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Public concerns about transboundary haze: a comparison of Indonesia, Singapore, and Malaysia

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Abstract

Public concerns about environmental problems create narrative structures that influence policy by allocating roles of blame, responsibility, and appropriate behavior. This paper presents an analysis of public concerns about transboundary haze resulting from forest fires in Indonesia, Singapore, and Malaysia for crises experienced in 1997, 2005 and 2013. The source of the information is content analysis of 2,231 articles from representative newspapers in each country. The study shows that newspaper reporting about haze has changed from a discussion of the potential health and economic impacts of fires resulting partly naturally from El Niño-induced droughts, towards an increasing vilification of Indonesia for not ratifying the 2002 Association of South East Asian Nations (ASEAN) Agreement on Transboundary Haze Pollution; plus criticism of Singaporean and Malaysian companies investing in palm oil plantations, and ASEAN. Attention to climate change and potential biodiversity loss linked to haze, however, remains low. The paper argues that newspaper analysis of public concerns, despite political influences on the press, offers insights into how public criticism is voiced in these countries, and how perceived responsibility for action is changing.

KEYWORDS: haze, forest fires, palm oil, public understandings of risk, ASEAN, Southeast Asia

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1. Introduction

Transboundary haze caused by forest fires in Indonesia has affected air quality in neighboring Singapore and Malaysia for a number of years. While there are records of smoke and haze occurring before the 1990s, haze was noted to be a major problem in 1997 when the cities of Kuala Lumpur, Singapore, and to a lesser extent Bangkok, Brunei and Jakarta, were affected by smoke for some weeks with widespread concerns about impacts on health and economies. In 2002, the Association of South East Asian Nations (ASEAN) agreed to the ASEAN Agreement on Transboundary Haze Pollution (ASEAN, 2002), which sought to implement measures to prevent the forest fires leading to haze. Indonesia, however, is the only member of ASEAN not to ratify this agreement. Haze continues to be a problem, with significant crises arising in 2005 and in 2013, where successively higher records of air pollution were measured in Malaysia and Singapore.

This paper contributes to the political analysis of the haze problem by presenting a study of public concerns about haze in Indonesia, Singapore and Malaysia based upon content analysis of key newspapers in each country for the crises of 1997, 2005 and 2013. By so doing, the paper serves two purposes. First, it presents a record of how public concerns have been reported, or have changed, at eight-year intervals since the first major haze crisis, as well as since the ASEAN Agreement. Second, this analysis offers insights into how public concerns create environmental narratives or storylines, which are “devices through which actors are positioned, and through which specific ideas of ‘blame’ and ‘responsibility’ and ‘urgency’ and ‘responsible behavior’ are attributed” (Hajer, 1995, pp. 64-65). Narratives and

storylines are considered an important way to understand how different societies identify the causes and likely solutions to environmental problems, with implications for different political actors such as governments and citizens (Forsyth and Walker, 2008; Roe, 1994). Consequently, by analyzing public perceptions of blame and responsibility, it is possible to identify how the political agency attributed to ASEAN, individual governments, as well as non-state actors change over time, and how far public debate (as represented by newspapers) openly targets specific actors.

To undertake this study, the paper adopts a methodology of comparative newspaper content analysis in order to indicate public concerns in each country in the different years of the survey. This methodology offers both strengths and weaknesses. On one hand, it presents a standardized comparative format over time and between different countries. Journalism is often described as “history’s first draft” and consequently forms an important reflection of, as well as influence on, public debate. Articles in newspapers also include readers’ letters and opinion pieces as well as straight news reporting. On the other hand, the countries involved also have varying levels of press censorship and control, and there are subtle differences in the language, reporting style, and cultural nuances in how news or public criticisms are reported in each country. This paper, however, presents this analysis as an important insight about public concerns, which can be complemented by additional information sources.

The paper starts by summarizing the haze problem in Southeast Asia. It then details the methodology used, and presents information about public concerns about blame, risk, and potential solutions, as well as the perceived connections between haze and parallel environmental debates such as climate change, biodiversity and the cultivation of palm oil. Lessons are then drawn for how each country has perceived responsibility for action about

transboundary haze, and the respective roles of ASEAN agreement, national governments, and non-state actors. The paper also draws conclusions concerning the contribution of newspaper analysis for understanding public concerns.

2. The Southeast Asia haze problem

Haze occurs when smoke from forest fires and open burning combines with local air pollution over cities. Most burning has occurred on the Indonesian island of Sumatra (especially the provinces of Riau and Jambi), and on the island of Borneo, which comprises the Indonesian province of Kalimantan and the Malaysia provinces of Sabah and Sarawak. Smoke is carried by monsoonal winds most frequently to Kuala Lumpur in Malaysia and Singapore. The first occasion when transboundary haze was identified as a major problem was between July and October 1997, and were exacerbated by unusually long droughts connected to El Niño (Eaton and Radojovic, 2001). Haze, however, has returned in years unaffected by El Niño, most seriously in 2005, 2006, and 2013 (see Figure 1). In 2013 a new record for air pollution was set in Singapore when the local Air Pollution Index reached an all-time high of 401.

Haze is problematic for four main reasons. First, it indicates significant forest fires, with an implied risk to biodiversity and release of greenhouse gases, especially from long-burning peat fires. Second, haze presents health hazard to citizens, especially young and old. Third, haze affects economic activity and tourism. Fourth, the transboundary nature of haze threatens diplomatic relations between neighboring countries (Glover et al., 2003; Narayanan, 2002). The Pollutant Standards Index (PSI) of Singapore measures five key air pollutants: sulphur dioxide, nitrogen dioxide, ozone, carbon monoxide and PM10, which is

particulate matter 10 microns or smaller in size. Malaysia uses the Air Pollution Index (API), which measures the same five pollutants but with different scales for calibrating pollutants.

Various solutions have been proposed for haze. In immediate terms, haze can be mitigated by wearing facemasks, or by reducing the exposure faced by vulnerable people. Since 2005, the government of Singapore has published daily measurements of haze on websites.

Longer-term solutions, however, require the avoidance of fires. Various analysts have proposed regulating and fining individuals starting fires (Chang and Rajan, 2001; Jones, 2004). But it is usually difficult to identify actors responsible for fires. Many fires, for example, are blamed upon companies that seek to clear land cheaply in order to establish palm oil or rubber plantations: but these companies—perhaps predictably—are keen to assert their innocence and state that burning land does not suit their commercial interests. Traditional agriculture practiced by smallholders is another source of blame, but it is sometimes difficult to identify the differences between farmers acting for their own commercial interests, or hired to work on behalf of larger companies. Much popular discussion uses the words “slash and burn” to refer to the type of land clearance that uses fire indiscriminately, which sometimes confuses traditional land use based on historic shifting cultivation with uncontrolled burning to clear land for plantations. Indeed, research by Colfer (2000; 2005, p. 120) has indicated that companies can use fire as a way to compete for land concessions, or even use fire as aggressive acts to destroy competing plantations or to present other companies in a bad light.

The ASEAN Agreement on Transboundary Haze Pollution was signed in 2002 and commits parties to international cooperation and domestic actions to prevent fires (ASEAN, 2002; Nguiragool, 2011a, b). Most members of ASEAN ratified this agreement in 2003. Indonesia,

however, is the only party not to have ratified the agreement (Tay, 2009). Moreover, the agreement has been characterized as “shallow” because it “corresponds to the existing ASEAN institutional culture in terms of organizational minimalism” (Nguitragool, 2011b, p.148). ASEAN as an international grouping also represents a variety of compromises between countries that have immense differences as well as little history in seeking international agreements (Cotton, 1999). Implementation is also difficult because of close relationships between investing companies and local governments (Aggarwal and Chow, 2010). In 2013, for example, the Indonesian Corruption Eradication Commission detained the governor of Riau province in Sumatra on suspicion of receiving corrupt payments from logging companies (Goh, 2013). Newspapers discussed allegations that Singaporean and Malaysian companies were most responsible for the deforestation and fires in Sumatra. Moreover, one of these Singaporean companies, Temasek Holdings, was particularly controversial because it is an official Government Linked Corporation (GLC), with strong investment and advisory links to the Singaporean government (see section 5) (Varkkey, 2012, 2013).

Haze is therefore difficult to control because it results from a complex set of climatic and monsoonal conditions; the rise of new export crops; and a set of challenging regulatory failures involving international, national, and subnational jurisdictions. An international agreement to address haze has apparently failed. This paper aims to contribute to new approaches to governing the haze problem by assessing public concerns about haze over time and in different countries. This study can help understand how different countries see causes and potential solutions, including the potential roles for governments, companies, and citizens.

3. The study and methods

The study sought to identify how public concerns about transboundary haze had been expressed in newspapers in Indonesia, Singapore and Malaysia since the start of the haze crisis in 1997. This information was then used to inform debates about the emergence of narratives haze (or the structuring of blame and responses in social discourse). It was hoped that these insights would then enhance understandings of public policy debates about different policy initiatives such as the ASEAN Agreement on Transboundary Haze Pollution, or the connections between haze and concerns about climate change, biodiversity, forests, and palm oil. Newspapers have been used to study haze before (Massey, 2000; McLellan, 2001), although this paper's uses a more quantified technique.

