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**Environmental Management :
Public Campaigns and the Mass Media in Singapore**

By

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ENVIRONMENTAL MANAGEMENT: PUBLIC CAMPAIGNS AND THE MASS MEDIA IN SINGAPORE

VICTOR R SAVAGE AND MOHAMAD RASID ZAINI

Singapore's Ministry of Environment has outlined six strategic trusts to achieve its vision of developing Singapore into a model green city. Two of the six would require the active involvement of Singaporeans.

- (a) To educate the people to be environmentally conscious. The Ministry hopes to reach out to schools, corporations and the media to promote environmentalism and green consumerism.
- (b) To conserve resources. The Ministry hopes to promote an environmentally friendly life style which includes waste minimization (reduction, reuse, recovery and recycle) and energy conservation. (Ministry of Environment, Singapore, 1992:11).

While much of the effort in Singapore's environmental management has dealt essentially with government initiatives in massive urban redevelopment and the development of environmentally friendly infrastructure, the maintenance of a clean and green environment, however, requires a responsive and pro-active public. The Ministry of Environment's new objectives clearly indicate a recognition of this fact that a clean and green environment can no longer be maintained purely on the initiatives of public policies or stark draconian punitive measures (fines, jail terms). In order to achieve public awareness and commitment to the environment requires a massive environmental educational programme. In Singapore, the persuasive environmental education has been

traditionally carried out in the form of public campaigns. This paper hopes to shed some light on an evaluation of public campaigns and focus on one aspect of the mass media (i.e. Malay newspapers) in enhancing public environmental education in Singapore. The paper is based on a survey of 445 school, Junior College and first year University students and an analysis of 4 years (1975, 1980, 1985, 1990) of news in Singapore's Malay newspapers - the Berita Harian and Berita Minggu.

PUBLIC CAMPAIGNS

Singapore is well-known for its many eco-friendly and environmental campaigns such as "Keep Singapore Clean", "Keep Singapore Clean and Mosquito Free", "Keep Singapore Clean and Pollution Free", "The Clean and Green Campaigns", "The Tree Planting Campaign", "The Clean Public Toilet Campaign" and "The Clean and Green Week" (see Appendix 1). All these public campaigns spearheaded by the Ministry of Environment has been an attempt to keep Singaporeans aware of maintaining a clean and green environment. From time to time, other campaigns such as "Save Energy", and "Save Water", have been pursued but these campaigns specifically addressed issues that the country faced. For example, in the 1970s, the energy crisis led to an intensive campaign to save energy. In the 1960s and 1970s, when we faced with long periods of drought and water levels in the reservoirs were at very low levels, the government was actively involved in the "Save Water" campaign.

Since 1990, the Ministry of Environment has stepped up its public campaigns on environmental issues. Increasingly, the public education campaign has been focused at not only the general public but also the school going population in Singapore. In fact, over the last few years, schools have taken an extremely pro-active role in public education.

i) Overview of Public Campaigns

Since the 1950s, numerous campaigns towards greater public environmental consciousness have been launched. The target groups of these campaigns included schools, grassroots organisations, and private companies. The first attempt was the mass campaign organised in every electoral constituency to "Keep Singapore Clean" (1959), (Pakiam, 1982:17).

The new vision to develop Singapore into a model "Environmental City" by the year 2000 is based on maintaining a clean and healthy urban environment, and ensuring that Singapore becomes the base for regional and international environmental activities (Ministry of Environment, 1990:preface). This aim led to a new spate of campaigns with a different focus. Campaigns launched utilised multiple methods of disseminating information; through various media modes, public talks, exhibitions and participatory activities. For example, the "Clean and Green Week" was a principal event launched by Mr Goh Chok Tong in November 1990, to raise

awareness of both local and global environmental issues through public education and participatory activities. It sought to evoke environment-friendly attitudes amongst students, businesses and community at large (EnvNews, Jan 1991:7).

To this end, the Ministry of Environment has produced special pamphlets and handbooks, videos and souvenirs like T-shirts, button-badges, sun visors, stickers and car labels (EnvNews, Jan 1991:7). Pamphlet titles include "50 ways to be Green", "Man and Nature" and "Help Save our Ozone Layer". Extensive media coverage of environmental issues and environment-friendly messages were promoted via the television, radio and newsprint. It was at this point that the "Green for Life" logo and the "Captain Green" mascot were introduced. A 60-second Captain Green cartoon was screened over TV and the rap song specially composed by local artiste Dick Lee was played over the radio daily

during the week and after the campaign (EnvNews, Jan 1991:7).

In addition, campaign efforts included the display of posters with the theme "Green for Life" in public places such as MRT stations, shopping centres, community centres and taxi-tops. During the Clean and Green campaign in line with the theme of resource and nature conservation, the movie "The Blue Planet" was screened in the Science Centre (The Straits Times, 3/11/91:11). The numerous activities held in conjunction with the Week were also widely covered by the media and the main English newspaper, The Straits Times even had a column specially on the Week (Table 1). The dissemination of information through the media is also bolstered by the formation of the 'Environmental Communicators of Singapore' (ECOS) (within the Ministry of Environment). The aim of the group is to "promote interest in and the quality of reporting on environmental issues" (Singapore Green Plan, 1992:42).

At constituent levels, efforts in line with the general objectives of these national schemes were organised. Here, the Residents' Committees (RCs) and Community Centres (CCs) led the way. Some campaigns at the constituent level include the 'Cleanest Estate' and the 'Cleanest Block' competitions.

ii) Talks and Exhibitions

Incorporated in the campaigns were public lectures, forums, and exhibitions. In 1990, a youth conference on the environment and a "Care for the environment" exhibition at the Marina Centre was held. There was also a talk on "Nature At Your Doorstep" (EnvNews, Jan 1991:8). A seminar on "Business for the Environment" and talks on the future of Singapore's coral reefs, nature conservation and the tropical forest were also organised (The Straits Times, 3/11/91:11).

