1989 was unusual for environmental beats. First of all, for Time, it was the first year following the selection of the Earth as the leading issue of 1988. After that, the magazine made its commitment to be aggressive on environmental coverage, which it began providing on almost regular basis (Naj, 1990). Second, for The Weekly Review, its coverage on environmental issues, especially wildlife extinction, may have been higher than usual. By 1989, Kenya's effort to preserve its endangered animals from extinction had become a global concern. It can be seen that the problem of poaching in Kenya was highly reported in foreign news media; it was the cover stories for many magazines like Time and U.S. News & World Report (Allman and Schrif, 1989; Gup, 1989).

Thus one cannot generalize that developed countries paid more attention to the news about the environment than the media from less developed nations. One can accept, however, that the coverage of the press in industrialized nations has more variety than that in developing countries.

The press actually should provide surveillance of the environment in order to prevent it from deteriorating more severely than it already has. Furthermore, the press in developing nations should consider the environment beat more

important than it does by paying attention to every issue and placing the stories in more prominent positions in order to attract the attention of the readers.

Suggestions for Future Research

The following recommendations should be taken into account for subsequent research relating to this field:

Longitudinal research should be conducted both on Time and The Weekly Review. An overtime study can sort out some factors affecting the study of only some specific period of time. In addition, a longitudinal study helps to find out the development of environmental coverage of the studied magazines. Although some researchers such as Bowman and Fuchs (1981), and McGeachy (1987) already studied the coverage of environment by the press of developed countries, a similar study relating to the press in developing nations is rarely seen.

A study of the press after Earth Day 1990 is also suggested in order to find out whether the press keeps on reporting environmental stories at least at the same level as it did before the event or whether it abandons the issues for other more interesting beats as it did in the early 1970s.

Additionally, future research should be conducted on the press of other developing nations in order to compare the role of the press in many less developed countries in reporting

about the environment. A comparative study would be more reasonable to generalize from as to the role of the press in developing nations. The results of the comparative study may be more reliable to come up with a conclusion whether the press of developing countries is different or similar in performing its role of environmental coverage compared with that of developed nations.

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APPENDIX: CODING SHEET

		Column
1.	Magazine	1
	1 = Time	
	2 = The Weekly Review	
2.	ID	2-4
	Identification number of the issue of the magazine	
3.	Category	6
	1 = Air quality	
	2 = Water quality	
	3 = Human Population explosion and control	
	4 = Environmental additives	
	5 = Management of energy-producing resources	
	6 = Wildlife or wilderness conservation	
	7 = Environmental movement or organizations	
	8 = Uncategorized	
4.	Type of story	7
	1 = National news	
	2 = International news	
5.	Placement of item	8
	1 = Cover story	
	2 = Highlighted story	
	3 = Regular story	
6.	Length of article in column inches, including headline and photograph	10-14
7.	Length of Nonenvironmental news	16-21