

FRAMING ANALYSIS OF NEWS COVERAGE ON RENEWABLE ENERGY IN THE STAR ONLINE NEWS PORTAL

G. MANICKAM GOVINDARAJU*,
KALEI JOETHI SAHADEVAN, TAN POH LING

School of Media and Communication, Faculty of Social Sciences and Leisure
Management, Taylor's University, Taylor's Lakeside Campus,
No. 1 Jalan Taylor's, 47500, Subang Jaya, Selangor DE, Malaysia
*Corresponding Author: GManickam.Govindaraju@taylors.edu.my

Abstract

Malaysia, despite being recognised as the suppliers of oil and natural gas in the world is having a hard time fulfilling the high demand of both domestic and international energy sector. Hence, in recent years, Malaysia has in addition ventured into alternative energy in reducing the dependence on the natural energy resources. This study aimed to look at the news framing of renewable energy in The Star Online from 2011-2017 in line with the introduction of the Renewable Energy Act (RE Act 2010), which was enacted in 2011. Utilising content analysis, a total of 45 articles were analysed. Finding shows that the main issues discussed are focused on biomass, not surprising as Malaysia is the world's largest exporter of palm oil. The newspaper mostly used industry/industry spokesperson as the main sources in its news reporting. The main frame used in the news is on economic concerns that include trade and investment. This research concludes that more coverage needs to be given to individuals, NGOs and experts who are in addition important stakeholders in renewable energy to position various concerns especially on low-risk efforts in RE or food security.

Keywords: Content analysis, Framing, Renewable energy, Star Online.

1. Introduction

Coverages and attention given to science reporting in most news media are small in comparison to that accorded to business, politics, or even sports and entertainment. Science writers and journalists confront definitions of science when they decide, which activities to monitor and explain [1]. The nature of science story is still a controversy to many. A story on a proposal to build a nuclear power plant may be viewed as a political story, a big business story, economic story or easily a science story [2] and not as social aspect story. Despite the findings of high public interest in the environment, many newspapers have significantly reduced their coverage of science, including the environment, during the last few years [3]. This is a global situation whereby Malaysia is no exception.

Information on renewable energy development in Malaysia is mostly found in scientific journals and government agencies official online portals. Preliminary study on news reporting in Malaysia found that information on customs duties on renewable energy technical equipment and subsidies, [4], the potential for applying renewable energy in rural areas [5] and the acceptance of renewable energy among Malaysians [6] are underrepresented in Malaysia's mainstream media.

This phenomenon brings an important perspective to this research in terms of renewable energy news coverage. Kardooni et al. [7] reported that Malaysians seem to have a negative attitude on renewable energy technology understanding and knowledge of renewable energy usage is still poor. Public knowledge is essential in ensuring renewable energy acceptance in Malaysia [6]. This could well be the reason as science had always been looked upon as a difficult area to report or due to the journalistic training the journalists had. According to Hansen [8], the journalists are also found to emphasize in particular the importance of a 'relevance to the reader' criterion in the selection of science news.

This paper examines the extent to which, RE is prioritised in the news media and the ways in which, stories on RE are presented. Questions raised in this study are:

- To what extent is RE prioritised in the Malaysian mainstream news media?
- How are news stories on RE presented in the Malaysian mainstream news media?
- Who/What are the news sources on RE?

2. Significance of Research

Scientists are turning to transdisciplinary approaches to tackling sustainability problems like climate change as these problems are complex and cannot be solved with simple solutions [9]. There is a lack of transdisciplinary research in alternative energy and that there are gaps to be filled on the role of communication in science's use in decision-making for regulation and alternative energy adoption rates [9]. The salience, credibility, and legitimacy [10] of media studies increased as other researchers recognise the contributions that this type of analysis can make to engaged energy research [9].

