

**MEDIA FRAMING OF WASTE ISSUES IN SELECTED
MALAYSIAN ENGLISH NEWSPAPERS: A STUDY OF THE
NEW STRAITS TIMES AND *THE SUN***

by

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**FRAMING MEDIA TENTANG ISU-ISU SAMPAH SARAP DALAM
AKHBAR BAHASA INGGERIS MALAYSIA TERPILIH: KAJIAN
TERHADAP *NEW STRAITS TIMES* DAN *THE SUN***

ABSTRAK

Penyelidikan ini melaporkan hasil kajian analisis kandungan daripada sudut kuantitatif dan kualitatif di mana cara penyampaian berita isu alam sekitar dan isu sampah sarap diselidiki, begitu juga dengan cara *framing* isu sampah sarap dalam akhbar bahasa Inggeris Malaysia terpilih. Artikel isu alam sekitar yang diterbitkan dalam akhbar *New Straits Times* dan *The Sun* dari Januari 2003 hingga Disember 2007 dianalisis berpandukan protokol pengekodan. Artikel berkenaan isu sampah sarap dianalisis untuk menentukan kehadiran empat fungsi *framing* Entman (2003): mendefinisi masalah, mengesan punca masalah, membuat pertimbangan moral dan mencadangkan jalan penyelesaian serta fungsi lain yang berkaitan. Sejumlah 616 artikel isu sampah sarap telah dikumpulkan dari Januari 2003 hingga Disember 2007. Dalam kajian ini, 32 artikel isu sampah sarap dalam *New Straits Times* mempunyai kesemua empat dan lima fungsi *framing* tersebut manakala *The Sun* mempunyai 15 artikel isu sampah sarap. Penyelidikan ini mendapati penyampaian isu sampah sarap dalam akhbar Malaysia terpilih adalah bersifat menghurai maklumat dan banyak memfokuskan kepada penggunaan fungsi *framing* Entman dalam mencadangkan jalan penyelesaian, mendefinisi masalah dan lain-lain fungsi *framing* seperti menyatakan kesan atau impak serta memfokuskan kepada nada frame negatif dan elemen *frame depiction*.

**MEDIA FRAMING OF WASTES ISSUES IN SELECTED MALAYSIAN
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*THE SUN***

ABSTRACT

This study deals with quantitative and qualitative aspects of content analysis to examine how environmental and waste issues were covered and how wastes issues were framed in selected Malaysian English newspapers. Articles regarding environmental issues published from January 2003 to December 2007 in the *New Straits Times* and *The Sun* were analyzed based on a coding protocol. Waste-related articles were analyzed to determine the presence of Entman's (1993) four framing functions: to define problems, to diagnose causes, to make moral judgments and to suggest solutions, as well as other applicable function. A total of 616 articles on waste issues were collected from January 2003 to December 2007. In this study, 32 waste articles in the *New Straits Times* have all four and five framing functions present whereas in *The Sun* there are 15 waste articles. This study found that the coverage of wastes in the selected Malaysian English newspapers was descriptive with most focusing on Entman's framing functions of suggesting solutions, defining problems, and other applicable function such as stating consequences or impacts as well as focusing on the negative tone of frame and the frame element of depiction.

CHAPTER 1

INTRODUCTION

1.1 Background

Human beings generate wastes everyday in their lives. Due to population growth and the increasing economic activities in Malaysia, more wastes will be generated and in the long period, if poorly managed will affect our environment, health and economy. Therefore, solid waste generation and its implications for people and the environment are global issues (Agamuthu, Fauziah & Kahlil, 2009, p.96).

It is anticipated that the wastes generated both from the residential and commercial establishments in Malaysia will increase correspondingly with the increase in the total population, improvement of standards of living, and changing life style of the people. Most major urban centres produce large quantities of wastes. In some industrialized urban areas, the amounts of wastes from industries are much higher than residential and commercial wastes combined (e.g., Shah Alam & Petaling Jaya). This is due to the mushrooming new housing developments, industrial as well as commercial activities (Abdul Ghani, Sakai & Haniba, 2006, pp.2-3).