TABLE 1 - HIGHLIGHTS OF 1991 CLEAN AND GREEN WEEK

Date (1991)	Main Events
3rd November	Launch of Clean and Green week 1991 - Reforestation Programme
	Recycling of Plastic Bags
	Outdoor Concert (Botanic Gardens)
	Band Performance (MacRitchie Reservoir)
4th November	'Business for the Environment' Seminar
	Inter-school waste recycling competition
	Preview of 'The Blue Planet'
	Nature Tours on Sentosa
5th November	Launch of Waste-Recycling Project
	Nature Tours on Singapore
6th November	Talk on 'Singapore's Coral Reefs'
	Regional Youth Conference (Day 01)
	Enviro Asia Exhibition 1991 (Official Opening)
	Nature Tours on Sentosa
7th November	Talk on 'Nature conservation'
	Nature Conservation Photo Competition
	Nature Tours on Sentosa
8th November	'Ride and Walk' Programme
	Talk on 'Tropical Forest'
	Nature Tours on Sentosa
9th November	Presentation of Green Leaf Award Closing Ceremony
	Nature Tours on Sentosa

(Adapted from The Straits Times, 3/11/91:11)

Besides campaigns, public talks and exhibitions were held with the aim of increasing public awareness of environmental issues. In early 1988, an exhibition on the History and Progress of Environmental Management was held at the Environment Building (EnvNews July 1988:8). School children, the main target group were invited to the exhibition. The exhibition emphasised the role of the individual in maintaining a clean environment.

A Singapore-US Seminar cum exhibition on CFCs was held in September 17-19 1990. It was a joint effort by the Ministry of Environment, United States Environmental Protection Agency (USEPA) and the Industry Cooperative for Ozone Layer Protection (ICOLP). Three hundred and sixty participants from ASEAN, USA, Taiwan, Japan, Australia, Europe and Canada attended the seminar. A major event was the Enviro Asia '91 exhibition which featured how individuals could adopt environmentally friendly habits at home.

In the case of public lectures, a series of four lectures were launched in March 1991. These lectures served to give an insight into what the public could do to help spread the environmental message as well as provide a form of public feedback on various environmental issue (EnvNews Mar 1991:4). More important the thrust of the lectures were targeted at at safeguards for public health than environmental issues per se. The titles of the lectures were:

1. Vehicle Emission Control
2. Local & Global Environmental Issues
3. Controls of Household Pests and Vectors
4. Controls of Communicable Diseases

5. Food-Borne Diseases & Food Safety

In August 1992, the second set of public lectures were held also at the Environment Building. Topics included:

1. *The Benefits of Catalytic Converters*
2. *The Green Labelling Scheme and Green Consumer Products*
3. *Aedes Mosquitoes & the Spread of Dengue Fever*
4. *More about Legionnaire's Disease*

(The Straits Times, 15/8/92:31)

iii) Public Participatory Activities

In both 1990 and 1991, the Clean and Green Week campaigns involved a considerable number of participatory activities. There was a waste recycling project, the launching of "Care for Nature" programme, the "Ride and Walk" programme and the "Adopt A Beach and Park" programme in 1990 (*EnvNews*, Jan, 1991:8). In 1991, there were nature tours on Sentosa, nature conservation photo competitions, the "Ride and Walk" programme as well as various waste recycling projects (*The Straits Times*, 3/11/91:11).

Efforts towards greater environmental awareness continued unabated after the end of the Clean and Green Week. For example, when Earth Day was celebrated on 22 April 1992 a whole host of activities were held. These activities included a "Thumbs up for Green" campaign where members of the public dipped their hands in green paint and left a permanent mark on a giant T-shirt, the donation of 15 waste recycling receptacles to 12 schools and the setting up of environment booths at the Dynasty Hotel's Forecourt by the Jalan Hijau group (*The Straits Times*, 23/4/92:24). In addition, Singaporeans were asked to sign the Earth Pledge made to commemorate the day. This was the first

time Singaporeans have been asked to sign the pledge initiated by UNCED (Table 2).

Similarly, to commemorate World Environment Day on 5 June, a nation-wide essay competition with the theme "Global Warming: Global Warning" was organised. A video show produced by the United Nations Environment Programme entitled "The Greenhouse Effect" was also screened at the Singapore Science Centre, National Library branches and the Environment Building (Ministry of Environment, 1989:13).

The effectiveness of Singapore's campaigns in the past is difficult to gauge. While campaigns do create and heighten a sense of awareness among the public with regard to specific environmental and green issues, one wonders to what extent was the public responding to the government's campaigns. It is likely that Singaporeans react to public environmental campaigns for three reasons. The first is that environmental campaigns hit the pockets of Singaporeans. Higher charges for energy and water consumption are likely to make Singaporeans conscious of the need to conserve water and energy resources rather than the fact Singaporeans have become conscious of the need for energy and water conservation. Second, most of the government's public campaigns have come with rather stiff punitive laws and regulations. All the signs reminding Singaporeans of environmentally unfriendly behaviour (e.g. littering, smoking, not flushing the toilets) are always accompanied by fines that will be levied if one breaks these laws. Not only for individuals, but even corporations, environmental laws have been dutifully enforced. For example, 157 cases (companies) in 1990 were prosecuted for pollution and 180 cases in 1991 were prosecuted. Thirdly, Singaporeans also react positively to environmental friendly issues because of the benefits and rewards they see in them. Many housewives are involved in the various recycling attitudes because of the income and economic benefits derived from recycling, selling old newspapers, bottles and

TABLE 2 - ACTIVITIES HELD ON EARTH DAY 1992

Date (1992).	Activities
22nd April	Adoption of tree at Singapore Zoological gardens.
	Presentation of 15 waste recycling receptacles by British Petroleum to 12 Schools in Brickworks.
	Pledge by 300 3M Singapore employees to care for the Planet.
	Beach clean-ups involving Hard Rock Cafe staff and 500 primary and secondary school students
	Four stalls dedicated to the environment opened at the Festival Market.
	Setting up of a booth by Jalan Hijau at Dynasty Hotel's Forecourt and a \$5,000 cheque presentation by Tangs to the Nature Society.
25th April	Two-day "Thumbs-up for Green" Campaign. Du Pont donation of \$5,000 to the Nature Society.