Based on studies by Bolsen [11] and Wright and Reid [12], previous research on the framing of renewable energy in the news media is rather scarce. Most studies on energy frames in the news media have been conducted on nuclear energy [13,

14] or climate change [15, 16]. This research hopes to initiate a transdisciplinary research in the area of media studies.

3. Literature Review

A study at the state of Maine in the US had raised its interest in alternative energy development after experiencing energy crisis in 1973-1974 and over time successfully developed wind energy resources with the support from researchers, developers and investors in renewable energy [9]. Besides, 80% of the citizens of Maine received information and updates on energy from daily newspapers [17]. As part of a wider research, Smith and Lindenfeld [9] studied frames of local newspapers using quantitative content analysis of Maine's two leading newspapers from 1995 to 2012 and gathered 2882 newspaper articles where they found the newspapers primarily used a political frame when relaying information on alternative energy and minimised information regarding environmental, technical and health and safety issues in relation to alternative energy development. It was also clearly evident that scientific discussion was lacking and the majority of stories dealt with wind power, despite simultaneous energy advancements in tidal power and biomass.

One metaphor to describe the news media is as a 'watchdog' where its prime rationale is to guard public interest against the government or industry abuse, critically regulating public activities [18]. Another view of the news media is of a 'lapdog' (submissive to the interests of government or industry). Media actors highlight 'balance', providing equal space for arguments and counter-arguments, which has been argued to have led to distorted coverage [19]. There is potential for positive coverage through linking bioenergy to climate change mitigation and economic adventures when news media highlight how actions of industry and authorities are problematic from what is considered public interest [20].

3.1. Background of research

Malaysia is blessed with a good mix of energy resources such as oil, natural gas, coal and renewable energies ranging from biomass, solar and hydro [21]. However, in recent years, Malaysia has also ventured into alternative energy in reducing the dependence on the natural energy resources. A large portion of the environmental impact in a society is associated with its utilisation of energy resources, which needs to be curbed through renewable energy usage. The depletion of the resources and also the environmental factor has led the Malaysian Government to rethink its strategies to be more in line with other developed countries including the decision to embark on renewable energy (RE) resources as a better source of energy amongst the global energy mix [22].

The Malaysian government initiated Renewable Energy Act (RE Act 2010) with the aim to promote usage of renewable energy. This Act was enacted in 2011 with the provision of Feed-in Tariff (FiT), providing more attractive incentives to spur the implementation of grid-connected power generation from renewable energy resources [23]. The Sustainable Energy Development Authority of Malaysia (SEDA Malaysia) is a statutory body formed under the Sustainable Energy Development Authority Act 2011 [Act 726]. Malaysia needs to start encouraging the usage of renewable energy and reduce the dependency on non-renewable energy and this would not materialise without sufficient media coverage on the

issues of renewable energy. Therefore, this study looks into media coverage of renewable energy with Malaysia in focus.

News media actors are important public sources of information about energy technology [13, 20] as they share intimate relationships with the public as disseminators of information [13, 20] and serve as links between experts, politicians and the public [20]. They have a vital role in communicating government agenda, political issues and policies to the public [24] in efforts to create informed citizens. Hence, media play an important role in disseminating information and awareness on this issue.

3.2. Framing Theory

This study by Bosman and d'Haenens [25] and McCombs [26] applies Framing Theory as the basis for the theoretical framework. Many researchers [25, 26] asserted that the most frequently cited definition of framing comes from Entman (1993):

Framing is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described from Entman (1993)

Framing theory is used to understand how the presentation of issues guides public opinion [27]. Renewable energy issues are complex and involve political, technical, scientific, economic, environmental and civil society aspects [28]. In this study, framing theory is applied in looking at the renewable energy coverage in Malaysia on how the renewable energy coverage is represented in Malaysia and news are framed by the local media.