3.1 Selection of newspapers

First, it was necessary to choose representative newspapers for analysis. Newspaper analysis in these countries, however, is challenging because of concerns about press censorship and the choice of printed language. One indicator of censorship is the Press Freedom Index, compiled by the journalistic organization, Reporters Without Borders. In 2013, Indonesia, Singapore, and Malaysia were ranked respectively as 139th, 149th and 145th in the world (where the maximum number of countries was 179 (Reporters without Borders, 2013)). (The highest press freedom occurred in Finland, the Netherlands, and Norway).

In Indonesia, Singapore, and Malaysia, there are various formal and informal practices that restrict newspaper criticism of governments, public figures (Atkins, 2001; Woodier, 2008). The 1988 Malaysian Broadcast Act allows ministers to determine subjects that can be reported on by newspapers (Eng, 1997, p. 441). In Singapore, the Newspaper and Printing

Presses Act of 1974 states that management shareholders have to be approved by the Ministry of Information, Communications and the Arts. Many media outlets in Singapore are also owned by one company, Singapore Press Holdings. In recent years, there has been an increase in internet-based news and political discussion sites such as Singapore's *The Online Citizen* or *The Real Singapore*. But in 2013, the Singapore government proposed new regulations and licenses for news websites, leading to a public protest by some 2,500 people (Ng, 2013).

Despite these misgivings, the study assumed that newspapers still indicate public concerns in various ways. As this paper discusses (section 5) journalists apparently use language carefully to express criticism, or describe controversial subjects, without accusing anyone or becoming critics themselves. Newspapers also allow a form of criticism by printing readers' letters and opinion pieces. Haze has never been a subject for press censorship in itself. But news reports could be seen to be critical of the government if they link haze to the activities of government-linked corporations in investments in Indonesia. This criticism would add weight to existing widespread dissatisfaction about alleged corruption and business connections within the Singapore and Malaysian governments (Varkkey, 2013).

Newspapers also offer advantages for long-term analysis over social media websites because their archives exist for years. Moreover, local advisers from Malaysia and Singapore suggested that, at present, online news sites are less authoritative than newspapers because online articles can be easily withdrawn after publication, and many articles are anonymous. Online news sites also are relatively new: *The Online Citizen* in Singapore, for example, began in 2006, and therefore could not be used for comparison with 1997.

The three newspapers chosen were the *Jakarta Post* for Indonesia; *Straits Times* for Singapore; and the *New Straits Times* for Malaysia. These newspapers were selected with the help of local advisers because they are widely considered to be authoritative broadsheet publications that report on matters of public concern, and which have been published consistently throughout the period of the study. These are also English language newspapers, which allowed a relatively straightforward comparison (Indeed, Singapore uses English as its official media language). While it is clear that local language newspapers might present alternative visions of public concerns, it was decided that these leading national newspapers were likely to publish more authoritatively and widely on the subject of haze. It is also acknowledged that English-language newspapers in Southeast Asia are not targeted at foreigners alone, but at sections of their own populations who wish to read in English (Forsyth, 2007; Massey, 2000).

The three newspapers are also independent of each other. The *Straits Times* (Singapore) and *New Straits Times* (Malaysia) were originally based on a newspaper launched in 1845, but became separate when tensions rose between Singapore and Malaysia in the 1950s. In 1957 it was agreed that neither newspaper would be for sale in the other country or use the same articles. In 1965, when Malaysia split from Singapore, the Malaysian journal adopted the moniker "new." The *New Straits Times* was chosen above the rival daily Malaysia newspaper, *The Star*, on the advice of Malaysian advisers who suggested that the *New Straits Times* was a non-tabloid style of newspaper that could be compared with *The Straits Times* and *Jakarta Post*.

The *Jakarta Post* was established in 1983, and has since gained a reputation for giving publicity to debates about democratization (Tarrant, 2008).

3.2 Selection of news articles

The next stage was to identify time periods of research. These were identified by conducting online searches for periods when haze was widely reported. The online-database, Factiva, is a widely-used database of international newspapers and was considered sufficient and reliable to access historic newspapers. Various words were used to identify when haze was reported most frequently. Words such as “haze,” “forest fires,” and “smog” were used initially to identify the search term. It was decided to use the word “haze” alone, as research showed it offered the maximum range of articles. It was, however, important to reject articles that used the term “haze” in irrelevant ways (for example, a popular Singaporean film was called *Haze*). The search also excluded reports from international news agencies such as Reuters or Associated Press in order to focus on local news sources. (Indeed, international news agencies tended to summarize local news for international audiences). The resulting articles used included a variety of news reports, letters, and opinion pieces.

The results of this initial survey are shown in Figure 1. It was decided to base the survey on three periods: July-December 2007 (six months), August 2005 (one month), and June 2013 (one month). The initial assessment for 1997 was longer than the subsequent years because the earlier period was when the “storyline” about haze was initially established, and because news reporting about this episode of haze continued for a much longer basis than in later years when reporting tended to peak within the period of just one month. The research therefore aimed to establish the baseline of public perceptions in 1997 when transboundary haze became a theme of significant public concern, and then assess how these perceptions had changed in 2005 and 2013, using just one month each for these later years. October 2006 could have been chosen as an alternative to 2005, but it was decided that the selected periods offered convenient eight-year periods that allowed a measurement of how public

perceptions changed over time. These decisions meant that the study was based on 1,659 articles in 1997, 172 in 2005, and 400 in 2013 (or 2,231 in total). Table 1 lists the numbers of news articles used.

Figure 1 around here “Frequency of news reports about haze, July 1997 – June 2013”

Table 1 around here “Table 1: Numbers of news articles analyzed”

3.3 Analysis of news articles

The third stage was to analyze selected articles. This process adopted a standardized procedure for each newspaper, but there was also flexibility to acknowledge different means of expressing blame or criticism in different cultures. The nuances of public criticism, especially in countries where there are media controls, are discussed in section 5.

News stories were analyzed in order to indicate underlying frames, or the underlying meaning and assumptions within stories, which indicate the significance attributed to haze at the time of reporting (Bauer, 2000; Pan and Kosicki, 1993). The method adopted borrowed strongly from an earlier analysis of environmental news in Thailand (Forsyth, 2007), and a study of reporting about haze in Southeast Asia from 1997 (Massey, 2000). The point of frame analysis is to look beyond the immediate subject matter of an article (for example, the issuing of a statement by a government minister) and instead focus on the implied cause, blame, or responsibility (e.g. that Indonesia is acting irresponsibly). Each article was awarded a score for each frame it contained, allowing cumulative frames to be

compared between countries, and between different time periods. For example, a report about an NGO-worker criticizing Indonesia for failing to act over fires would result in a single score for blaming Indonesia, and a further score for civil society as a potential solution. Frames were counted each time they were identified, and then summed. This method was designed in order to measure frames as they were reported, and because most new reports were relatively short and contained only a few frames each. After summing, it became possible to rank the significance of different frames over longer time periods.

Two sets of frames were observed. The first frames were concepts of blame, risk, and solution contained in each article. Many news reports or letters to newspapers sought to castigate the government of Indonesia, or the Malaysian and Singaporean governments for failing to regulate companies. Sometimes ASEAN itself was identified as a course of blame. Others identified a more specific role of companies, or smallholders practicing slash and burn agriculture. Other articles referred to the hazards posed by haze such as health risks, inconvenience to day-to-day lifestyles in Kuala Lumpur or Singapore (such as the cancellation of music or sporting events), or potential damage to economic growth and especially tourism. ‘Solutions’ included short-term technological fixes such as facemasks; special measures for vulnerable social groups such as schoolchildren or elderly people; or diplomatic initiatives such as bilateral discussions, aid, or ASEAN initiatives.

The second set of frames concerned themes not immediately related to blame, risk, and solutions, but were mentioned as relevant to haze. These frames included wider environmental problems such as climate change, biodiversity, and the governance of deforestation in general, or specific concerns such as the rise of palm oil cultivation. These themes offered useful information about how haze was connected to related policy initiatives.

To make the presentation of results clearer, the figures in this paper present information as a percentage of each set of frames relating to blame, risk, and potential solutions. The second set of frames is presented in terms of average frequency per news story because these were not always connected to a structure of blame, risk, or solutions. As this paper focuses on narratives of blame and responsibility for transboundary haze, most attention is given to the first set of frames. The second set of frames was also less frequent in news reporting, and so warranted less analysis.

4. Results

4.1 Conceptions of blame

The results for perceptions of blame and responsibility between the nation states of Indonesia, Singapore and Malaysia are shown in Figure 2. Figure 3 shows the incidence of secondary blame categories of companies, smallholders and El Niño. These figures show some important changes in how blame has been allocated.

In an earlier study of news reporting of haze in Malaysia (McLellan, 2001: 255), results suggested that the government of Malaysia was keen to maintain the country's good image; avoid discouraging tourism; and maintain good relations with Indonesia and ASEAN as a whole. There was also a tendency to portray haze as a specific problem for East Malaysia (i.e. the provinces of Sabah and Sarawak) rather than peninsular Malaysia. The results of this current study supported, and added, to these initial findings.