Waste issues in Malaysia often cover matters associated with insufficient waste management, and both the federal and local government are in a dire search of suitable measures to handle wastes in the term-and-condition basis that neither do not exceed their budgets nor leave an impact to the public's health. These matters will not

be resolved even though remedial measures are implemented, unless the public realizes their responsibility and put initiative to reduce wastes.

Grodzińska-Jurczak and Read (2001) state that it will not be possible to fully implement the principles of sustainable waste management (particularly segregation of secondary materials, hazardous wastes, electronics and batteries, recycling, composting, decrease of municipal solid waste generated) without the active participation of wider society.

According to Meyers, McLeod & Anbarci (2006, p.507), inappropriate solid waste management causes air, soil and water pollution leading not only to environmental degradation but also to a growing catalogue of human health problems. Irresponsible solid waste management may contaminate surface and ground water supplies. In industrial and urban areas, washing “away” solid waste can clog drains, creating stagnant water for insect breeding and potential for floods in rainy seasons. Irresponsible burning and incineration have a significant influence on air pollution. Organic wastes dumped in landfills generate greenhouse gases and untreated leachate pollutes surrounding soil and water bodies such as ground water.

Solid waste, in addition to being an environmental nuisance, could require an exceedingly large investment for its handling. The Malaysian Government needed to spend Malaysian Ringgit (RM) 0.06 (or US\$0.016) per kilogram waste per day to deal with the country’s average daily waste generation of 0.8 kg/capita

(Tean, 2001). According to Agamuthu, Fauziah, Noorazamimah & Suhaila (2006), the current rate of solid waste generation was expected to reach 1.5 kg/day in most cities in the year 2007. With a population of 27.18 million (year 2007 census), this corresponds to an approximately RM400 million (or US\$105 million) per year. This has finally led to the Government's strong desire to raise environmental awareness in its population. It is envisaged that an environmentally conscious population with a sense of responsibility towards its surroundings will have a more positive attitude towards the ever-growing waste-handling and disposal problems as well as environmental protection and preservation (Isa, Faridah A.H. Asaari, N. Azam Ramli, Shamshad Ahmad & Tan S. Siew, 2005, p.565).

Krol and Greenfield (1992) describe positively that minimizing waste at its source can make production more efficient, enhance business profits, improve environmental health, improve safety conditions for employees and the public, boost public relations and develop waste services and technology with export potential.

At this point, the public needs to be informed, educated, acknowledged and reminded of their role to reduce wastes and overcome wastes problems. Here, the media have a role as information transmitter to the public; exposing and creating awareness among the public regarding general environmental issues and those related to wastes control and management.

Several scholars or researchers perceive the role of media similarly as one of the major influences on public perceptions and one of the main transmitters and sources of the public's risk information (cf., Bennett, 1999; Lindsay, Zhou & Halstead, 2000; Frewer, Miles & Marsh, 2002; Wakefield & Elliott, 2003). Altheide (1985) points out that whether the media are viewed as independent of or actively engaged with the society, the influence of the media and mass communication is regarded as a powerful force in the society.

Although waste issues are now widely discussed and a number of studies have been carried out either in the country or abroad, the combination of media and waste management are still scarce in the country. More research has to be done where waste management is concerned with the presence of media to have a clearer view of the media function in overcoming environmental problems, especially in terms of waste problems. This study examines the trend of media coverage on environmental issues and waste issues, as well as the media framing of pertinent waste issues.

1.2 Problem Statements

Malaysia is a developing country that should consider environmental degradation as equally important as development. Development without appropriate planning and measure could trigger various catastrophes. According to Kandula (2004, p.267), attempting development only by increasing economic profits and in isolation from concerns of human and environmental well-being can have undesirable

consequences. Kandula (2004, p.268) adds that when developmental activity focuses only on economic growth and ignores social and environmental well-being, it cannot be sustained.