4. Methodology

Though the mainstream media continue to play an essential role in disseminating information, Internet-based tools such as social media are able to influence the traditional media through online conversation [29] and that leads to more mainstream media opting to go online [30]. Based on a survey carried out in 2010, the Internet had surpassed print newspapers in terms of news platform [31]. Malaysia is no exception to this phenomenon as many traditional news agencies have initiated their online news portals such as Star Online, Utusan Online, Berita Harian Online, Harian Metro Online and News Straits Times Press (NSTP) Online [32].

The Star Online is selected because it is the highest online consumption newspaper in Malaysia as considered to be giving reliable and accurate news [32]. This research utilises the content analysis method to achieve the objectives. The focus of the study is on renewable energy and all articles between 2012 and 2017 that are related to renewable energy have been collected as the sample of the study.

4.1. Data collection

The keyword used is 'renewable energy in Malaysia' and 45 articles were collected for this research.

4.2. Coding scheme

The researcher coded the thematic features of the stories. The coding of the data of renewable energy by The Star Online will be examined from three different dimensions: (1) news frames (2) news sources and (3) sub-themes.

5. Data Analysis

There are a total of 45 articles found under the keywords “Renewable Energy in Malaysia.” Out of these, the number of articles that discusses the economic frame is 22. Three of the articles have discussions overlapping with Research & Development (R&D), political and government frames. Government frame totals four articles where one overlaps with the economic frame. Corporate news totals five articles where one article overlaps with the economic frame. Political frame totals four articles where one of them overlap with the economy and one on R&D and one with Non-Governmental Organisations (NGOs) (Refer to Table 1)

Under the sources for the news, there are a total of eight categories outlined. Among them, Industry/industry spokespersons category leads with a total of 20 news. Government agencies are second with a total of nine news with one overlap with politics. Politics covers six news with one overlap with industry. Financial institutions obtained three coverages, while NGOs secured two and media and citizen categories receive one each (Refer to Table 2).

In analysing renewable energies that are covered in Star Online, it is found that four main energies were discussed, namely solar, biomass, wind and hydro. Among these three, biomass received most coverage followed closely by solar, hydro and finally wind (Refer to Table 3).

Table 1. The news frames.

News frames	Number of news
Economic	22
Government	4
Corporate	5
Civil Society	5
Research & Development	7
Politics	4
Environment	1

Table 2. News sources.

Sources of News	Number of News
Industry/ Industry spokespersons	21
Government agencies	9
Education institutions	4
Financial institutions	3
Political leaders	6
Citizens	1
NGOs	2

Table 3. Renewable energy news that are covered.

Issues	Number of News
Solar energy	8
Hydro power	4
Wind energy	2
Biomass (biodiesel, biogas, palm oil biofuel)	13

6. Discussion and Conclusion

The media have the influence to pre-determine issues that people should be aware of in society and expose information that would help in their decision-making process. The power of the media should be directed toward improving the spread of scientific knowledge to encourage behavioral changes, particularly among individuals with lower levels of education [33]. Further, the precaution adoption model recognises that the media play a major role in disseminating information and raising awareness [34]. This emphasises the importance of journalists in creating awareness on carbon emission vis-à-vis renewable energy in Malaysia. Hence, in this situation, the media play an important role in disseminating information and in addition communicating the government agenda and policies to the public [24] in its effort to create informed citizens.

The analysis shows the framing of RE in the articles slants more towards economic perspective whereby corporate organisations are providing information on energy saving, renewable technologies, investments by financial institutions with actors of renewable energy. These corporations contribute news on bilateral opportunities that await them through joint-ventures and eventually creating more job opportunities for locals.

