

**MALAYSIAN MAINSTREAM AND
ALTERNATIVE ONLINE NEWSPAPER
REPRESENTATIONS OF RISKS FROM LYNAS
RARE EARTH PROJECT IN PAHANG,
MALAYSIA**

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**MALAYSIAN MAINSTREAM AND
ALTERNATIVE ONLINE NEWSPAPER
REPRESENTATIONS OF RISKS FROM LYNAS
RARE EARTH PROJECT IN PAHANG,
MALAYSIA**

by

SHARAF DAUDA

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TABLE OF CONTENT

| | |
|--|-----|
| ACKNOWLEDGEMENT | ii |
| TABLE OF CONTENT | iv |
| LIST OF TABLES | x |
| LIST OF FIGURES | xi |
| LIST OF ABBREVIATIONS | xv |
| ABSTRAK | xix |
| ABSTRACT | xxi |
| | |
| CHAPTER 1 – BACKGROUND | |
| 1.0 Introduction | 1 |
| 1.1 Statement of the Problem | 4 |
| 1.2 Research Questions | 8 |
| 1.3 Research Objectives | 8 |
| 1.4 Significance of the Study | 8 |
| 1.5 Scope of the Study | 10 |
| 1.6 Outline of Chapters | 11 |
| | |
| CHAPTER 2 – LITERATURE REVIEW | |
| 2.0 Introduction | 12 |
| 2.1 Systematic Review of Approaches to Media | |
| Representation of Risks | 13 |
| 2.2 Meanings of Risk | 17 |
| 2.3 Representation and the Media | 19 |

| | | |
|------|--|----|
| 2.4 | Representation and the Malaysian Cultural Contexts | 34 |
| 2.5 | Brief on Lynas Advanced Materials Plant | 35 |
| 2.6 | Past Media Studies on Lynas rare Earth Processing in Malaysia | 36 |
| 2.7 | Relationship between Risks in Media Representations | 39 |
| 2.8 | Sources' Roles in news and Sources in the Representation of Risks | 41 |
| 2.9 | Alternative and Mainstream Media in Malaysia | 48 |
| 2.10 | Online Newspaper Content | 53 |
| 2.11 | Malaysian Online Newspaper Context | 57 |
| 2.12 | The six Malaysian Online Newspapers in the Study | 61 |
| 2.13 | Theoretical Frameworks | 66 |
| | 2.13.1 The Social Amplification of Risk Framework | 66 |
| | 2.13.2 The Social Semiotic Theory of Multimodality | 72 |
| 2.14 | Conceptual Framework | 75 |
| 2.15 | Research Gaps | 81 |

CHAPTER 3 – METHODOLOGY

| | | |
|-----|--|----|
| 3.0 | Introduction | 84 |
| 3.1 | Research Approach | 84 |
| | 3.1.1 Design of the Research | 85 |
| | 3.1.2 Research Method 1: Content Analysis | 87 |
| | 3.1.3 Research Method 2: Semi-structured Interview | 89 |
| | 3.1.4 Philosophical Assumption | 90 |
| | 3.1.5 Triangulation of Findings | 91 |
| 3.2 | Populations of the Study | 93 |

| | | |
|-------|---|-----|
| 3.3 | Sampling | 93 |
| 3.3.1 | Newspaper Sampling | 93 |
| 3.3.2 | Content Sampling | 97 |
| 3.3.3 | Sampling of Participants for the Interview | 101 |
| 3.4 | Period of the Study | 103 |
| 3.5 | Units of Analyses | 103 |
| 3.6 | News Search Procedure | 104 |
| 3.7 | Data Analysis for Content Analysis | 105 |
| 3.8 | Data Analysis (Interview) | 109 |
| 3.9 | Coding of Content Analysis | 110 |
| 3.9.1 | Trial Coding for Content Analysis | 110 |
| 3.9.2 | Actual Coding for Content Analysis | 114 |
| 3.10 | Interview Coding | 116 |
| 3.11 | Definitions and Descriptions of (Sub)themes | 117 |