First, the proportion of all stories has shown a rapid increase in "blame" in all three countries since 1997. In 1997, the percentage of articles expressing making critical

statements or asserting direct responsibility for haze for Indonesia, Singapore and Malaysia respectively were 28 percent, 25.9 percent, and 18.7 percent. By 2013, these had risen to 64.3 percent, 31.4 percent, and 30.8 percent. These statistics show that the initial reporting of haze in 1997 more or less discussed blame, threats, and potential solutions in equal measure. By the 2000s, however, this distribution had shifted significantly towards identifying haze as an issue of failed responsibility. In all cases, Indonesia is clearly seen to be a subject for blame. Indeed, the Indonesian presidents Suharto and Susilo Bambang Yudhoyono issued formal apologies for the haze to their neighboring countries respectively in 1997 and 2013.

Figure 2 around here “Where is blame allocated for haze?”

Figure 3 around here “Other attributed causes of haze”

But there are also other trends in the allocation of blame. First, national newspapers have, perhaps surprisingly, shown a willingness to blame their own governments. Hence, the *Jakarta Post* has overtly expressed the failures of its own government to address haze. The *Singapore Straits Times*, and Malaysian *New Straits Times* have also expressed concern that their own governments have not regulated their own companies that invest in Indonesian plantations. In Malaysia, the original reporting about haze in 1997 and 2005 even presented Malaysia as equally to blame (if not more so) than Indonesia (see Figure 2c). This trend was partly because haze was originally partly blamed on open burning of agricultural or municipal waste in Malaysian cities, but also because of a number of speeches by political leaders at this time sought to demonstrate diplomacy towards Indonesia by discussing mutual responsibility. In 1997, for example, the Malaysian Prime Minister, Mahathir Mohamad, was quoted as saying: “It is not Indonesia’s fault because we never informed

them that we need to work (together) on this particular case” (*New Straits Times*, 1997a). By 2013, however, most notions of blame in the Malaysian newspaper were expressed against Indonesia. For example, a 2013 opinion piece in the *New Straits Times* urged, “it is caused by a neighbor who refuses to accept responsibility for it is a test of a patience that is not infinite” (*New Straits Times*, 2013a). Malaysia is also notable for blaming ASEAN (see section 5).

Besides the government of Indonesia, all newspapers identified companies as a key source of blame, and of failed regulation (see Figure 3). The proportion of blame allocated to companies, however, has declined between 1997 and 2013 as the proportion allocated to Indonesia, the country, has increased (with the exception of Singapore). Smallholders—or poorer agriculturalists living on the edge of forest margins—were also implicated in public discussions in newspapers, and especially in Malaysia (Figure 3c). Some journalists were keen to express that smallholders are not to blame (Stefanus, 2013). But more commonly, smallholders and companies were included in the same discussion of “slash-and-burn” land-clearance methods, which can be used to indicate traditional land clearance as well as open burning by plantation workers. One common statistic, attributed to the Indonesian Minister of Agriculture, attributed 80 percent of forest fires to plantation owners (*Jakarta Post*, 1997).

Some blame for smallholders occurred when companies were interviewed in newspapers. In 1997, for example, the Malaysian company, Tradewinds Plantations blamed burning on its Indonesian joint-venture partner or smallholders. A company representative said, “The problem of slash-and-burn which has caused the forest fires are mainly caused by the smallholders as they do not have the correct method to control the fire” (*New Straits Times*, 1997b). In 2013, the *Straits Times* (Singapore) reported, “the Association of Plantation

Investors of Malaysia in Indonesia said Malaysian firms are not involved in clearing Indonesian land using fire. Its executive secretary [said]... “Plantation owners have to set aside 20 per cent of land to nurture smallholders in oil palm planting. It is a common practice for the smallholders to clear the land by fire” (Foo, 2013a). References to smallholders being to blame, therefore, seems to reflect quotations from other actors who might wish to blame them. Smallholders were not quoted blaming themselves.

In addition, fires and haze were attributed to the effects of El Niño in all countries in 1997. This trend was especially marked in Indonesia, where El Niño was cited as a cause in 21 percent of references to blame and responsibility in 1997. By 2013, however, there was only limited discussion of El Niño in Malaysia and Indonesia (Figure 3), possibly because 2005 and 2013 were not notable El Niño years.

It is also worth noting that some articles overtly proclaimed that no one country was to blame, or, most frequently, that Indonesia was blameless. In 2013, for example, the *Jakarta Post* featured articles arguing that Indonesian President Susilo Bambang Yudhoyono should not have apologized for the haze, on the grounds that the haze was caused because Singaporean and Malaysian companies were not regulated, and because Indonesian ministers themselves were critical of this apology (*Jakarta Post*, 2013). At times, the *Jakarta Post* has criticized Malaysia. For example, in 2005, an anonymous opinion piece stated: “Malaysian haze haters’ disappointment is understandable. They vent their anger ...demanding that Indonesians stop choking them every single year ...The Malaysian government’s offer to help to extinguish the forest fires is also understandable as their minister of forestry admitted that many Malaysian estate and wood companies operating in Indonesia were among the perpetrators of the fires (*Jakarta Post*, 2005).

In 2013, the Indonesian minister coordinating the haze response stated that the fires and haze were natural phenomena and not related to poor land management or lack of regulation, saying: “Singapore should not be behaving like a child and making all this noise. This is not what the Indonesian nation wants, it is because of nature” (Chua, 2013).

4.2 Conceptions of risk

Figure 4 shows the top three risks arising from haze for each of the three countries in 1997, 2005 and 2013. The most consistent risks were, unsurprisingly, health, economy, and lifestyle. There was also concern that haze would bring additional risks to nature (or environment in general); diplomatic relations between countries; and the risk that reporting on haze would give a false impression to other countries. For example, in 1997, the *Straits Times* (Singapore) reported that a British news team had asked a tourist to pose for photographs wearing a gas mask beside a swimming pool. The newspaper stated: “This image would have seemed comical if it were not so damaging in its inaccuracy and dishonesty” (*Straits Times*, 1997a). McLellan’s study (2001: 262) also suggests that the Malaysian government engaged in a campaign of coordinated “denial” particularly targeted the British, United-States, and Australian media for alleged misrepresentation of haze in 1997 and 2000. This current study, however, showed that newspapers did not report any attacks on foreign media in 2005 and 2013.

Some of the largest fears about haze were that it would cause a fall in tourism, or in industrial investment and production. In 1997, government statistics estimated that haze cost the Singaporean economy of between US\$9-10 billion, with an additional US\$1.5 million for assisting with fire fighting in Sumatra (*Straits Times*, 1997b). In Malaysia, however, the main threat after health was identified as lifestyle, referring to the problems of day-to-day

life during haze. These articles would represent haze as a hazard to weekend sporting events, open-air concerts, or as opportunities to cook special meals. Indeed, there was evidence of some commercial actors trying to make light of haze. For example, the food chain, McDonald's apologized in June 2013 for jokingly issuing adverts relabeling Singapore's Pollution Standards Index as the "Peak Sauce Index:" (*Straits Times*, 2013a).

A relatively less important risk was the threat to international relations between countries receiving haze and Indonesia. This was noted especially in Singapore, where it received 4.3 percent of reports about potential threats from haze in 2005.

Figure 4 around here "Perceived threats posed by haze"

The impact on "environment" was difficult to assess. In one sense, all impacts reported were environmental. But only a relatively few newspaper articles discussed haze in terms of its impacts on ecosystems or as a symptom of widespread environmental degradation. In Indonesia and Singapore, newspapers referred to the perceived risk to "nature" prominently in 2005 and 2013. Many articles, however, referred to the impacts on forests, or the areas of land affected by fires, without discussing these impacts as a function of ecology or environmentalism. One *Jakarta Post* story referred to fires as a "wild cancer" taking its toll on forests (Sufa, 2005). The relative prominence given to "nature" in the *Jakarta Post* was probably connected to the willingness of this newspaper to interview representatives of environmental non-governmental organizations, which in turn influenced the significance of civil society as a potential solution (section 4.3). It is also worth noting that this apparent reluctance to interview environmental NGOs might contribute to the relatively higher rating of press freedom for Indonesia than Singapore and Malaysia (section 3.1).

But despite the relatively higher environmental focus in the *Jakarta Post*, the attention given to broader environmental problems was generally slim. Perhaps surprisingly, the relationship of haze to climate change—such as through the release of greenhouse gases or the long-term implications of peat fires—was rarely mentioned. In Indonesia, the references to climate change per story changed from 0.02 in 1997, to 0 in 2005, and 0.09 in 2013. In Singapore, these figures were 0.01, 0.04 and 0.02; in Malaysia, references remained at 0.01 per story in all years. These figures might be surprising given the proximity of the initial haze crisis in 1997 to the negotiations for the Kyoto Protocol, or because of the campaigning of international environmental NGOs such as Greenpeace and World Wildlife Fund. (These figures are mentioned per story because there was no overall framing of blame, risks or solutions attributed to these wider environmental problems).

Similarly, references to biodiversity—as a subject in its own right—were also slim. In Indonesia, references to biodiversity were only explicitly made in 1997 (0.03 per story). In Singapore, the references were 0.01 (1997), 0.04 (2005), and 0.01 (2013). In Malaysia, these were: 0.01 (1997), 0.02 (2005) and 0 (2013).

4.3 Potential solutions

Figure 5 shows the potential solutions to haze that were discussed in the newspapers. The figure shows the top three solutions per year (or four solutions if there were similar scores for four). The proposed solutions were divided into different categories of short-term technological assistance (such as facemasks or cloud seeding); regulation of companies or smallholder behavior by governments; diplomacy (including bilateral agreements and aid); negotiations through ASEAN (which were identified separately to bilateral agreements); targeting of assistance to specific, vulnerable populations such as schoolchildren or the

elderly; and greater involvement of civil society and non-governmental organizations (NGOs). These results are ranked according to what was reported in newspapers, rather than in terms of which solution might be most appropriate or feasible.