(The Straits Times, 23/4/92:24).

clothes to the Karang Guni (rag and bone) have economic benefits for housewives.

PUBLIC ENVIRONMENTAL CAMPAIGNS IN SCHOOLS

At the inter-school level, environmental programmes and activities are usually organised by the Ministry of Environment and sponsored by private organisations. A major participatory activity undertaken by schools is the 'Adopt a beach' programme. This scheme, started by the Ministry of Environment in 1990 allocates little stretches of beaches to schools that have volunteered to participate. Students of these schools are then 'responsible' for the cleanliness of their allocated beach area. This activity is aimed at instilling in students a need to take care of the environment. Loyang Secondary is an example of a school that embraced the programme. Since January 1991 on a weekly basis, students have been sent to clean their adopted beach (a ten minute walk from the school) (The Straits Times, 30/3/92:3). Raffles Girls School was another school that held a massive 'Cleanathon' along the East Coast Parkway beach involving about 1,400 students and parents (The Straits Times, 14/4/92:22).

On an inter-school basis, schools have participated in recycling competitions. Eighteen schools participated in a 'Waste Recycling' competition held as part of the Clean and Green Week in November 1991 (The Sunday Times, 10/11/91:17). In total 126 tonnes of waste was collected and the top school, Chestnut Secondary won the competition (S\$5,000). The aim of the competition was to remind students of the 'Karang Guni' (rag & bone) spirit which recycles used products. Another 'recycling competition' the 'Crush of '91' was organised by Asia Pacific Breweries in October last year. This competition on a national scale involved the recycling of aluminum cans. Students earned one cent for every used aluminum can brought in. Schools that took part included Raffles Girls and Loyang Secondary. This competition was aimed at educating Singaporeans about

the advantages of recycling (The Straits Times. 3/11/91:13).

Besides these activities, schools had a chance to show off their commitment towards the environment at the 'Enviro-Fair' held at Fort Canning Park on World Environment Day 1992 (5 June 1992). The event was both participatory as well as educational as students who visited the exhibits learnt a few environmental tips. The theme of the exhibition organised by the Ministry of Environment was 'Only One Earth' - Care and Share' and was graced by Dr John Chen, Chairman, Government Parliamentary Committee for the environment (Enviro-Care, 1992:5). Twenty schools ranging from primary schools to tertiary institutions participated. Queensway Primary put up a skit featuring little green frogs entitled "We want to live" and the students from Elling Primary recited poems and told stories with an environmental theme. Stalls put up by various schools highlighted several themes. Yio Chu Kang Secondary put up an exhibit on processing recycled paper, Fairfield Methodist Secondary focused on saving aluminum cans and several other schools displayed handicrafts made from recycled materials (Enviro-Care, 1992:5).

On an individual school basis, some schools have been on-going recycling programmes. Schools which have these bins include Victoria Junior College. Catholic Junior College, Loyang Secondary, Raffles Girls School and Fairfield Secondary. Huge and brightly coloured recycling bins obtained from British Petroleum (BP) stations are placed at conspicuous places so that students can conveniently deposit material for recycling. These bins have been also deposited in the grounds of the National University of Singapore in different faculties.

Besides the recycling of waste material, some schools also initiated other environmental activity oriented programmes. For instance, in interviews with several schools (Fairfield

Secondary, Loyang Secondary and Raffles Girls School) it was pointed out that the collection of used batteries were also involved in the campaigns. Other activities that students could participate in were paper-making and poster designing. Both Tanjong Katong Technical and Raffles Girls School initiated a poster drawing competition on environmental themes. Fairfield Secondary gave students a hands-on experience at making recycled paper.

The influence of government environmental campaigns has influenced students' environmental awareness. This is evident in students' relatively high awareness of pollution. The highest percentage on pollution (31% of students responses) was recorded when 445 students were asked to list environmental problems that come to their mind. Since 1990, the "Clean and Green" Campaigns have focused on the three Rs - reuse, reduce and recycle. Students' environmental awareness seem to reflect this emphasis. When asked to name three ways in which they could save the environment, 13% cited recycling waste, 12.3% cited avoiding the use of disposable products and 9.3% mentioned reducing waste.

In contrast to the relatively low level of awareness of environmentally friendly organisations, students are more aware of government policies on the environment. The no response rate for this question was remarkably lower (44.4%) and a range of 18 responses from the open ended questions was registered. The most popular student response was the "Clean and Green" Week (17.6%) which incorporated the "Green for Life" Campaign. This was followed by recycling projects (9.2%) and the "No Smoking" Campaign (5.4%) (see Table 3). Besides these campaigns, students also mentioned legislative issues like fines for pollution; control of car emission levels and the ban on ozone unfriendly products. These reflect not only government efforts in public

TABLE 3 - GOVERNMENT POLICIES IN SINGAPORE

	Government Policies	1st Response	2nd Response	Ave.(%)
1	Clean and Green Campaign	28.3	7.0	17.6
2	Recycling	11.7	6.7	9.2
3	No Smoking Campaign	6.3	4.5	5.4
4	Anti-Littering	5.6	4.3	5.0
5	Use of Legislation	3.6	4.3	3.9
6	Tree Planting Programs	3.6	2.3	3.0
7	Ozone Friendly Campaigns	1.8	3.8	2.8
8	Use of Unleaded Petrol	1.6	2.3	1.9
9	Control of Car Emission Level	1.4	1.8	1.6
10	Save the Earth Campaign	1.6	1.6	1.6
11	Save Water and Electricity	0.9	0.9	0.9
12	Preservation of Wildlife and Nature	1.1	0.5	0.8
13	Ban Chewing Gum	0.7	0.7	0.7
14	Adopt a Beach Program	0.9	0.2	0.6
15	Control Car Population - COEs	0.7	0.2	0.4
16	Singapore's Green Plan	0.2	0.5	0.3
17	Cleaning of Singapore River	0.2	0.2	0.2
18	No Response	30.6	58.2	44.4
	Total	100.0	100.0	100.0

campaigns which schools are involved in but also the punitive measures taken against environmental culprits that help to bring home the message.