In Malaysia, solid waste is currently one of the most debatable environmental issues (Zolkifly, 1998; Abdul Ghani et al., 2006). It was reported in the *Ninth Malaysia Plan* that the amount of solid waste generated in Peninsular Malaysia increased from 16,200 tonnes per day in 2001 to 19,100 tonnes in 2005 (SMI Association of Malaysia, 2007) or an average of 1.3 kg per capita per day. In 2005, solid waste in Malaysia comprises on average 44.8 percent organic waste, 16.0 percent paper, 15.0 percent plastic, 8.4 percent other waste, 6.7 percent wood, 3.3 percent metal, 3.0 percent glass and 2.8 percent textiles (Agamuthu et al., 2009, p.96).

The major consequence of Malaysia's rapid urbanization is viewed as "social transformation" with a greatly increased generation of municipal solid waste (Abdul Ghani et al., 2006, pp.2-3; Wahid Murad & Siwar, 2007, p.3). The Malaysian solid waste generation rate in the 1980s was 0.5 kg per day, and this had increased to 1.3 kg per day by 2006. The current rate is expected to reach 1.5 kg per day in most Malaysian cities (Agamuthu et al., 2006). According to Agamuthu et al. (2009, p.27), this increasing trend could be the result of changes in consumption habits as well as the increasing affordability of consumer goods.

The wastes problem has become so grave that a cabinet committee on solid waste management had to be set up in early 2006. At the end of April 2006, the then Deputy Prime Minister Datuk Seri Najib Abdul Razak, who headed the panel, ordered 16 of the dumpsites that posed a threat to public health to be closed immediately. Another 33 that were situated close to water sources would have to be shut down as soon as possible (Bhattacharjee, 2006).

In August 2007, an 88-page Solid Waste Management and Public Cleansing Corporation Act (SWPCM) which had been under review for ten years was finally approved by the Malaysian Parliament due to continuous waste problems. The PPSPA is expected to bring major changes and new challenges in waste management in Malaysia (Agamuthu et al., 2009, p.98; BERNAMA, 6 April 2010).

Isa et al. (2005, p.566) listed common waste management constraints and problems in Malaysia as follows:

- Non-availability of adequate funds, as waste handling is lower down the priority list when compared with other issues such as infrastructure development and industrialization.
- Lack of proper waste disposal sites; thus increasing transfer, treatment and disposal costs.
- Lack of expertise and manpower to run the programme.
- Public lackadaisical attitude towards waste reduction and recycling.
- Illegal waste dumping practice.

- Inefficient use of resources (money, equipment, manpower, time, etc.).

Agamuthu et al. (2009, p.26) claim that weak enforcement, lack of technology and ineffective policy implementation make the management of waste in developing countries, such as Malaysia inefficient with a very low possibility of improvement.

Based on a statistic by the Small and Medium Industry (SMI) Association of Malaysia (2007), the amount of solid waste recycled in 2004 remained at less than 5.0 percent of total waste disposed, despite concerted efforts to promote reuse, reduction and recycling (3Rs Concept) of materials through the National Campaign on Recycling. Watts and Probert (1999) state that a de facto implementation of the “3R” (Re-use/Reduce/Recycle) waste alternative (involving segregation of waste at the household) would be possible only with the full acceptance of an environmentally aware public.

Ridhuan (1994) claims that it is generally accepted that proper handling of waste is essential for public well-being and environmental protection, but the common attitude is that having paid the tax, all responsibilities related to waste handling rest with the local authorities. Thus, there is a need for the mass media to make a transformation of the society. The mass media, despite being channels of information and agents of change, should also play important roles in providing the public with accurate, reliable and unbiased sources of information.

Studies on the effect of mass media relating to the topic of the environment, in recent years, primarily have focused much on the attitudinal or behavioral change as on the cognitive change of the audience. This suggests a significant role of the mass media in shaping the public's perception of environmental problems. Englehardt and Barney (2002, p.84) described the media's responsibility in informing the community as a primary function of the media professional to distribute information that will help individuals to make informed decisions.