It is in addition found that biomass RE is given higher news coverage in media compared to solar, hydro and wind. Kadir et al. [35] explained that among the potential RE, solar energy is considered to be one of the most economical sources. Despite solar energy being the cost-saving energy, biomass could be receiving more coverages because Malaysia is currently the largest exporter of palm oil [36]. The country is experiencing a robust development in new oil palm plantations and palm oil mills. This commodity plays a significant role in Malaysia's economic growth [37]. This may have led many corporate organisations to invest in the renewable energy sector. Cypark Resources Bhd., a biomass company is confident with the future of RE in its venture of the waste-to-energy power plant as there is an increasing awareness that burning fossil fuels causes climate change despite recent fallout in energy and oil prices (Star Online, 12 Jan and 1 Oct 2015). Further, the UK based company; Geotechnical Instruments Ltd. in addition targets Malaysia for biomass RE investment due to palm oil waste (Star Online, 30 May 2016). Further, joint ventures enable firms to capture more profits than they would enjoy if they merely licensed their technologies, and they provide more control over how firms' resources will be used than cooperative arrangements that do not share equity [38]. Besides, foreign investments or collaborations play a vital role in ensuring the continuous and vibrant growth of Malaysian biodiesel industry [39]. In general, Star online has covered news on RE every year during the research period. It is found that RE received coverage almost every month from 2011 to 2017.

Star Online news stories on RE are mainly covered on the corporate and economic news. In this news, the corporate organisations promote ways of saving energy and carbon emission through RE. Approximately 22% of stories under the corporate organisation are related to joint ventures (JV) and investments in RE. Foreign investments or collaborations play a vital role in ensuring the continuous and vibrant growth of Malaysian biodiesel industry [39]. Beside foreign investments and joint-ventures, local companies are in addition encouraging JV to happen domestically.

Sources in this research are the informants who provide information on RE and used to quote statements. Sources in news stories play important roles in establishing credibility among the public. The findings revealed that approximately 43% of the news sources are from the industry or industry personnel. This shows more coverage is given to business angles, which covers the development of industries, joint-ventures with international companies, assistance from financial institutions who support the renewable energy organisation for building power plants and investment purpose as well. Companies may have understood the importance of obtaining news coverage in media about their product, services, issues, and challenges. Expanding business news coverage is important to organisations because customers and stakeholders learn about companies and issues that surround them with news media [40]. These reports significantly reflect the support provided by The Star to the key role played by SEDA to administer and manage the implementation of the feed-in tariff mechanism, which is mandated under the Renewable Energy Act 2011 [Act 725].

Most of the news from corporate organisations covered the aspects of how these organisations could contribute to reducing high energy consumption that is currently faced by the public. The organisations in addition shared business investment plans to build power plants to achieve this purpose such as first bio-oil plant using palm oil biomass, and organisation of regional conference that exhibits power generation and renewable energy. This shows corporate organisations' initiative and commitment in promoting their news agenda on RE to the public. It is vital for corporate organisations to inform the public on what they contribute in terms of energy conservation to the country. In almost all the news that represent the industry, the source of news was either the Chief Executive Officer (CEO) or the President of the company. This is crucial as CEO is the representative of the company and featuring the CEO has a strong impact on the corporate image [41, 42], which in turn influences trust building. Most of the news reports on investments in RE include company's initiatives to supply electricity to TNB, providing job opportunities, approvals obtained from SEDA for FiT, joint-ventures with foreign companies especially from China and available opportunities in RE field. Most of the news reports project a positive image for the organisation's potential investors.

Government agencies made their presence in the news coverages through SEDA's engagement with corporate organisations and as a government agency by itself. SEDA provides guidelines and educates the public on FiT (Feed-in tariff). Being a regulatory body that monitors and issues licenses for RE organisations, news coverage on SEDA in addition provides options on other RE such as wind and encourages public to be more supportive of renewable energy for long-term benefit. According to Grunig [43], SEDA's news coverage is a typical model of

public information that are used by government agencies in disseminating information to the public.

Among the politicians in the news coverage were Malaysia Prime Minister, Datuk Seri Najib Abdul Razak, Chief Minister of Sarawak, Minister of International Trade and Industry, Minister of Energy, Green Technology and Water and Sabah Chief Minister. Messages from the political figures range from a collaboration between Peninsular Malaysia and Sarawak, sustainability of SMEs through the transparency of quotas for RE providers, R&D in the higher learning institutions and reducing carbon emission while creating better economy through job opportunities in RE sector. The news reports portrayed political representatives as encouraging the use of RE in Malaysia as this would generate income to SMEs that participate through FiT and consequently, lift the economy status of the country.