Figure 5 around here “Perceived potential solutions to haze”

The most consistently discussed solution to haze was technology. The most common aspect was issuing facemasks as a short-term solution to living with haze. Next to this, the use of cloud seeding, or planes to drop water on fires, was widely discussed as action by the government to help alleviate the problem. The next most common proposed solution was regulation and enforcement of laws by governments, either in Indonesia or in Malaysia and Singapore for companies investing in land clearance. A third common proposal was the use of diplomacy or negotiations between one country and Indonesia in order to assist in addressing fires. Malaysia and Singapore both offered the use of planes and financial assistance. These potential solutions were prominent for all three countries, and for the range of dates from 1997 to 2013.

There were, however, some differences to this trend. First, there were noticeable changes in the proposal of civil society and NGOs as a potential solution to governing haze. In Indonesia, civil society was proposed as a potential solution in 12.5 percent of articles in 1997, rising significantly to 33 percent in 2005. (At this time, 31 percent of the *Jakarta Post*'s discussion of “blame” was critical of the Indonesian government). The role of civil society as a potential solution, however, fell to just 4.2 percent in 2013.

In Malaysia, this trend was echoed less strongly, which saw the proportion of articles proposing civil society as a solution in 1997 of 4.6 percent; rising to 8.5 percent in 2005; but

falling back to 4.8 percent in 2013. In Singapore, references to civil society grew steadily, but unspectacularly from 3.3 percent (1997) to 7.1 percent (2005) and 8.4 percent (2013). Some of the topics discussed under civil society included the work of Greenpeace in identifying fire hot spots in Sumatra; citizen signing petitions to seek action; or the statement from some companies that solutions can only be achieved by motivating all stakeholders, including citizens and local groups (*New Straits Times*, 2013b).

A further trend was the increased reference to ASEAN as a potential solution, rather than bilateral diplomacy. In 2005, both Indonesia (16.7 percent) and Singapore (14.3 percent) referred to ASEAN, and in Malaysia, this figure has increased steadily from 7.1 percent (1997), to 13.6 percent (2005), and 21 percent (2013). The role of ASEAN is discussed more in section 5.

5. Discussion and implications for models of governance

The narrative that emerges from news reporting about haze in Indonesia, Singapore and Malaysia is that the initial crisis in 1997 was perceived to be a result of poor forest management and El Niño. Discussions between countries led to the signing of the 2002 ASEAN Agreement on Transboundary Haze Pollution. But repeated crises, particularly in 2005 and 2013, have been interpreted in terms of a failure by Indonesia to ratify and implement the Agreement, plus a new challenge by the governments of Singapore and Malaysia to regulate their own companies. Indeed, independent academic commentators also note this trend, with one writing: “Malaysian investors have been able to burn with impunity... because of the close patronage relationships and vested interests of the Malaysian government elites in these companies. Because of this, the home government is inclined to protect and defend the actions of these firms in Indonesia” (Varkkey, 2013: 381).

In the short term, governments are happy to represent progress through the allocation of facemasks, or to offer funds or aircraft to undertake cloud seeding. More generally, however, public debate has shifted from worry about the existence of the problem and its potential impacts on health and economy, towards an appreciation that a more complex solution is needed. These findings suggest that news reporting has become slightly more critical and confrontational since the analysis of reporting about haze in 1997 by Massey (2000) or McLellan (2000). There are also some implications for models of environmental governance.

One theme is a transition from reporting haze as simply uncontrolled burning in Indonesia creating problems of health and economy. It is now more critical of Indonesia, the role of specific investors, and the markets that connect investors and consumers of products. For example, attention to palm oil as a plantation commodity linked to haze has increased rapidly (see Figure 6). In Indonesia, there was no reference to palm oil in 1997 or 2005, but in 2013 this had risen to 0.26 references per story. (Rubber, by contrast, was only mentioned in a total of three stories in 1997 alone). News reporting in Singapore and Malaysia showed smaller, but still significant, increases in references to palm oil.

This change in reporting reflects the fact that between 1995 and 2005, land used for palm oil production in Indonesia and Malaysia doubled to ten million hectares (Pye and Bhattacharya, 2013, p. 2). It also indicates a change in the discussion of haze to focus upon specific causes and political and economic challenges. One senior writer in the *Straits Times* (Singapore), wrote in 2013: “None of the regional palm oil producers is owning up to causing the still-raging Sumatra forest fires, and the recent nosebleed air pollutant levels can recur

any time. Widespread corruption on the ground means no new probes or regulations by Indonesia will have any effect, so all that is left is for weary consumers to boycott palm oil products” (Oon, 2013).

In turn, this style of reporting indicates a greater willingness to criticize governments for corruption, and less focus upon reporting that has emphasized short-term technological fixes such as wearing facemasks. It also coincides with the greater trend towards criticizing Singaporean and Malaysian companies for their alleged role in haze (see Figure 3).

Yet, the engagement of news media is mixed, and the style of criticism can be implicit rather than explicit. There is evidence, for example, that reporting in the selected newspapers has been less critical than alternative social media. Some Singapore-based websites such as *The Online Citizen* or *The Real Singapore* comprise opinion pieces and political analyses that are frequently critical of the Singaporean government, but lack the authority of national newspapers because authors are sometimes anonymous. During the haze crisis of 2013, these websites published information about the Singaporean company, Temasek Holdings, which includes investments in Indonesian plantations among its portfolio (Schaeffer, 2013). Temasek is also an official Government Linked Corporation (GLC) in Singapore. GLCs are official channels for state-led investment, and contribute up to 60 percent on Singapore’s Gross Domestic Product. In 2013, Ho Ching, the wife of Singapore premier, Lee Hsien Loong was the Chief Executive Officer, and some four of the ten members of the board of directors had held positions in government. The *Online Citizen* alleged that the company was engaged in producing a different kind of “haze” of positive news about the company in newspapers, in stark difference to the haze in the air (Leon, 2013).

The *Straits Times* newspaper, however, published articles that discussed the criticisms of Singaporean companies, rather than engaging in criticism itself. Moreover, during the 2013 haze crisis, the newspaper published an interview with a representative of Temasek Holdings entitled, “No fires on land co-owned by Temasek” and with a statement that the company abided by rules of good corporate governance and local laws (Foo, 2013b).

Figure 6 around here “Perceived connections between palm oil cultivation and haze”

Figure 7 around here “ASEAN as a perceived solution, with Malaysia’s growing perception of ASEAN as part of the problem”

This style of reporting could be what Massey (2000: 87) described before as “newspapers converged on seemingly non-confrontational frames, while downplaying the potentially troublesome ones, as a result of the influence of the ASEAN core value of maintaining cordial relations between member states.” Massey (2000: 87) adds: “being sensitive to neighboring nations is one occupational norm that distinguishes Asian journalism from Western forms of news reporting, which can be noticeably blame-oriented and, arguably, at times divisive.” But there is also evidence that newspapers are increasingly critical of this stereotypical ASEAN form of negotiation. This new critical insight is shown in the public criticism of ASEAN, and in the style of reporting despite media controls.

Figure 7 shows the number of frames in the selected newspapers that were either critical or blaming of ASEAN. This figure shows that newspapers are increasingly referring to ASEAN as a potential solution to transboundary haze.

But Figure 7 also shows that Indonesia and Singapore’s optimism for ASEAN declined after 2005, which was shortly after the 2002 ASEAN Agreement on Transboundary Haze Pollution.

Malaysia's *New Straits Times*, on the other hand, demonstrated a growing debate about the pros and cons of ASEAN. On one hand, its newspaper reporting in general expressed increasing levels of optimism about ASEAN between 1997 and 2013. But at the same time, the *New Straits Times* has also increasingly featured letters and opinion pieces that have overtly blamed ASEAN for lacking progress, especially as the ASEAN secretariat is in Jakarta, where it could have influence on Indonesia (*New Straits Times*, 2013c).

The Singapore *Straits Times* and Indonesian *Jakarta Post* did not repeat this criticism of the ASEAN agreement, but the *Straits Times* did express concerns about the ASEAN style of negotiation. In 1997, the *Straits Times* seemed to confirm the non-confrontational style. It wrote, "The ASEAN way is a product of years of socializing among the member states... It is based on cooperation and consensus where informality, courtesy and politeness are the order of the day. Foreign policy is not conducted in full public view, risking public loss of face, and if a dispute cannot be resolved, it is left for another day (Hon, 1997). But by 2005 it published an article stating: "ASEAN's penchant of favoring camaraderie over formality and process over substance, is well known ...it just won't work" (Gani, 2005). This article quoted an academic from the National University of Singapore, rather than expressing this concern in its own voice.

The Malaysia *New Straits Times* has also echoed this trend. In 1997 it stated, "The ASEAN way is characterized by vagueness and longwinded indirectness. Obfuscation is often the result, and sometimes even the objective" (Ahmad, 1997). This statement is echoed by the observation of the Malaysian *Sunday Times* in 1997 (in McLellan, 2001: 257) that, "the 'ASEAN' way of holding discreet behind-the-scenes discussions, while keeping the ASEAN public in the dark, may work in sorting out political, trade or diplomatic kinks. But it does not work when it comes to a disaster like the haze" (*Sunday Times*, 1997).