Although students expressed a strong emphasis on pollution as an environmental problem, their knowledge of specific pollution issues at a global level was generally poor. A very low percentage of the 445 students in the survey could arrive at the correct answers to questions on the Exxon Valdez accident (11.9%), the Bhopal tragedy (17.1%), the Kalimantan forest fire (28.5%) and the Japanese Minamata disease (17.3%) (see Table 4).

Generally, students were found to have vague conceptions of environmental in countries that were geographically distant from Singapore. Students had the best ideas of countries in the region and countries that featured in the mass media (USA, China, Japan). Countries such as Brazil, France and Russia were listed persistently by students as having "no idea" on issues such as population, forest reserves and pollution (see Table 4A)

MASS MEDIA AND THE ENVIRONMENT

To deal with the effectiveness of the mass media with regard to environmental issues requires an understanding of both the supply of information (i.e. newspapers, TV, magazines) and the public response. If the various channels of mass media communication do not deal with environmental issues, then the public is unlikely to be informed and kept aware of such environmental issues. On the other hand if the public is not interested in the mass media coverage of environmental issues, or worst still do not subscribe to the types of mass media (TV, radio, newspapers, magazines) that cover such issues, it is unlikely that the public will be affected by the mass media coverage of

TABLE 4 - ENVIRONMENTAL ISSUES: POLLUTION ISSUES

	Environmental Knowledge Pollution Issues (Correct Answer Underlined)	Wrong Answer (%)	Correct Answer (%)	Total (%)
1	Where was the Exxon Valdez accident? a. Africa b. Antarctica c. Arctic d. <u>Alaska</u>	88.1	11.9	100
2	What happened at Bhopal on December 2, 1984? a. Forest fire b. Nuclear accident c. <u>Poisonous gas leak</u> d. Major oil spill	82.9	17.1	100
3	Where was the major fire last year that caused a hazy atmosphere in Singapore? a. Luzon b. Sumatra c. <u>Kalimantan</u> d. Java	71.5	28.5	100
4	What was the cause of the 'Minamata Disease' in Japan? a. Toxic gas explosion b. Pesticide poisoning c. Radiation d. <u>Mercury poisoning</u>	82.7	17.3	100

TABLE 4A - RANKINGS OF COUNTRIES WITH 'NO IDEA'

Country	Population	Forest Reserve	Pollution
Least Idea	Brazil 28.1%	France 51.5%	France 52.1%
2nd Least Idea	Russia 27.6%	Russia 49.7%	Russia 51.9%
3rd Least Idea	France 25.6%	Canada 35.7%	Brazil 44.5%

environmental issues.

Overall, the study suggests that the general low levels of student knowledge on global environmental issues reflects student reading habits of the printed media. The types of magazines students read also influence students' awareness of environmental issues. The weekly entertainment guide, 8 days was found to be the most widely read amongst students (21.4%), while only 3.8% read the National Geographic and 5.4% read Asiaweek (magazines that deal with environmental issues periodically). In addition, students gave priority to news sections like entertainment (26.7%, highest percentage) and sports (14.2%) rather than current international or local news. Such reading habits amongst students exacerbate their poor environmental knowledge.

THE MALAY PRESS ON ENVIRONMENT

Based on four years (1975, 1980, 1985, 1990) of newspaper reports, there were 2,024 environmental reports covering 50 environmental issues in the Malay Press (see Table 5). Over the four years, 18 major environmental themes have been identified. They are (1) earthquakes, (2) floods, (3) hurricanes, (4) air pollution, (5) clean and green issues, (6) famines, (7) endangered wildlife, (8) energy alternatives, (9) oil spills, (10) nuclear hazards, (11) drought, (12) water pollution, (13) global warming, (14) landslides, (15) volcanic eruptions, (16) general issues reporting seminars, conferences and exhibitions on environment, (17) energy conservation and (18) rains, snow and so forth (see Table 6). In each of the 4 years reviewed, there were some 'common' as well as some different environmental themes. In 1975, floods, earthquakes, oil spills, hurricanes, clean and green, air pollution, landslides, rains, famines and water pollution dominated. In 1980, earthquakes, hurricanes, clean and green, energy alternatives, floods, nuclear hazards, famines, air pollution, energy conservation and wildlife endangering predominated. In

TABLE 5 - CLASSIFICATION OF ENVIRONMENTAL ISSUES

No.   Environmental Issues

Man-induced Environmental Problems

1. Oil spills, sea pollution
2. Air pollution (which includes toxic chemical gas leaks and pollution caused by vehicle and industrial emissions)
3. Water pollution
4. Noise pollution
5. Ozone layer depletion
6. Wildlife endangering
7. Nuclear hazards
8. Acid rain
9. Deforestation
10. Famines and malnutrition due to human population increases
11. Famines and malnutrition due to other factors
12. Dam construction and related problems
13. Soil erosion
14. Land pollution and dumping of toxic wastes
15. Natural resource depletion
16. Energy crisis
17. Environmental problems of urbanisation
18. Impact of development on the environment
19. Pests and dirty environment
20. Threats to agriculture
21. Waste disposal
22. Water crisis

Natural Hazards

23. Landslides, Mudslides, Snow Avalanches
24. Hurricanes
25. Heat or Cold waves

- 26. Volcanic eruptions and lava flows
- 27. Tsunamies
- 28. Floods
- 29. Drought
- 30. Snow, Rain, Hail
- 31. Forest fires
- 32. Natural disasters in general
- 33. Wind erosion
- 34. Mists
- 35. Earthquakes and tremors