The other sources such as educational institutions were given less coverage. The type of coverage given to higher learning institutions displays students' effort to create awareness on biodiesel using palm oil in three countries and creation of biodiesel processor prototype for educational purpose. Interestingly, none of the sources covered by The Star Online included analyses from scientists or researchers. These experts can provide various perspectives in relation to the diverse range of issues concerning renewable energy, especially the challenges concerning food security and environmental hazard. In a comparative study of The Australian (Australia) and Dagens Nyheter (Sweden) between October 2010 and June 2011 news from experts were given coverage, despite a small percentage of 9% and 8% respectively [28].

Other sources that range from non-government organisations and citizens received far less coverage in the area of RE. One news on an NGO, National Association of Smallholders (NASH) was found in Star Online. This is rather important as it reveals a campaign launched against palm oil biofuels in Malaysia by the European Union (EU). The sources in this news represent NASH President, Sarawak Land Consolidation and Rehabilitation Authority (SALCRA) Chairman and Dayak Oil Palm Planters Association (DOPPA) President. The campaign against Malaysia's palm oil as RE is a crucial news and rather damaging for the country's economy. This news did not bring in further engagement with the relevant parties such as government and EU representative to provide further details as to the reason behind such act, which is crucial for the public especially the small farmers. In addition, a new actor emerged in the market: the prosumer, which is simultaneously a producer and consumer of electricity [44]. SEDA issues feed-in approval certificates to individuals or companies that become eligible to sell renewable energy at the FiT rate. It is important to find out why companies are given a lot of coverage throughout this period of study whilst individuals, or prosumers were not given any coverage.

In corporate communication, CEO is a credible source of information to increase employee engagement and organisational reputation [45] while in non-profit organisation's communication, stewardship has been used to predict positive relationship evaluations (e.g., trust), supportive behavioral intentions and loyalty [46]. In this study, Star Online is found to have used all the credible and trustworthy sources in their news coverage despite the limitation in terms of types of sources.

7. Suggestion for Future Research

Research findings show that Sweden has stories purely positive on RE while the reportage globally was more critically covered [20]. Similarly, there is a gap in the news frames covered by The Star Online where none was discussed on the complexities involving RE. There was no critical input, in terms of news frames or sources, where food security and environmental impact are concerned, as well as the diverse sources who could contribute to the news agenda. A qualitative study of content is important to be pursued in order to highlight the gap in reporting. In addition, interviewing journalists who cover such events can provide insights as to how RE news can be better reported.