By 2005, the Malaysia *New Straits Times* continued this criticism: “The ASEAN transboundary haze protocol remains unratified by Indonesia, but in itself only calls for the sharing of data; an instance, perhaps, of fiddling while Rome burns” (*New Straits Times*, 2005). And in 2013, “We have been using all diplomatic channels to solve this problem the ASEAN way, but have we been successful?” (*New Straits Times*, 2013d).

Evidence therefore suggests that public opinion about haze is becoming more critical of both national governments *and* the international models of dispute resolution adopted by ASEAN. In addition, criticism has become focused on government-linked corporations and especially the alleged role of Singaporean and Malaysian companies in open burning. At the same time, newspapers are able to voice these criticisms (despite controls on media) by reporting the words of critics, or simply describing debates about controversial matters, even if the newspapers themselves do not own this criticism themselves.

Much reporting about haze still remains focused on short-term concerns such as the disruption to life, or the availability of facemasks. But there is a growing trend to question the model of governance that assumes a national government will implement solutions, and instead to look at the lack of regulation of companies who invest in plantations, and the ability of citizens to criticize them.

6. Conclusion

Public concerns about environmental problems are important because they indicate how environmental changes are experienced as problematic, and because they offer insights into

the political processes that shape policy interventions. Social scientists have called these connections between public concerns and policy challenges, “environmental narratives” because they structure concepts of blame, risk, and potential solution.

Understanding public concerns, however, is challenging because they can only become apparent through the use of indicators. Newspaper articles are a familiar source of information, but these might be inappropriate indicators of public perceptions because of censorship or political influence. The print media in Indonesia, Singapore, and Malaysia are widely considered to be subject to political control.

Nonetheless, this study of public concerns about transboundary haze has revealed information about the public debate about haze, and about the journalistic representation of this controversy. The research presented in this paper demonstrates that newspaper articles—including news reports, letters, and opinion pieces—have gradually changed from simply describing the feared health and economic impacts of forest fires occurring during a prolonged El Niño period, towards being represented in frames of policy failure by Indonesia; the capacity of ASEAN to act; and the unwillingness or inability of Singapore and Malaysia to regulate state-linked companies.

News reporting also indicates that most reporting of the day-to-day effects of haze in recipient countries still focuses on the impacts on lifestyle and short-term solutions such as issuing facemasks or chartering planes for cloud seeding. Beneath this discussion, however, is a growing trend to state that the ASEAN Agreement on Transboundary Haze Pollution is not good enough; that state-linked companies might be connected to the problems of land clearance for palm oil production; and an openly critical, not very-ASEAN way, of criticizing Indonesia for failing to ratify the ASEAN agreement. Indeed, newspaper articles are

increasingly questioning the stereotypical ASEAN non-confrontational model of negotiation between nation states, and seeking to emphasize criticism of companies, and the potential role of citizens.

These findings suggest that newspaper analysis has an important value alongside other indicators of public concerns. Despite the political influences on newspapers in Southeast Asia, there is evidence that the public is increasingly critical of current policy approaches to haze. Citizens are also seeking more complex forms of governance that replace international commitments with a more confrontational and public criticism of companies investing in palm oil and unregulated plantations.

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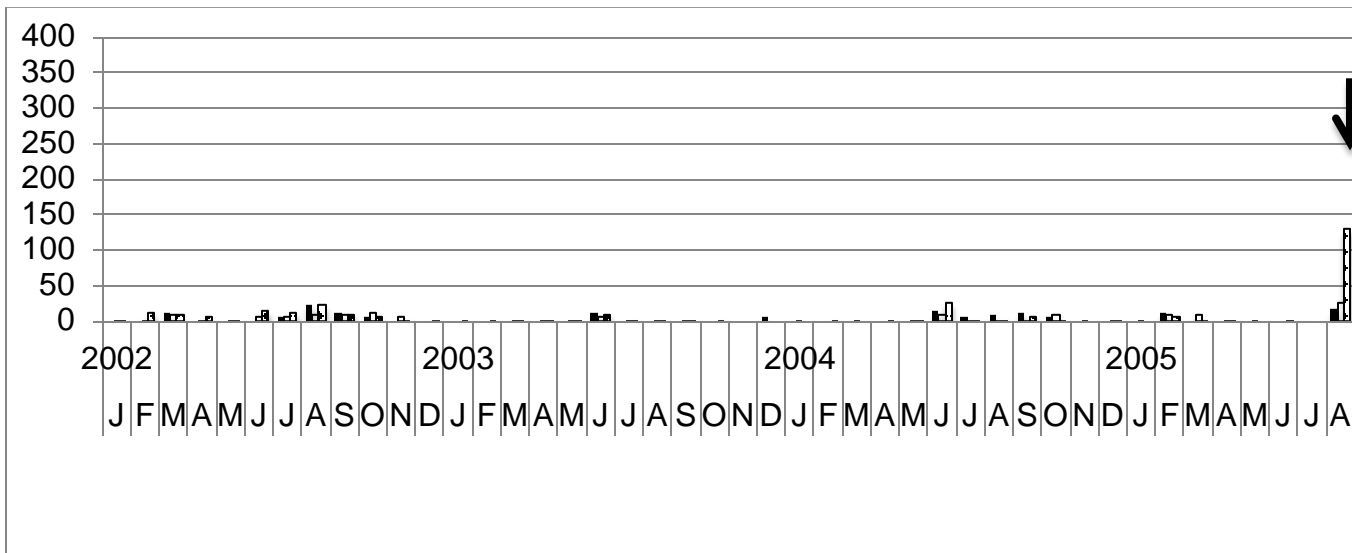
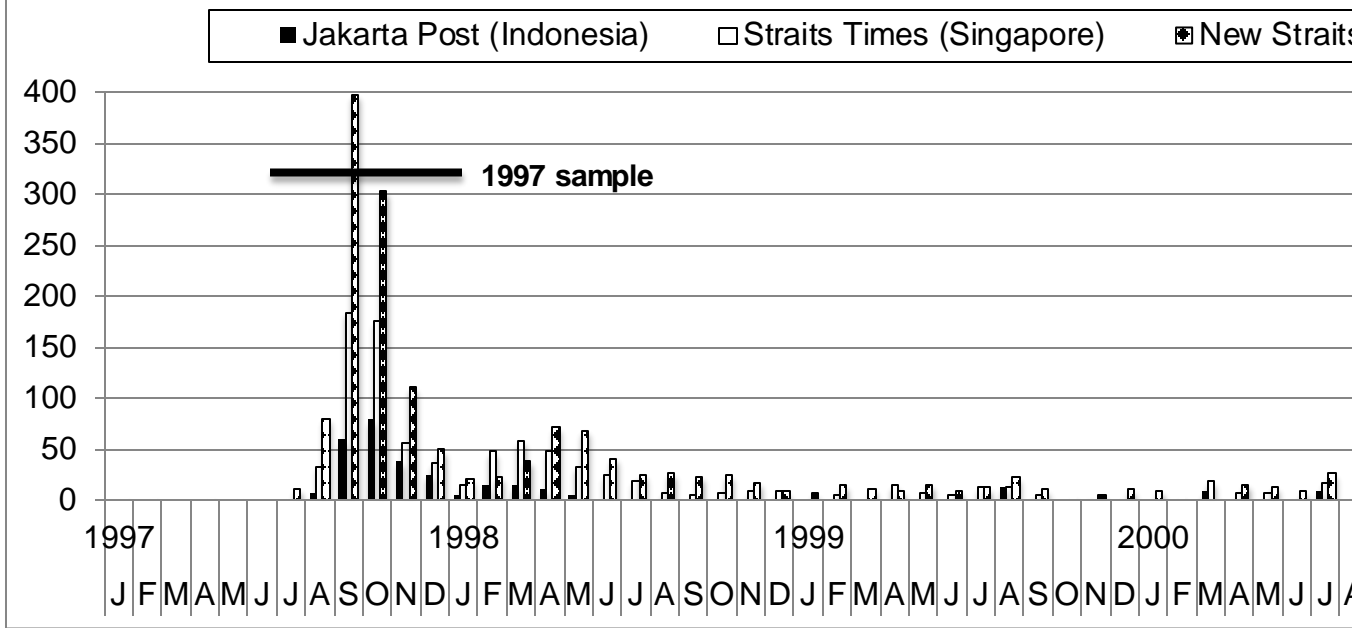
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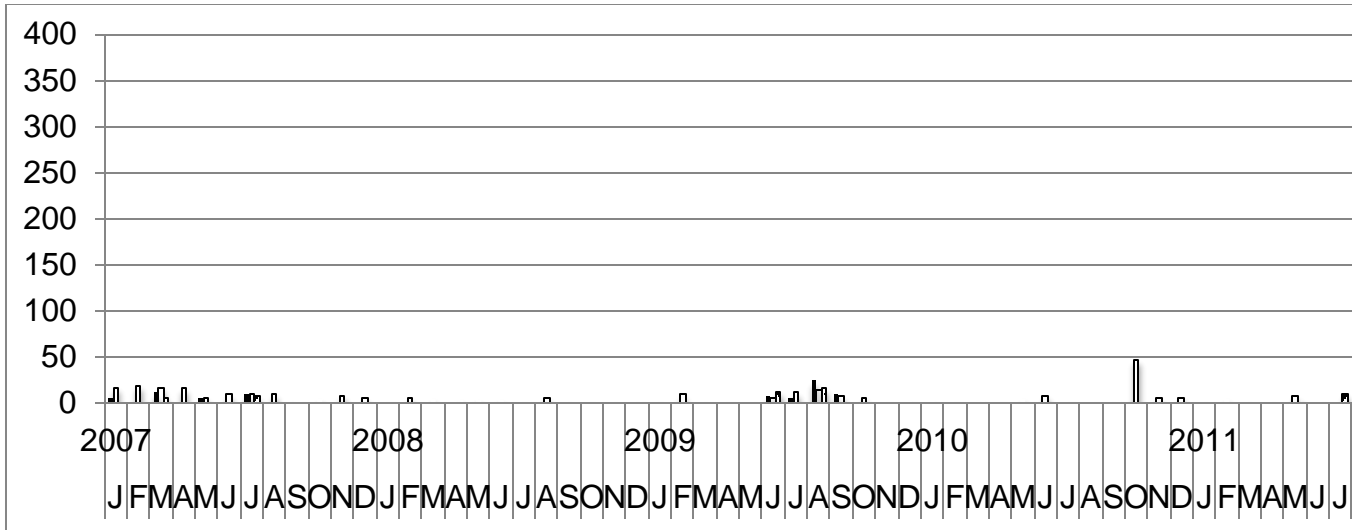
Table 1: Numbers of news articles analyzed