Environmental Management Themes

- 36. Energy conservation
- 37. Waste recycling
- 38. Clean and Green issues which include local and non-local cleanliness and tree planting campaigns
- 39. Energy alternatives
- 40. Natural resource exploration and exploitation
- 41. Water recycling, purification and desalinization
- 42. Natural resource management themes
- 43. Agricultural issues (such as alternative agriculture and so forth)
- 44. Environmental impact assessments
- 45. Water conservation
- 46. Environmental awareness

General Environmental Themes

- 47. Mass media reporting on environment
- 48. Natural beauty
- 49. General issues (such as coverage on environmental seminars, exhibitions and so forth)
- 50. Earth Day reports

TABLE 6 - MAJOR ENVIRONMENTAL ISSUES IN THE PAST TWO DECADES
1970s - 1980s

No.	Environmental Issue	Total
1	Earthquake	273
2	Floods	205
3	Hurricanes	185
4	Air pollution	142
5	Clean and green	139
6	Famines	82
7	Wildlife endangering	69
8	Energy alternatives	68
9	Oil spills	67
10	Nuclear Hazards	48
11	Drought	41
12	Water pollution	35
13	Global warming	27
14	Landslides	20
15	Volcanic eruptions	20
16	General issues	20
17	Energy conservation	17
18	Rain	14
	Total	1472

1985, hurricanes, air pollution, earthquakes, floods, famines, wildlife endangering, nuclear hazards, clean and green, volcanic eruptions and energy alternatives were the ten major environmental issues. In 1990, earthquakes, drought, clean and green, air pollution, wildlife endangering, global warming, water pollution, hurricanes, reports on general environmental issues and floods comprised the major issues.

I Environmental Coverage

Of all the environmental issues, natural hazards (earthquakes, floods and hurricanes) featured predominantly in all the four years. The sustained coverage over the 4 years and their high ranking as top environmental issues for each year reflects the newsworthiness of such environmental crisis items. No matter how objective and balanced their news coverage is, newspapers usually tend to be biased towards sensational and dramatic news items. Ecological catastrophes either natural or man-induced are by nature dramatic news items because of the high costs to human life and damage to property. Other environmental issues that were sustained over the four years were clean and green issues and air pollution. The persistence of local clean and green issues mirrored the Malay newspaper's role as the government's mouthpiece while publicising the various clean and green campaigns and slogans (such as the 'Anti-littering' and 'Anti-spitting' campaigns). Its persistence also shows that domestic issues, no matter how minor, attract the Malay populace. Air pollution remained a major issue in all the four years partly because of the government's sustained commitment in addressing the deteriorating air quality in Singapore. As a city-state, it is not surprising that air pollution featured prominently - this is an urban-based environmental problem, a problem stemming from both the urban vehicle population and industrialisation.

The occurrence of the nuclear accidents such as in Three Mile Island (in 1979) and

poisonous gas leakages like in Bhopal (1984) preceded the specific years selected in this study (1980 and 1985) but nevertheless attracted the newspaper interest in the following years because they were sensational and dramatic. These major dramatic accidents have been used as benchmarks and reminders by the Malay press on the dangers of environmental problems in subsequent years. Dramatic and sensational news on natural hazards also explained why natural disasters of one kind or another remained 'popular' news items. Newsworthiness of environmental news also reflects global environmental problems. For instance, the energy crisis of 1973-74 and 1979 and the food crisis of 1974 led to a spate of news reports on energy alternatives and famines. The absence of energy alternatives as a major environmental issue in 1990 coincided with the 'subsidence' of the energy crisis by the late 1980s.

The decade of the eighties registered the highest number of environmental articles published. In 1975, there were 468 environmental articles featured. In 1980 this figure increased to 569 but fell to 542 in 1985 and in 1990 it dropped drastically to 445 which is significantly less than the 1975 figures. Based on 365 days per year, on average at least one environmental news item appeared daily in the Malay newspapers for the four years (1.28 environmental news each day in 1975, 1.55 in 1980, 1.48 in 1985 and 1.21 in 1990).

On average, the top ten environmental issues in any particular year generated over 70 per cent of the total environmental articles featured in any particular year. The total number of environmental reports covering the top ten issues for all the four years amounted to 1,472 which comprised about 73 per cent of the total of 2,024 articles reported on the 50 environmental issues.

2. Specific Environmental Issues

For the past two decades, there was an equal mix of environmental issues that were concerned with natural disasters and those that are man-induced environmental problems. Natural disasters remain at the forefront of environmental issues that captured the Malay media attention in all the four years under study. For the past two decades, natural disasters such as floods (in 1975), earthquakes (1980 and 1990) and hurricanes (1985) were the most frequently reported issues. In addition, of the top ten environmental issues featured, natural disasters comprised about three to five of the top ten issues. The high frequency of natural disasters in any specific year reflects their monthly appearance in the Malay newspaper. Natural disasters for all the four years (1975, 1980, 1985, 1990) have remained in the Malay community consciousness because they have been covered in nearly every month and not concentrated in a few months.

i) Natural Disasters

Natural disasters have been global in their occurrences and it demonstrates that these calamities have universal media appeal, irrespective of nationality. In 1985, there was coverage of the Mexico earthquake and in 1990 the Malay newspapers focused on the Iranian and Philippine earthquakes. In part, contemporary natural disasters or specific ad hoc events have captured the Malay media interests and placed these issues in the top ten environmental issues in the Malay press.

ii) Oil Spills

Oil spills were featured prominently (third place) in 1975 but they lost their media appeal in the subsequent years. This is because in 1975, there were a lot of media hype on oil pollution problems caused by collision of oil tankers in the Melaka Straits and the waters around Singapore. In the later years, tanker accidents and oil spills have

decreased considerably due to improved management and control over the maritime traffic in the two region. Reports on this issue consequently declined. Unlike in the western newspapers where extensive coverage on the Exxon Valdez oil spill (in Alaska in March 1989) emphasised the impact on marine ecology, the Showa Maru accident received media limelight primarily because of its political implications on affected Southeast Asian countries (Singapore, Malaysia and Indonesia). By overplaying the political issue, the Malay newspaper gave scant attention to the negative impact on the marine ecology. The ecological issue captured the Malay press attention at most on two occasions (BH, 10 Jan 75; 20 Jan 75).