According to Vreese (2005, p.51), one influential way that the media may shape public opinion is by framing events and issues in particular ways. Marks, Kalaitzandonakes, Wilkins and Zakharova (2007, p.199) point out that understanding news frames and the events that drive them, provides some insight into the long-term formation of public opinion as influenced by news coverage. Likewise, a study by Tewsbury (2000) found that frames can have powerful effects on audience perceptions and ideas about an issue; exposure to one single news article on a particular issue was influential enough to direct respondent comments on the issue several weeks later. Goodman and Goodman (2006, pp.370-371) state that knowing the persistent frames and the tones of these frames related to environmental issues can be used to develop a media strategy that is proactive towards shaping public perception rather than reactive to an issue that makes its way to the media and spurs public concern.

The research problem identified for this study is the need to observe the role of the media in informing the public about environmental issues of consequence such as waste issues, using a quantitative and qualitative content analysis which examines the coverage trends of environmental and wastes issues and the framing of pertinent wastes issues in the selected Malaysian English-language newspapers.

1.3 Research Questions

This study was designed to answer the following questions:

- 1) What are the coverage trends of environmental issues in the *New Straits Times* and *The Sun* within the study period of 2003 and 2007?
- 2) What are the coverage trends of waste issues in the *New Straits Times* and *The Sun* within the study period of 2003 and 2007?
- 3) How do the *New Straits Times* and *The Sun* frame waste issues?

1.4 Objectives of the Study

Primarily, this study examines the reportage of environmental and waste issues in the *New Straits Times* and *The Sun* from the period of 2003 to 2007. Below are the specific objectives of this study:

- 1) To compare the trend of coverage of environmental issues by the two dailies; *New Straits Times* and *The Sun*.

- 2) To compare the trend of coverage of waste issues by the *New Straits Times* and *The Sun* from 2003 to 2007.
- 3) To analyze the structures and functions of frames used by the *New Straits Times* and *The Sun* in their reportage of waste issues.

1.5 Significance of the Research

The findings from this study can be used to understand the role of media in Malaysia, in particular, the newspapers. It would be able to show that the role as information transmitter and agent of change by the newspapers are performed through environmental and waste articles published in the *New Straits Times* and *The Sun*.

Besides that, the findings from this study would be able to show the importance of media framing in shaping the public's perceptions towards waste issues as several scholars (e.g., Kahneman & Tversky, 1979; Entman, 1993b; Lundy & Irani, 2002, p.2; Marks et al., 2007) claim that the way the media frame an issue could influence how readers understand the issue. Thus, appropriate framing of waste issues could educate the public into being conscious and responsible towards waste problems so that in the long run, Malaysia could overcome the waste problems in the country.

Previously, most studies of media framing on waste issues were done in developed countries where data are more accessible. Hence, this study provides findings in the local context that may serve the local interest of the Malaysians. Thus, the scarcity of media studies on waste issues in Malaysia can be overcome.

1.6 Scope

This study examines the trend of environmental and waste issues reported by the *New Straits Times* and *The Sun* and the presentation of news content (frame) regarding environmental and waste issues in those newspapers. Environmental and waste articles were collected within the time frame of 2003 to 2007. The *New Straits Times* and *The Sun* were selected as case studies because they carry a different ideology in their institution. Besides that, *The Sun* is a newly-established newspaper in Malaysia and is fast gaining popularity, whereas *New Straits Times* as the older English newspaper is already a well-known institution in Malaysia, but striving to survive in the midst of an even more challenging market despite the variety of newspapers in the market.

The *New Straits Times* is owned and controlled by the political party in Malaysia, and its board of directors maintained close alliance with the government's political party, *United Malays National Organization* (UMNO) until today. The *New Straits Times* is being controlled by the government through the laws and by leaders of the party through politics (Mohd. Safar Hasim, 1996, p.6). Here, one assumption

can be made that there is less freedom of reporting in the *New Straits Times*. The *New Straits Times* is currently the third largest English daily newspaper in Peninsular Malaysia with an average daily circulation of 109,341 (Audit Bureau of Circulations Malaysia, as at 30 June 2010).