References

1. Weigold, M.F. (2001). Communicating science: A review of the literature. *Science Communication*, 23(2), 164-193.
2. Burnham, J.C. (1987). *How superstition won and science lost*. Popularizing science and health in the United States. New Brunswick, New Jersey, United States of America: Rutgers University Press.
3. Detjen, J. (1995). The media's role in science education. *BioScience*, 45, S58-S63.
4. Ahmad, S.; Kadir, M.Z.A.A.; and Shafie, S. (2011). Current perspective of the renewable energy development in Malaysia. *Renewable and Sustainable Energy Reviews*, 15(2), 897-904.
5. Borhanazad, H.; Mekhilef, S.; Saidur, R.; and Boroumandjazi, G. (2013). Potential application of renewable energy for rural electrification in Malaysia. *Renewable Energy*, 59, 210-219.
6. Kardooni, R.; Yusoff, S.; and Kari, F. (2016). Renewable energy technology acceptance in Peninsular Malaysia. *Energy Policy*, 88, 1-10.
7. Kardooni, R.; Yusoff, S.; Kari, F.; and Moeenizadeh, L. (2018). Public opinion on renewable energy technologies and climate change in Peninsular Malaysia. *Renewable Energy*, 116(Part A), 659-668
8. Hansen, A. (1994). Journalistic practices and science reporting in the British Press. *Public Understanding of Science*, 3(2), 111-134.
9. Smith, H.M.; and Lindenfeld, L. (2014) Integrating media studies of climate change into transdisciplinary research: Which direction should we be heading? *Environmental Communication*, 8(2), 179-196.
10. Cash, D.W.; Clark, W.C.; Alcock, F.; Dickson, N.M.; Eckley, N.; Guston, D.H.; Jager, J.; and Mitchell, R.B. (2003). Knowledge systems for sustainable development. *Proceedings of the National Academy of Sciences of United States of America*, 100(14), 8086-8091.
11. Bolsen, T. (2011). The construction of news: Energy crises, advocacy messages, and frames toward conservation. *The International Journal of Press/Politics*, 16(2), 143-162.
12. Wright, W.; and Reid, T. (2011). Green dreams or pipe dreams?: Media framing of the U.S. biofuels movement. *Biomass and Bioenergy*, 35(4), 1390-1399.
13. Gamson, W.A; and Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95(1), 1-37.

14. Pidgeon, N.F.; Lorenzoni, I.; and Poortinga, W. (2008). Climate change or nuclear power - No thanks! A quantitative study of public perceptions and risk framing in Britain. *Global Environmental Change*, 18(1), 69-85.
15. Kunelius, R.; and Eide, E. (2012). Moment of hope, mode of realism: On the dynamics of a transnational journalistic field during un climate change summits. *International Journal of Communication*, 6, 266-285.
16. Shehata, A.; and Hopmann, D.N. (2012). Framing climate change. A study of US and Swedish press coverage of global warming. *Journalism Studies*, 13(2), 175-192.
17. Anderson, M.W.; Noblet, C.; and Teisl, M. (2012). Our environment: A glimpse at what mainers value. *Maine Policy Review*, 21(1), 104-110.
18. Schultz, J. (1998). Reviving the fourth estate: Democracy, accountability and the media. Melbourne, Australia: *Cambridge University Press*.
19. Boykoff, M.T.; and Boykoff, J.M. (2004). Balance as bias: Global warming and the US prestige press. *Global Environmental Change*, 14, 125-136.
20. Skjolsvold, T.M. (2012). Curb your enthusiasm: On media communication of bioenergy and the role of the news media in technology diffusion. *Environmental Communication: A Journal of Nature and Culture*, 6(4), 512-531.
21. Shafiea, S.M.; Mahliaa, T.M.I.; Masjuki, H.H.; and Andriyanaa, A. (2011). Current energy usage and sustainable energy in Malaysia: A review. *Renewable and Sustainable Energy Reviews*, 15(9), 4370-4377.
22. Petinrin, J.O.; and Shaaban, M. (2015). Renewable energy for continuous energy sustainability in Malaysia. *Renewable and Sustainable Energy Reviews*, 50, 967-981.
23. Chen W.-n. (2012). Renewable energy status in Malaysia. *Sustainable Energy Development Authority Malaysia*.
24. Azlan, A.A.; Rahim, S.A.; Basri, F.K.H.; and Hasim, M.S. (2012). Malaysian newspaper discourse and citizen participation. *Asian Social Science*, 8(5), 116-124.
25. Bosman, J.; and d'Haenens, L. (2008). News reporting on Pim Fortuyn: Framing in two Dutch newspapers. *Media, Culture and Society*, 30(5), 735-748.
26. McCombs, M. (2004). A look at agenda-setting: Past, present and future. *Journalism Studies*, 6(4), 543-557.
27. Djerf-Pierre, M.; Cokley, J.; and Kuchel, L.J. (2016). Framing renewable energy: A comparative study of newspapers in Australia and Sweden. *Environmental Communication*, 10(5), 634-655.
28. Chong, D.; and Druckman, J.N. (2007). Framing theory. *Annual Review of Political Science*, 10, 103-126.
29. Gillin, P.; and Fellow, S. (2008). New media, new influencers and implications for the public relations profession. *Journal of New Communications Research*, 2(2), 1-10.
30. Deuze, M. (2003). The web and its journalisms: considering the consequences of different types of news media online. *New Media and Society*, 5(2), 203-230.
31. Pew Research Center for the People and the Press. (2000). *Internet sapping broadcast news audience*. Washington, D.C.: Pew Research Center for the People and the Press.
32. Levy, D.A.L.; Newman, N.; Fletcher, R.; Kalogeropoulos, A.; and Nielsen, R.K. (2017). Reuters Institute Digital News Report 2017. Retrieved from