iii) Nuclear Hazards

Nuclear hazards have remained sensitive news items in the Malay press. The press reports reflect the frightening threat of nuclear war, the colossal devastation nuclear hazards can cause and its effect on human beings, for example as contained in the reports on Chernobyl disaster in Soviet Union in April 1986 (although this tragedy did not generate as many articles to place it among the top ten environmental issue in 1990). One of the articles commenting on the effects of Chernobyl holocaust reported on the birth of a two headed baby due to radioactive radiation suffered by the mother (BH, 24 Feb 90). Nuclear hazards gained prominence in the 1980s due to the Three Mile Island disaster in early 1979 and the sinking of the Greenpeace ship, Rainbow Warrior, in August 1985 in protest against nuclear testing. These events sparked off a spate of newspaper reports on nuclear hazards.

iv) Local Clean and Green Issues

Contemporary local environmental occurrences have also contributed to the persistence of environmental issues in all the four years. For instance, Singapore's Clean and Green

government campaigns featured prominently in all the four years. Examples of Clean and Green issues were represented in the nation-wide Cleanliness Campaign in 1975 and the Tree Planting Campaigns in the month of November for all the years. The Malay press in upholding government policies and serving as a vehicle for promoting environmental consciousness among the Malay community clearly demonstrates this over the four years.

v) Air Pollution

Air pollution is another frequent issue. The persistence of reports on air pollution for the past two decades is partly explained by contemporary world-wide incidences. In 1984, a Union Carbide plant manufacturing methyl isocyanate gas exploded causing the death of 2,500 people and injuring thousands of others in Bhopal, India. The impact of this disaster was sensationalised in the Malay newspapers in 1985 leading to a spate of press reports on the Bhopal aftermath (for example in BH, 1, 7 Jan; 22 Mar; 3 Apr; 3 Jun; 4 Dec 85). Isolated incidents of gas leaks around the world stirred from time to time interest of the Malay press as a constant reminder of the Bhopal tragedy. As with the press reports on nuclear hazards, the debilitating effects on human physical and mental development were frequently highlighted, for example in the report on a deformed baby born in Bhopal (BH, 22 Mar 85).

Thus reports on air pollution on the one hand covered industrial accidents such as the Bhopal disaster in late 1984 and gas leak incidents in other parts of the world (for example in Munich [Jun 75], West Virginia [August 1985], Sweden [12 Jan 85]), and on the other, on causes of air pollution stemming from vehicles and industrial emissions. Reports on the local scene highlighted the Singapore government's clamp on unleaded petrol since late December 1990. Over the years, such occurrences and government

policies have created a sustained interest on the need to preserve air quality.

The decade of the 1990s seems to hold renewed interest in a number of man-induced environmental problems. Reflecting on current environmental problems, global warming due to ozone layer depletion and greenhouse effect emerged as a prominent issue in 1990. Reports highlighted causes of global warming and accused the Western developed countries as major emitters of ozone depleting gases. The relatively high frequency of reports on this current environmental issue partly stemmed from the universal theme (global warming) of the 1990 Earth Day in April 1990.

vi) Wildlife Endangering

Another environmental issue - endangered wildlife species - gained increasing attention in Malay newspapers since 1980. No major specific incident is associated with the wildlife issue. However because of the global concern for the extinction of animals and birds, there seems to be an awareness on the part of the Malay press on the dangers of wildlife extinction resulting from human beings' indiscriminate exploitation of wildlife. The extent of global destruction on wildlife was captured in a Berita Harian report dated 18 April 80:

It is estimated that some 25,000 species of wild plants and more than 1,000 species of vertebrates and insects are threatened by extinction. By the year 2000, about 500,000 to 1,000,000 more will perished. Indiscriminate fishing [has also] destroyed seven million tonnes of fishes every year not including the sea birds and dolphins that were caught in the fishing nets.

In highlighting the destruction of plant species, another Berita Harian article on 21 March 90 reported that:

In the U.S., some 80,000 to 160,000 hectares of mangroves disappeared every year especially in the remote areas. From 1950s to 1970s, about 4.4 million hectares of mangroves were cleared. The main cause of destruction is due to conversion to

agriculture lands. The mangrove swamps have been important breeding ground for many types of fishes and insects. [By destroying the swamps] vast amounts of [greenhouse gases such as] methane, nitrogen and carbon dioxide will be liberated.

vii) Global Environmental Issues

Global environmental problems in the 1970s were well covered in the Malay press. In 1974, for example, there was the world energy and food crisis. The oil hike in the mid-1970s and again in 1979 triggered extensive media coverage focusing on the need to find energy alternatives and stressing the importance of energy conservation. The world food crisis of the mid-1970s spawned vast Malay press reports on the causes contributing to famines and malnutrition worldwide. Specifically, the plight of famine and malnourished victims in Africa triggered a spate of articles that highlighted the human tragedy.

The food crisis articles rightly reviewed that the world food problem is a complex issue caused not only by population growth but by other social, economic and political factors. Among others the press reports identified unfair global trade, inefficient agricultural and credit systems, and ineffectiveness of food aid as factors perpetuating famine. For example, in dealing with solutions to the food crisis, the newspaper reports questioned the viability of western food aid to Africa and argued that it only did more harm than good since it stifled the receiving countries' initiatives to produce their own food (BH, 13 Aug 85; 20 Aug 85). The global food crisis gained increasing prominence in the decade of the seventies and eighties with much of the attention given to the famines in Africa. In 1975, it occupied the ninth place among the ten popular issues. In 1980, it jumped to the seventh position and in 1985, to fifth. However, in 1990 it slipped away from the media light of the top ten environmental issues.