The Sun is a free-hold newspaper which is not committed to any particular political party in Malaysia. *The Sun* enjoys its freedom in reporting news from both side; the government political parties and the opposition parties (Mohd. Safar Hasim, 1996, p.7). *The Sun* is currently the second largest English newspaper in Peninsular Malaysia in terms of circulation with an average daily circulation of 300,550 (Audit Bureau of Circulations Malaysia, as at 30 June 2010).

This study applied both quantitative and qualitative aspects of the related issue in the *New Straits Times* and *The Sun* and analyzed news content in terms of the newspaper layout. This included analyzing the frequency of environmental and waste management news coverage, width or length (size) of articles and pictures, sources of information or arbiters and news references. In terms of qualitative aspects, only prominent stories regarding waste issues are selected for detailed news framing analysis. Frames are studied in terms of the structures and functions.

Besides that, this study relates the role of ideological standpoints of the *New Straits Times* and *The Sun* in determining the representations of waste news. Carvalho (2006, p.5) describes ideology as a system of values, norms and political preferences,

linked to a program of action vis-à-vis a given social and political order, and she claims that media texts result from ideological standpoints (Carvalho, 2006, p.6). As Carvalho (2007) observes, different newspapers have their own worldviews and values within their organizations which are broadly shared by their specific audiences.

According to Dispensa and Brulle (2003, p.82), a spectrum exists in the journalism field, whereby newspapers can be liberal, conservative or “in-between”. Therefore, left-of-centre and right-of-centre journalists have exhibited different tendencies in their news decisions (Graber, McQuail & Norris, 1998). For example, in a story involving reduction of waste incineration to offset health problems, the left-of-centre journalists are more likely to emphasize the resultant improvements (but may be a little more conservative if the topic affects the shareholders of the company) whereas the right-of-centre journalists are more likely to focus on the costs to business due to these standards (Dispensa & Brulle, 2003, p.82).

Kellner (1995) argues that we should read media culture politically, aware that media texts embody certain political and ideological positions and have political effects. In doing so, this study assumes a politicized reading of waste reports in the *New Straits Times* as being right-of-centre and *The Sun* as being left-of-centre.

Table 1.1 Brief Background Information of the *New Straits Times* and *The Sun*

<i>New Straits Times</i>	<i>The Sun</i>
Type: Daily newspaper	Type: Daily newspaper
Format: Tabloid	Format: Tabloid
Owner: Media Prima	Owner: Sun Media Corporation Sdn Bhd
Publisher: New Straits Times Press	Publisher: Berjaya Media (Bhd)
Group Editor: Dato' Kamarul Mior Shahid	Editor: Tan Sri Vincent Tan (Key person), Chong Cheng Hai (Managing Editor)
Founded: June 1956 (as <i>The Straits Times</i>), 16 September 1972 (as <i>New Straits Times</i>)	Founded: June 1, 1993
Political allegiance: Right-of-centre	Political allegiance: Left-of-centre
Language: English	Language: English
Price: RM1.20	Price: Nation's free newspaper, 30 cents for delivery to doorstep
Headquarters: Balai Berita 31, Jalan Riong, 59100 Bangsar, Kuala Lumpur, Malaysia	Headquarters: 4 th Floor, Lot 6, Jalan 51/217 Section 51, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Circulation: 109,341 (Daily)	Circulation: 300,550 (Daily)
Website: nst.com.my	Website: http://www.sun2surf.com/

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CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Studies on waste issues which relate to the importance of the media in handling waste issues are still limited as most media studies tend to focus on popular global issues such as climate change and global warming. However, there is abundance of waste management studies carried out by scholars worldwide. Thus, information and knowledge on waste management alone has widened.

Many previous studies discuss topics on the aspects of (1) waste issues; (2) functions of the media; (3) media, science and the environment; (4) Malaysian newspapers; (5) media framing. These are the topics that were used for the literature review of this study. The topic on media framing is a representation of the theoretical framework of this study.

2.2 Waste Issues

The issues on waste have been focused in many studies since the previous decade. Basically, these studies were carried out by scholars from the United States of America, United Kingdom, European countries and a number of Asian countries such as Japan and Malaysia. Only a small number of these studies were taken as reference for this study based on its relevance to the Malaysian context. The scarcity in

academic resources on waste issues connected with the media is obvious. Notwithstanding the facts, any possible and related information from past studies which discuss about the state of waste problem, causes of waste problem and recommended solutions were gathered for this study.