	Total number of stories about haze, July 1997-June 2013	Sample period 1: July-December 1997	Sample period 2: August 2005	Sample period 3: June 2013
<i>Jakarta Post</i> (Indonesia)	901	213	17	34
<i>Straits Times</i> (Singapore)	2082	491	25	271
<i>New Straits Times</i> (Malaysia)	2406	955	130	95

Source: Factiva analysis

FIGURE 1: FREQUENCY OF NEWS REPORTS ABOUT HA





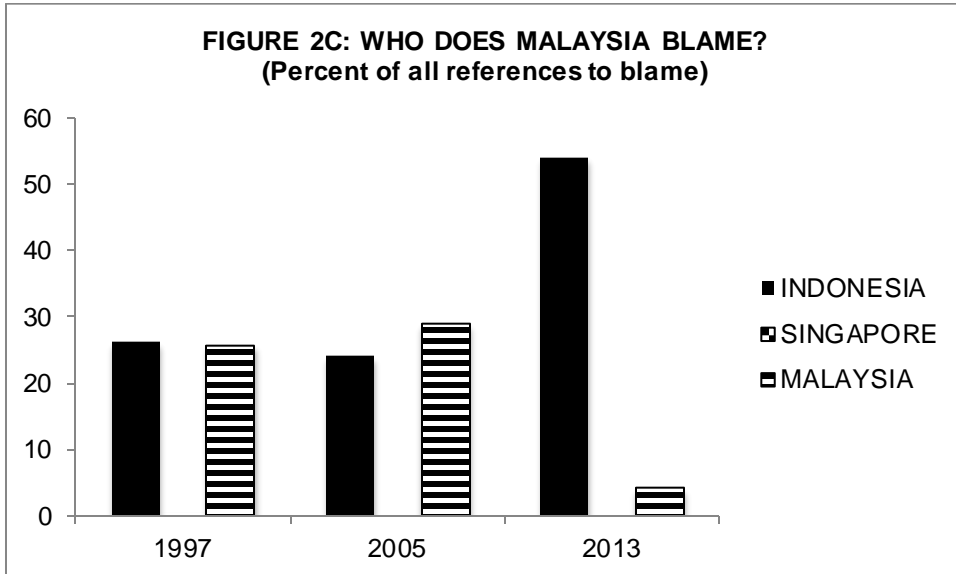
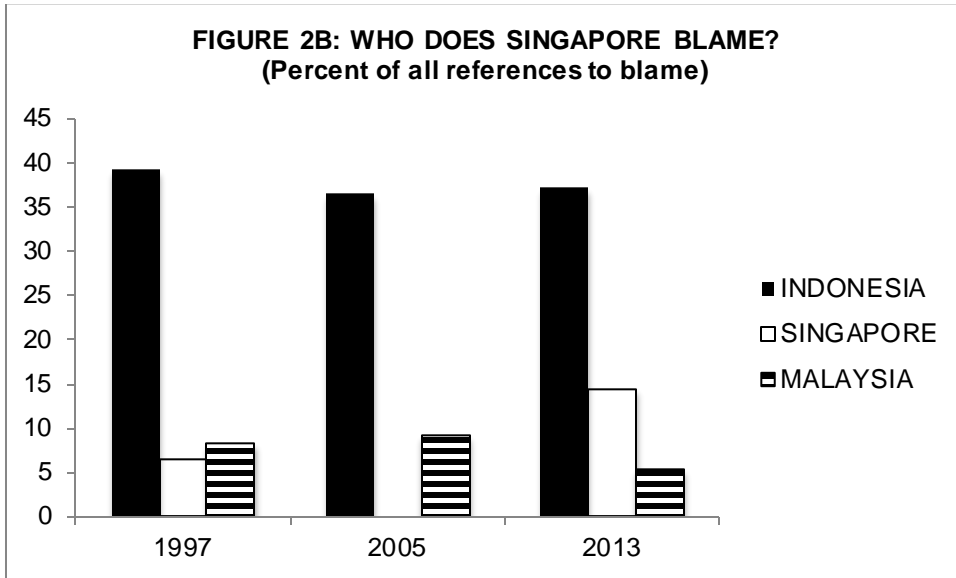
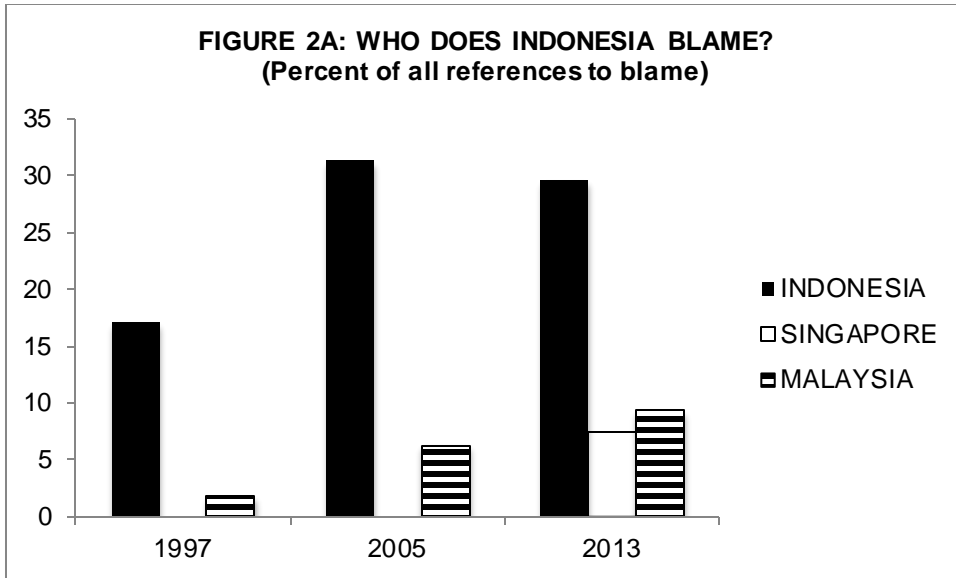


Figure 2: Where is blame allocated for haze?
(source: percentage of all references to blame per country)