Arising from the 1973-74 oil crisis, many reports in the Malay newspaper were generated

in 1975 but the articles were either economic or political in nature. The issue of oil price hikes and petrodollars flooded the news reports in 1975. Energy alternatives or conservation issues did not feature among the top ten environmental issues in 1975. Only a handful of these reports made reference to energy alternatives or conservation. Oil hikes in 1975 led to another international response to energy issues. In 1980, the Malay press began to digress from the political and economic stance and reports began to emphasise the need for alternatives energy sourcing. As the full impact of the oil crisis began to sink in, energy alternatives and energy conservation issues rose from relative obscurity to prominence in 1980. Energy issues subsided in the late 1980s and by 1990 both these issues lost their prominence among the top ten most popular environmental issues.

3) Foreign Vs Local Coverage of News

Covering local issues, including the environment, has not been the main agenda for many newspapers. The press has often been criticised for practising 'Afghanistanism', a tendency to emphasise foreign news while neglecting domestic issues (Rubin and Sachs, 1973; Hungerford and Lemert, 1973: 475-81). To verify the validity of 'Afghanistanism' in the Malay newspapers, a content analysis of environmental news, pictorial representations and advertisements were analysed in the Berita Harian and Berita Minggu. The geographic scope of press reports on environmental issues devoted to local, regional, foreign and global matters is used as an indicator of 'Afghanistanism'.

Based on the coverage of environmental news for the past two decades, the contention of 'Afghanistanism' in the Berita Harian and Berita Minggu seems valid. Environmental news for the four years (1975, 1980, 1985, 1990) shows that foreign environmental reports constituted slightly more than half (52.3 per cent) of the total environmental reports on

the eighteen major environmental issues identified (Figure 1). Local environmental issues ranked second (26.6 per cent) followed by regional news (16.7 per cent). Global news (4.4 per cent) which dealt with general environmental issues (eg. global warming) had the lowest coverage (15 articles).

Based on the four years, foreign reports dominated the news in 1975, 1980 and 1985. However in 1990, local news was given more emphasis. The proportion of news devoted to geographical scope for each of the four years (1975, 1980, 1985, 1990) is depicted in Figure 2.

In 1975, most of the local environmental issues covered news on oil spills (42) which stemmed largely from the Showa Maru disaster (see Figure 3). The regional and foreign reports dealt mainly with floods (31) and earthquakes (62) respectively. Issues of global context focused on famines (3). Overall, there were more press reports in 1975 on foreign issues (45.8 per cent) (dominated by natural hazards such as earthquakes, floods, hurricanes, landslides and heavy rains) than local (29 per cent), regional (24.1 per cent) or global (1.1 per cent) issues (Figure 2).

In 1980, the same trend persisted. Foreign news constituted the highest proportion (56.4 per cent) of environmental articles followed by local (24.7 per cent), regional (13.6 per cent) and global (5.3 per cent) news. As with 1975, regional and foreign news were based largely on floods (14) and earthquakes (80) respectively. Clean and green issues (48) dominated the local news amplifying the Malay newspaper's support for the government's resolve towards a cleaner and healthier Singapore. Global environmental reports underscored the issue on energy alternatives (8) (see Figure 3). This reflected the awareness of the Malay press on the global nature of the energy crisis.

FIGURE 1 - DISTRIBUTION OF 18 MAJOR ENVIRONMENTAL ISSUES BY SCOPE
(1970S - 1990S)

FIGURE 2 - PROPORTION OF ARTICLES ON MAJOR ENVIRONMENTAL ISSUES FOR THE FOUR YEARS

FIGURE 3 - FREQUENCY OF MAJOR ENVIRONMENTAL ISSUES BY NEWS SCOPE

The trend continued in 1985. Foreign news increased to 283 (71.8 per cent) and were dominated by hurricanes (58) (see Figure 3). Of the 48 regional news (12.2 per cent), 14 were on hurricanes. Local articles (14.5 per cent) fell to 57, largely reporting on air pollution issues (21). Half of the global news (1.5 per cent) were devoted to famines (3 of 6).

In 1990, however, there was a change in the geographical spectrum of environmental reporting. Local issues (41.6 per cent) constituted a majority of environmental news, focusing mostly on clean and green (36) and drought (34) issues. The drought issue covered aspects of the water conservation campaign initiated by the government. This again demonstrated the Malay newspaper's alertness to acute local problems and support of government policies. Foreign (29.9 per cent) and regional (17.5 per cent) environmental news ranked second and third respectively in terms of frequency of reportage based on scope. The foreign and regional news were dominated by earthquake reports (31 and 22 respectively) (see Figure 3). As in the other three years, environmental issues of global context still remained the least reported (34) (see Figure 2). Unlike the other three years in which global issues revolved around famines and energy alternatives, global news in 1990 concentrated on more current world problems such as global warming. Global warming, greenhouse effect and ozone depletion are universal themes in the 1990 Earth Day, celebrated by global citizens across the board in April of that year.

Thus the contention of 'Afghanistanism' in the Malay press while valid in 1975, 1980 and 1985 does not hold true in 1990. The plethora of local environmental news evident in 1990 has demonstrated that Malay editors are able to focus on domestic 'green' issues and government campaigns (clean and green campaigns) which affect the local populace.

It also suggests that local environmental issues are becoming more important to the Malay press. Seen in this light, local environmental issues can be equally newsworthy.

4. Malay Press Writers and Environmental Issues

The perception of the Malay community (Malay newspaper editors, journalists and readers) on environmental issues, constructed through the analysis of (a) the editorials and feature columns, (b) their writings in the Islamic Perspective Page, and (c) letters in the Forum Page, is shaped by global and local events. The issues raised in these pages represent the true and authentic expressions of the Malay community on environmental issues since they are written by the Malays themselves.