Agamuthu et al. (2009, p.96) state that the increase in the world's population has resulted in a tremendous amount of solid wastes being generated. The United Nations Environmental Programme (2002) estimated that the global waste generation was 318 million in year 2000. With an annual increase of approximately six percent, global solid waste generation is expected to reach about 518 million tonnes in 2008 and 585 million tonnes in 2010 (Agamuthu et al., 2009, p.96). Agamuthu et al. (2009, p.96) also state that the actual figures for worldwide waste generation are not available due to the lack of proper data collection. Agamuthu et al. (2009, p.96) add that data from developed countries are more accessible due to their well-established policies and proper waste management systems that make continuous improvement feasible.

According to Hackl and Mauschitz (2008, p.6), waste has become a problem in industrialized countries in the recent decades. Therefore, proper waste management is necessary to overcome the negative effects of economic growth and rising standards of living. The main targets of modern advanced waste management are prevention, recovery of materials and energy and finally the treatment and safe

disposal of inactive residues without any risk for future generations, implemented by the precautionary principle (Hackl & Mauschitz, 2008, p.6).

Abdul Ghani Rais et al. (2006, p.1) point out that solid wastes and its management are continuously debated in Malaysia due to the fact that the amount of solid waste generated in the country is increasing at a geometric rate especially in large cities like Kuala Lumpur and the increasing awareness among the general public on environmental issue. Abdul Ghani Rais et al. (2006, pp.1-2) noted that the waste issues in Malaysia have always been on the problem of getting consistent and reliable data on solid waste, sub-standard systems and poor service level for storage, collection and disposal and poor accounting or budgeting systems for solid waste services. Abdul Ghani Rais et al. (2006, pp.1-2) claimed that there have also been debates on the issue of introducing capital-intensive systems such as transfer stations and thermal treatment plants in Kuala Lumpur into the solid waste management framework in Malaysia, while the issue of recycling has never been resolved.

Hamer (2003, p.21) notes that the safety and acceptability of many widely used solid waste management practices are of serious concern from the public health point of view, where such concern stems from both distrust of policies and solutions proposed by all tiers of government for the management of solid waste and a perception that many solid waste management facilities use poor operating procedures.

Daily municipal solid waste generation in Peninsular Malaysia today exceeds 19,000 tonnes. Approximately, 75.00 percent of this amount is collected and disposed off in 130 landfills and dumps (Agamuthu et al., 2006). An estimated 20.00 percent is burned or dumped into rivers or at illegal sites, while five percent is recycled. Malaysia's main option of waste disposal has been landfilling, although alternatives have been explored. The Malaysian government proposes to gradually establish several municipal solid waste incineration plants, simultaneously emphasizing the 3Rs (Reduce, Reuse & Recycle) in the future (Agamuthu et al., 2009, p.98).

Sahabat Alam Malaysia (SAM) (2009b), a non-government organization in this country, suggests that the only practical long-term solution to the waste problem is to stop making too much of them. SAM prepares several guidelines to overcome waste problem:

Malaysia needs a Sustainable Waste Policy which would spell out the legal mechanisms to empower local councils to enforce recycling and composting and for the government to tax or ban the use of disposable, indestructible and other environmentally unfriendly materials. Waste separation has to be enforced. Failure to comply will result in non-collection or fines (p.3).

Waste problems in Malaysia has come a long way since the 1980s when waste composition studies find that garbage and paper made up 70.0 percent of trash with up to a 15.0 percent reduction on average a decade later, and plastic disposal doubled during the same period (Sahabat Alam Malaysia, 2009a, p.141). Looking back at those times, knowledge and technology is uncomparable to the time Malaysians are living in today. With the advancement of knowledge and Information and

Communication Technology (ICT), Malaysians ought to search for suitable and better waste disposal methods, gather proper waste generation data and educate people to reduce waste. At the same time, weak enforcement and ineffective policy implementation of solid waste have to be avoided.