https://reutersinstitute.politics.ox.ac.uk/sites/default/files/Digital%20News%20Report%202017%20web_0.pdf.

33. Passalacqua, R.; Caminiti, C.; Salvagni, S.; Barni, S.; Beretta, G.D.; Carlini, P.; Contu, A.; Di Costanzo, F.; Toscano, L.; and Campione, F. (2004). Effects of media information on cancer patients' opinions, feelings, decision-making process and physician-patient communication. *Cancer*, 100(5), 1077-1084.
34. Weinstein, N.D.; and Sandman, P. (2002). *The precaution adoption process model and its application*. Emerging theories in health promotion practice and research. Strategies for improving public health (ed. 1). Hoboken, New Jersey, United States of America: John Wiley and Sons.
35. Kadir, M.Z.A.A.; Rafeeu, Y.; and Adam, N.M. (2010). Prospective scenarios for the full solar energy development in Malaysia. *Renewable and Sustainable Energy Reviews*, 14(9), 3023-3031.
36. Gan, P.Y.; and Li, Z.D. (2014). Econometric study on Malaysia's palm oil position in the world market to 2035. *Renewable and Sustainable Energy Reviews*, 39, 740-747.
37. Awalludin, M.F.; Sulaiman, O.; Hashim, R.; and Nadhari, W.N.A.W. (2015). An overview of the oil palm industry in Malaysia and its waste utilization through thermochemical conversion, specifically via liquefaction. *Renewable and Sustainable Energy Reviews*, 50, 1469-1484.
38. Harrigan, K.R. (1988). Joint ventures and competitive strategy. *Strategic Management Journal*, 9(2), 141-158.
39. Lim, S.; and Teong, L.K. (2010). Recent trends, opportunities and challenges of biodiesel in Malaysia: an overview. *Renewable and Sustainable Energy Reviews*, 14(3), 938-954.
40. Carroll, C.E.; and McCombs, M. (2003). Agenda-setting effects of business news on the public's images and opinions about major corporations. *Corporate Reputation Review*, 6(1), 36-46.
41. Park, D.-J.; and Berger, B.K. (2004). The presentation of CEOs in the press, 1990-2000: Increasing salience, positive valence, and a focus on competency and personal dimensions of image. *Journal of Public Relations Research*, 16(1), 93-125.
42. Skolnik, R. (1994). Portraits of the most admired companies: How public relations help build corporate reputation. *Public Relations Journal*, 50(5), 14-18.
43. Grunig, J.E. (2017). Symmetrical presuppositions as a framework for public relations theory. *Public Relations Theory*, 17-44.
44. Bigerna, S.; Bollino, C.A.; and Micheli, S. (2016). Smart grids and consumer attitude toward sustainable development. *Journal of Promotion Management*, 22(4), 573-587.
45. Men, L.R. (2011). CEO credibility, perceived organizational reputation and employee engagement. *Public Relations Review*, 38(1), 171-173.
46. Pressgrove, G.N.; and McKeever, B.W. (2016). Nonprofit relationship management: extending the organization-public relationship to loyalty and behaviors. *Journal of Public Relations Research*, 28(3-4), 193-211.