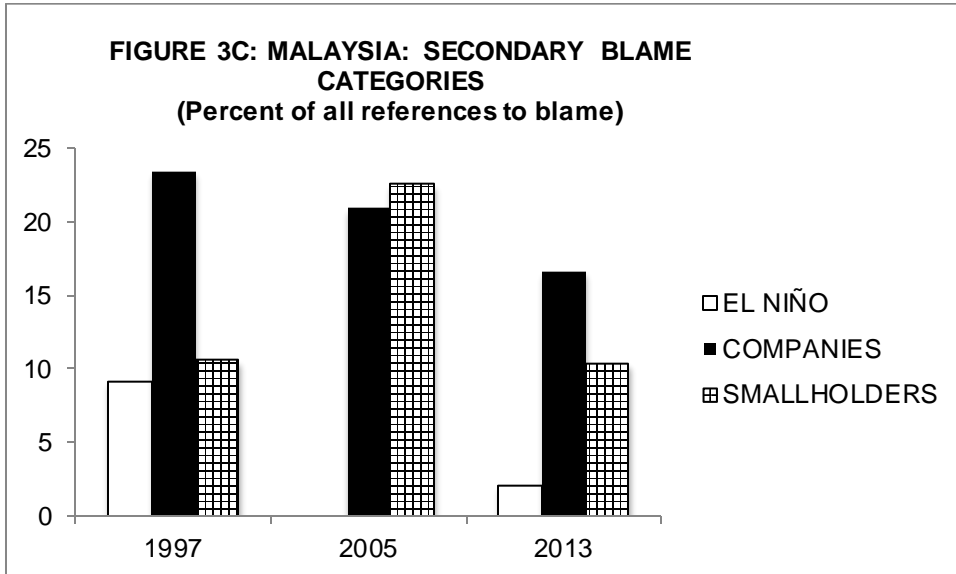
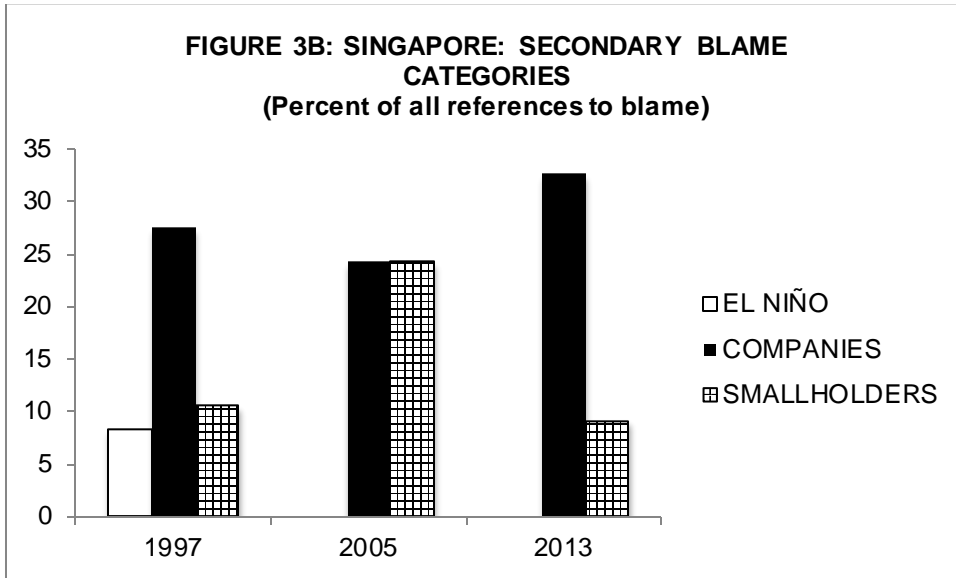
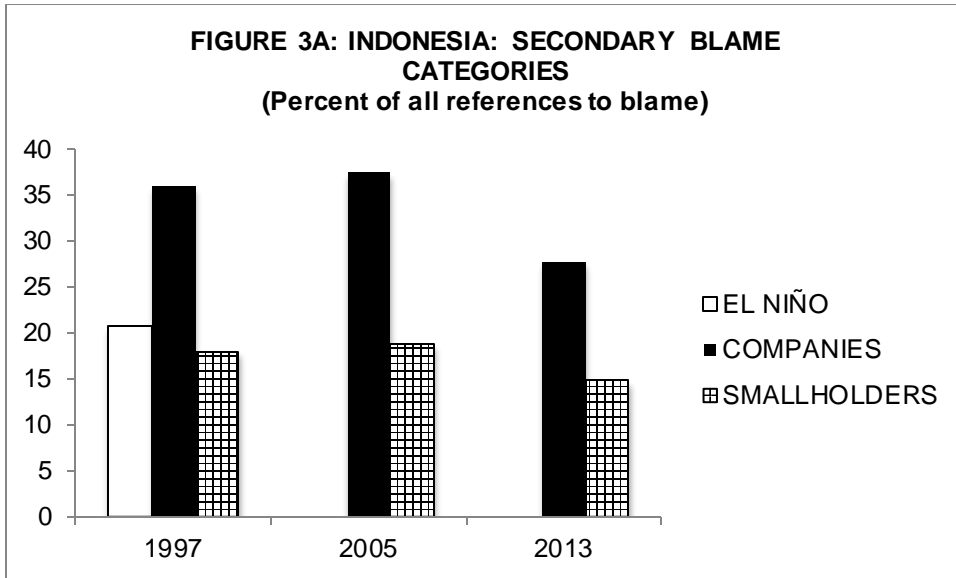


Figure 3: Other attributed causes of haze
(percentage of all references to blame per country)

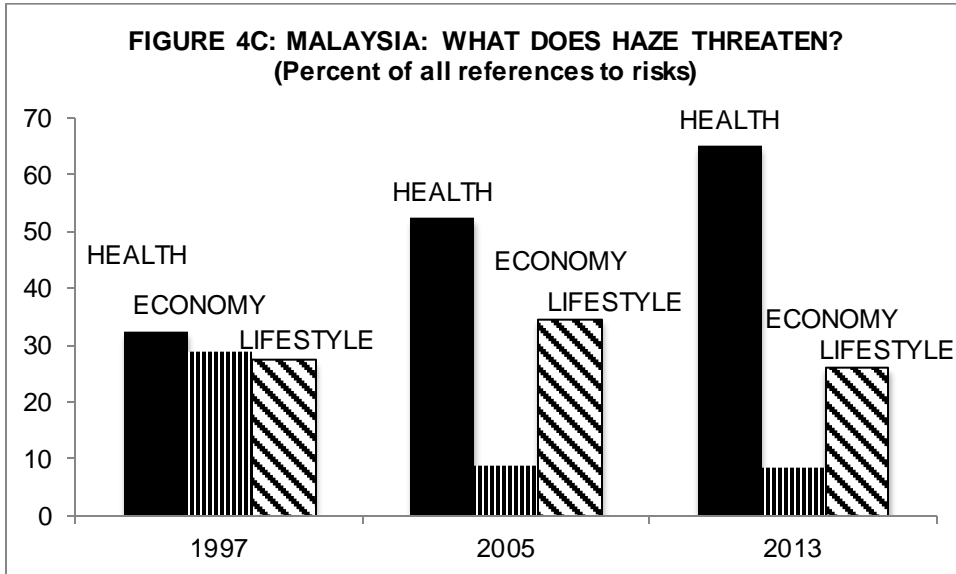
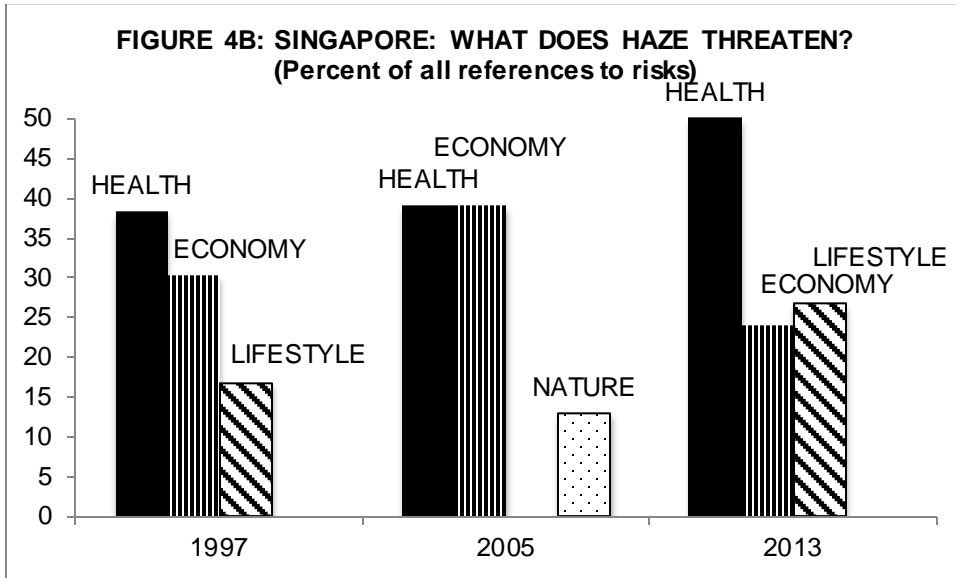
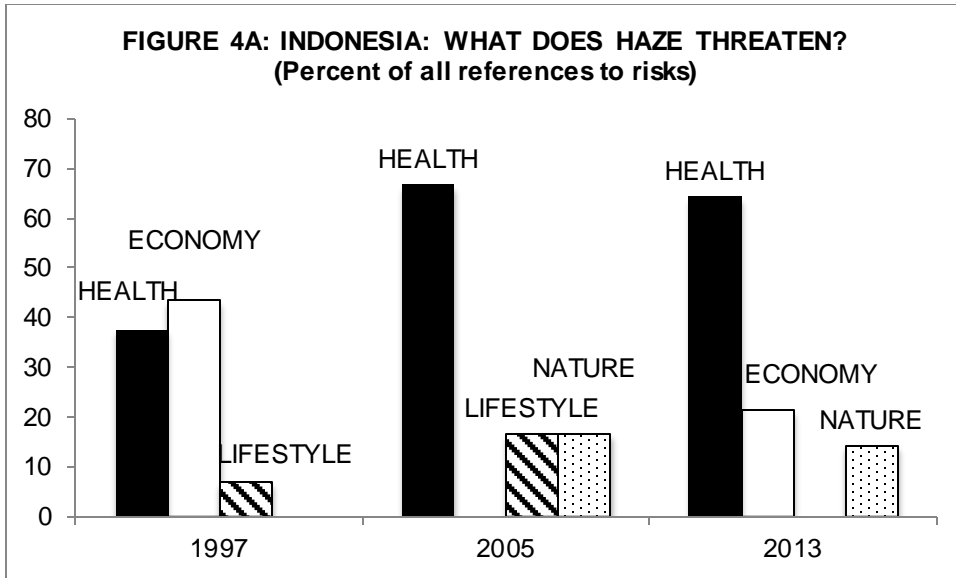


Figure 4: Perceived threats posed by haze
(percentage of all references to risks, per country)