2.3 Functions of the Media

The mass media have been defined as the publishers, editors, journalists and others who constitute the communications industry and profession, and who disseminate information, largely through newspapers, magazines, televisions, radio and the internet (Boykoff & Roberts, 2007, p.2). The mass media have long gained recognition from all walks of life for being an affordable and readily accessible source of information. In this sub-topic, some of the frequently-mentioned media functions in previous studies held by scholars were discussed.

Mikami, Takeshita, Nakada and Kawabata (1995, pp.209-210) considers that the role of mass media as important in disseminating environmental information from reliable sources, giving accurate knowledge about the environment to the general public, setting agenda on environmental issues and promoting environmental preservation or protection policies.

In addition, Suhonen (1992, p.33) states that the most common approach to investigating the publicity of environmental issues perhaps has been based on the assumption that the mass media have the most active role in the media-public-policy connection. The statement was made referring to the media's function in providing information, setting the public agenda, functioning as watchdogs and gatekeepers, organizing the public and constructing the social reality.

According to Hutchins and Lester (2006, p.438), the media is more than a site for environmental action; it plays a significant role in shaping debate and influencing outcomes, where representations are determined, images softened or distorted and power granted or denied. Gans (2004, p.249) points out that this is where the power of journalism comes from – the “ability to determine what news enters the public stage on which messages are presented”.

Besides that, there is a considerable body of literature supporting the notion of the media's ability to influence “salience”. More recently, there is also growing consensus that in influencing what people think about, the media also shape how they think (Entman, 1988; Rogers & Dearing, 1988). And it follows from this that the world looks different to different people, depending not only on their personal interests, but also on the map that is drawn for them by the writers, editors and publishers of the papers they read (Cohen, 1963, p.13; Stein, 1972). Most often, choices for information can be left to the message senders like government officials, interest group leaders, et cetera, those eager to foster their own agendas, or the

choices can be left to the gatekeepers: the print and broadcast journalists, advertisers and media owners. A gatekeeper in the media is inclusive of those individuals that play a major role in deciding what makes news or articles (i.e., newsworthy) (Graber, McQuail & Norris, 1998). Normally, a story is considered newsworthy by the gatekeepers if it consists of the following qualities: publicly recognized, important and interesting (McAdam, McCarthy & Zald, 1996).

Ohkura (2003, p.237) emphasizes her study on the coverage of newspapers regarding Isahaya Bay land reclamation project issue as she considers the newspapers are the most reliable information source, as well as being readily available for examination. In her study, Ohkura (2003, p.243) notes that the self-proclaimed role (of media) as independent and neutral watchdog, the standing for the public interest, and therefore confronting the establishment, may be one of the most important challenges to prove their existence and thus their necessity to society. Ohkura (2003, p.243) adds that the newspapers and other news media have, however, yet to fulfill their role; instead they are “servants” of the establishment because they do not pursue their journalistic function of reporting news on the basis of their own investigations rather than simply taking the flow of information from government and industry, resulting themselves (newspapers) to be toothless watchdogs.

Driedger (2007) highlights that the influence of the mass media on public opinion has been shown to be quite short-lived because media coverage jumps from issue to issue, often from day to day. According to Bennett (2007, p.91), most people

pay little attention to an issue or event until it reaches saturation coverage and continues to make the news regularly for an extended period of time.

On the contrary, Håkansson (2000, p.7) points out that although there is a seemingly everlasting debate on whether and how media has an effect on its audiences, it is fairly uncontroversial to suggest that the way the news media portray public events is of importance for public knowledge and opinion.

Hence, Dudo (2005, p.4) suggests that the media must do more than present myopic, sensationalized information about the environment; they must present detailed information in a contextualized, accurate manner so as to equip the public with the knowledge they need to guide their understanding of, and actions toward, the natural environment.