Although the statistics showed that on average at least one article on an environmental issue appeared in Malay newspaper daily, the frequency of environmental editorials and feature columns was insignificant (environmental issues on average appeared only 9.25 times in the editorials and feature columns in any particular year). Over the four years, local clean and green issues dominated the Editorial Page. Other environmental editorials and feature columns on oil spills, drought, noise pollution, famines, water pollution, global warming, deforestation, wildlife endangering, energy conservation, hurricanes, water conservation, earthquakes, environmental awareness, and cold wave were transient and ephemeral. This shows that there is no sustained interest on the part of the editors and feature writers on other issues apart from local clean and green issues. Similarly, local environmental issues evoked Malay readers' interests since these issues affected their everyday lives. This is mirrored in the local issues (clean and green, waste disposal, save water campaigns and noise pollution) raised in their letters to the Forum Page. The Malay readers have also shown support for the various clean and green efforts such as the "Anti-spitting" and "Anti-littering" campaigns initiated by the

government.

It was only lately (end of 1985) that the writings in the Islamic Perspective Page by the religious circle of the Malay community made reference to environmental issues demonstrating the rise in environmental cognition from a religious view point. Within this short span, a wide range of issues was raised (including deforestation, wildlife endangering, water pollution, famines, environmental awareness and natural disasters) which demonstrates the keen awareness towards global man-induced environmental problems. The wide range of Inscriptions from the Quran and Hadis are used to amplify Islamic views on environmental management. The Islamic perspective on environmental issues dwelt on: (a) the design-earth endorsements, (b) defining human relations with animals and (c) water as source of life. The writings also gave recognition on developmental impact on ecology. The analysis of the Islamic Perspective Page demonstrates that the Malay community, albeit a minority ethnic group, has an awareness for global environmental issues.

Conclusions

Singapore provides a pertinent example of how public campaigns are used as an instrument for social engineering. In the last 30 years, Singaporeans have inundated with all sorts of public campaigns based on environmental issues, courtesy, productivity and family planning. While foreigners might be cynical about the effectiveness of such public campaigns in soliciting behavioural and attitudinal response, one can say that public campaigns do provide a heightened awareness of public issues that the government wants to inculcate in the population. It is difficult to ascertain the effectiveness of public campaigns in Singapore but public campaigns have never been an issue of empty slogans. All public campaigns in Singapore have come with punitive action or rewards and hence

Singaporeans have reacted to the public campaigns because they have carried with them severe penalties or attractive tax rebates and economic incentives.

In Singapore, public campaigns have not only been addressed to the adult public but also to the large school children population. In fact, one can say, that many of the public campaigns in Singapore have been effective because of the heavy dosage that has been given to kindergarten, school and junior college students. The government has felt that one of the best ways of bringing home the message to the family is by the way of its children. Instead of parents imbibing social or environmentally friendly habits at home and in the public sector, school going children in Singapore are used as a major means of inculcating public responsible behaviour at home. Children listen to parents but in Singapore, the parents have also to listen to their children because education is a major value for the various ethnic groups in Singapore. It is thus not surprising that in the various environmental programmes, much of the activity is concentrated in schools and with students. Increasingly, schools are involved in all sorts of environmental activities. Given the fact that our school going population does not read widely, the active involvement in environmentally friendly activities provides the best form of public environmental education for school children. For this reason, while school children might not have a global perspective of environmental issues, they have a heightened awareness of the government's environmental campaigns and programmes. In a way, they have a hands-on approach to the government's environmental campaigns and are actively involved in cleaning up beaches, visiting exhibitions, attending talks, recycling products and taking part in various green art, poster and photo competitions.

Since the government's goal is to make Singapore a model green city by the year 2000, it seems imperative that citizens have to be actively involved in environmentally friendly

activities if this goal is to be achieved. It also means that Singaporeans will have to inculcate a higher degree of social responsibility in their daily lives to ensure that there is a realisation of maintaining a green city. The difficulty in realising this goal ironically has to do with the growing affluence of Singaporeans. Singaporeans by their affluence are adopting many of the wasteful habits of developed countries. A younger generation has been brought up in an era of abundance and affluence and hence are less concerned with conserving, re-using or recycling products. Public campaigns have got to be addressed not only at the question of keeping the city clean and green, free from litter and noise pollution, it would have to address the more fundamental issues of consumption habits and the values tied to a material society. These are not easy issues that can be addressed overnight. The symbols unfortunately of quality life in Singapore are too often associated with material goods and the multiplicity of such goods.

One vehicle of public campaigns are newspapers. In studying the Malay press in Singapore, it is evident that there is a steady dosage of environmental related news in the press everyday of the year. However, it is evident that much attention given to environmental issues deals with natural disasters or humanly induced environmental disasters. In short, global or local events that bother on the catastrophic and provide sensational news is often given prominence. To a large extent, the Malay newspapers have also concentrated on global environmental issues rather than local green issues. Because of limitations on their manpower (lack of Malay journalists, reporters, etc.) much of the Malay environmental news has come from the foreign press agencies or translations from the English or Chinese press. Clearly, there has been very little Malay inputs either at editorial level or by Malay writers dealing with environmental issues. Whatever contributions, however, that have emanated from the Malay press show that Malay readers tend to view environmental issues within their cultural (Gotong Royong)

and religious (Islamic) filters. Through environmental themes, the tensions between developmental goals (and the concomitant status symbols of materialism) and cultural/religious values are becoming manifest, as they are between conservation conscious elder citizenry and a younger spendthrift generation.

APPENDIX I

SINGAPORE'S ENVIRONMENTAL CAMPAIGNS

1. Keep Singapore Clean (1959)
2. Tree Planting Campaign (1963)
3. Clean and Green Campaign (1967)
4. Keep Singapore Clean and Mosquito Free (1969)
5. Keep Singapore Clean and Pollution Free (1970)
6. Anti-littering Campaign (mid-1970s)
7. Anti-spitting Campaign (1970s)
8. National Tree Planting Day (1971)
9. Clean Rivers Programme (1987)
10. Clean and Green Week (1990)
11. Unleaded Petrol Promotion (1991)
12. Green Labelling Scheme (1991)
13. Clean Public Toilet Campaign (1991)
14. Save Energy (various years)
15. Save Water (various years)

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