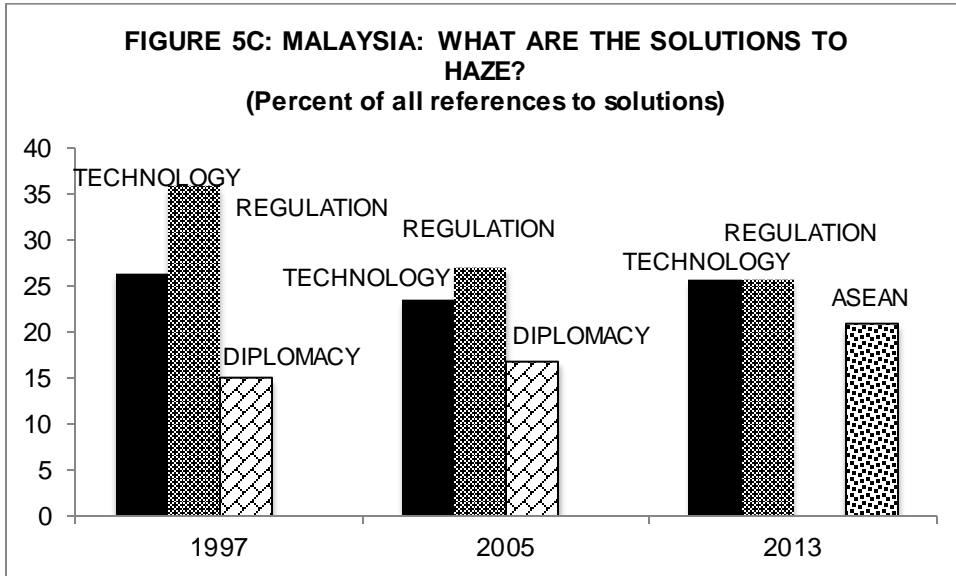
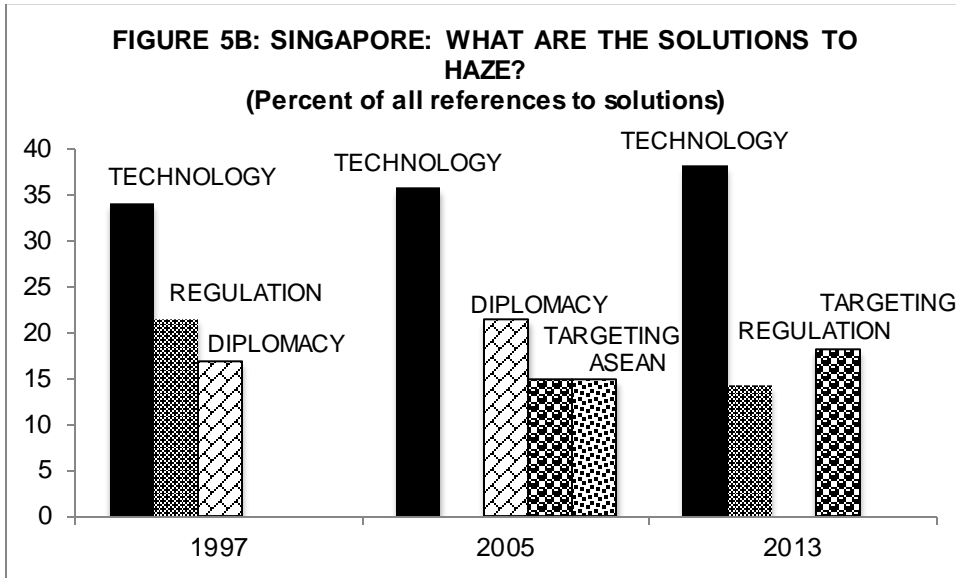
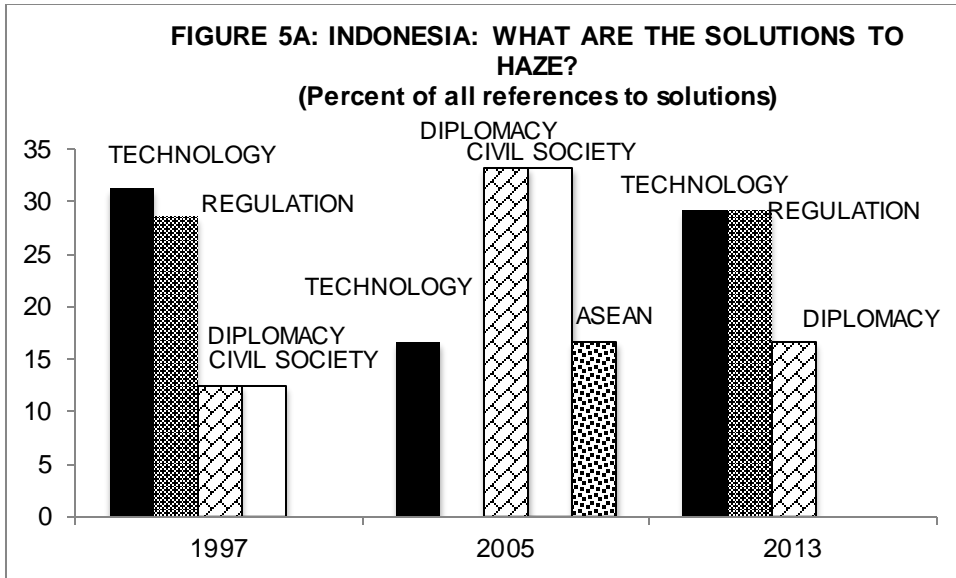


Figure 5: Perceived potential solutions to haze (percentage of all references to solutions, per country)

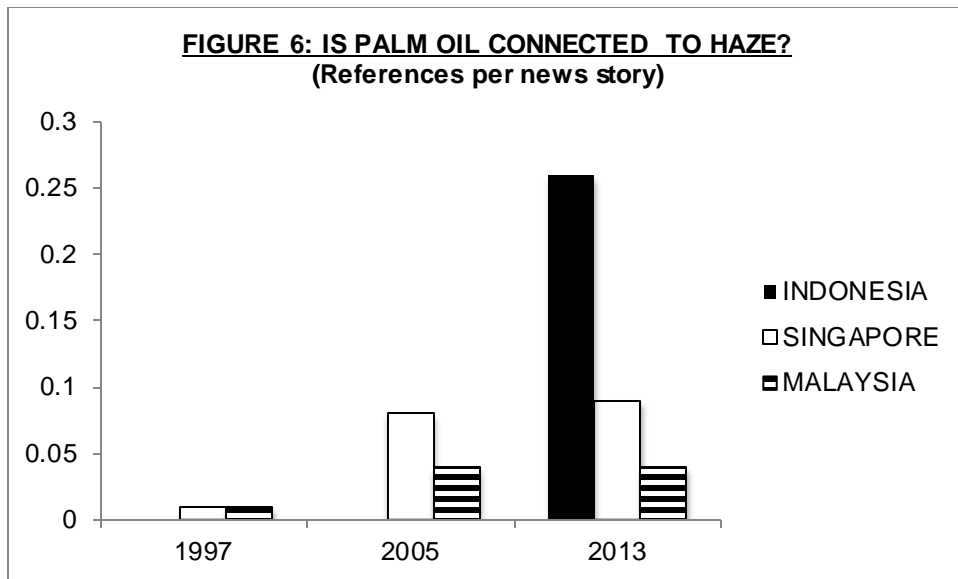


Figure 6: Perceived connections between palm oil cultivation and haze
(average number of references per news story in each country)

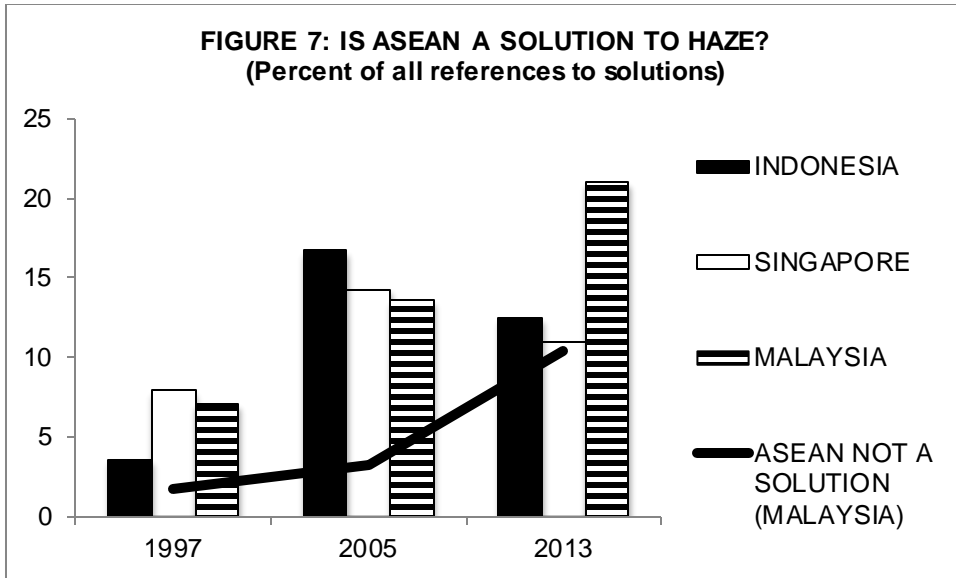


Figure 7: ASEAN as a perceived solution, with Malaysia's growing perception of ASEAN as part of the problem
(percent of all references to solutions or blame)