Media serves as an important information transmitter and agent of change to the public. However, these roles of the media (e.g., newspapers) are often restricted by the lack of freedom in reporting. It occurs due to the existing constraints in the media industry which are pressed upon journalists and editors by the government officials, interest group leaders and media owners. Graber et al. (1998) stress that no single party, interest group or news organization should serve as the sole gatekeeper, and to keep a variety of news there should be a variety of newspapers and magazines and writers and editors.

2.4 Media, Science and the Environment

In this sub-topic, the relationships between media, science and the environment were presented. The importance and benefits of media in reporting science stories was identified, in terms of connection between media and science. Besides that, several common constraints in the reporting of science stories were identified. These constraints include the media ownership and control (e.g., Shoemaker & Reese, 1991; Einsiedel, 1992, pp.99-100; Hansen, 1994; Blood, 2002, p.7), knowledge of the reporters (e.g., Nelkin, 1987; Einsiedel, 1992, p.99; Friedman, 1994; Duquesne surveys reporter, public corporations, 1995; Sachsman, Simon & Valenti, 2004, p.414) and contradiction of philosophy between science and media (e.g., Perlman, 1974; Friedman, Dunwoody & Rogers, 1986; Hansen, 1994; Schnabel, 2003, p.258).

The role of mass media requires more than simply just reporting or transmitting information; it goes to the extent of being a reliable and quality informant to effectively function as a medium for public change. Hessing (2003, p.26) describes the newspapers as a primary means of cultural transmission, for not only “reporting” the news, but for learning to perceive what is newsworthy and what is important. Einsiedel (1992, p.89) describes the role of mass media as a channel that has become increasingly important to the public’s understanding of science because, for most individuals, it is the media that inform and educate about science – related issues of the day.

Moreover, the presence of media is both beneficial to the public and scientists, in particular. This is even more so when the press publishes science stories that have the scientist's name in it. Appreciation after a hard days work certainly motivates scientists to move on. According to Schnabel (2003, p.256), science articles in the press can provide a scientist with something he or she would never get from the scientific community alone such as understanding and recognition, not only from the public but also from friends and relatives. Schnabel (2003, p.256) adds that the appearance of a scientist's name in the press gives him or her different valuation than an appearance in a scientific journal.

While there are several media available, for instance, print media and electronic media, scientist may still choose to pick the print media as his or her preferable choice. There are a few reasons that lead scientist to making such choice. After interviewing reporters who regularly cover environmental issues for daily newspapers and television stations in the U.S. New England, Mountain West states, Pacific Northwest and Southern states, Sachsman et al. (2004, p.413) discover that the newspapers were far more likely than television stations to have a reporter covering the environment on a regular basis, and while television coverage provides instant visibility, the print media often provide the kind of in-depth coverage that scientists seek in order to explain a complex issue such as risk assessment. Therefore, it is not surprising that scientists are willing to invest time in seeking out and developing personal relationships with area print reporters to gain benefit from having their work publicized (Sachsman et al., 2004, pp.413-414).

Despite that, the print media also face constraints in delivering science stories. The foremost constraint comes from the newsroom administration itself. Hansen (1994, p.111) claims that the newspaper coverage of science is governed and shaped by both macro-level factors such as ownership and cultural resonances, and by the more micro-level factors of journalistic practices, professional values and organizational arrangements.

According to Blood (2002, p.7), the journalistic decision to include or to exclude information in a news story stems from organizational and routine newsroom practices, perceptions of the audience and socio-cultural factors. For instance, Gitlin (1980) suggests that excluded information is usually what audiences might find ambiguous, unpredictable or culturally unfamiliar. On the other hand, emphasis given to information in a story results from the placement of that information, repetition or association of the information with culturally familiar language and symbols (Entman, 1993a; Phalen & Algan, 2001).

Shoemaker and Reese (1991) agree that journalists are most often constrained by organization routines and higher level power arrangements. Shoemaker and Reese (1991) explained their statement further by offering an example:

Upper management decisions on allocation of resources will certainly affect how environmental reporting is carried out. In particular, managers control the allocation of journalistic time, the allocation of newshole and the allocation of budget to reporting topics. Another resource allocated by managers, technology, is one of the most rapidly changing in newsrooms, and may be especially important in environmental reporting (p.3)