CHAPTER 4 – FINDINGS

| | | |
|----------|---|-----|
| 4.0 | Introduction | 118 |
| 4.1 | How are Risks Typified? (RQ1) | 123 |
| 4.1.1 | Types of Risks | 123 |
| 4.1.2 | Relationship between Risks | 130 |
| 4.1.2(a) | Radioactive and Health Risks | 131 |
| 4.1.2(b) | Radioactive, Environmental, Health and Financial Risks | 133 |
| 4.1.2(c) | Radioactive, Health and Financial Risks | 134 |
| 4.1.2(d) | Radioactive, Environmental and Health Risks | 135 |

| | |
|--|-----|
| 4.1.2(e) Radioactive and Environmental Risks | 135 |
| 4.2 How are news Sources Represented? (RQ2) | 136 |
| 4.2.1 News Sources in the Representation of Risks | 136 |
| 4.2.2 Risk Information Conveyed by news Sources | 139 |
| 4.2.3 Categories of news Sources in the Representation of Risks | 159 |
| 4.2.3(a) Known news Sources | 160 |
| 4.2.3(b) Known/unknown news Sources | 162 |
| 4.2.3(c) Unknown news sources | 163 |
| 4.3 How do the news Sources Describe Risks? (RQ3) | 164 |
| 4.4 How are Risks Amplified or Attenuated? (RQ4) | 168 |
| 4.4.1 Amplification of Risks in Online Newspapers | 169 |
| 4.4.1(a) Amplification of Risks by Alternative Online Newspapers | 170 |
| 4.4.1(b) Amplification of Risks by Mainstream Online Newspapers | 177 |
| 4.4.2 Attenuation of Risks in Online Newspapers | 181 |
| 4.4.2(a) Attenuation of Risks by Alternative Online Newspapers | 181 |
| 4.4.2(b) Attenuation of Risks by Mainstream Online Newspapers | 185 |
| 4.4.3 Role of Journalists in the Amplification and Attenuation Process | 189 |
| 4.5 What Semiotic Resources are used to Amplify or Attenuate Risks? (RQ5) | 195 |
| 4.5.1 Modes in the Amplification of Risks | 195 |

| | | |
|--|--|-----|
| 4.5.2 | Modes in Attenuation of Risks | 202 |
| 4.5.3 | Distinctive Characteristics in the Representation of Risks | 203 |
| 4.6 | How are Meanings Conveyed in the Representations of Risks? (RQ6) | 207 |
| 4.6.1 | Contextualisation | 207 |
| | 4.6.1(a) Cultural Context | 207 |
| | 4.6.1(b) Social Context | 209 |
| | 4.6.1(c) Financial Context | 212 |
| | 4.6.1(d) Hazardous context | 214 |
| | 4.6.1(e) Historical Context | 216 |
| | 4.6.1(f) Political Context | 218 |
| 4.6.2 | Discursive Devices in the Representation of Risks | 220 |
| 4.6.3 | Information Transmission and Response Mechanisms | 228 |
| 4.7 | Construction of a Model for Online Newspaper News Social Amplification/Attenuation of Risks | 238 |
| CHAPTER 5 – DISCUSSION AND CONCLUSION | | |
| 5.0 | Introduction | 245 |
| 5.1 | How are Risks Typified (RQ1)? | 245 |
| 5.2 | How are news Sources Represented in the news? (RQ2) | 250 |
| 5.3 | How do news Sources Describe Risks? (RQ3) | 266 |
| 5.4 | How are Risks Amplified or Attenuated? (RQ4) | 267 |
| | 5.4.1 Amplification of Risks in Online Newspapers | 268 |
| | 5.4.2 Attenuation of Risks in Online newspapers | 272 |
| | 5.4.3 Role of Journalists in the Process of Amplification/ Attenuation of Risks | 276 |

| | | |
|-------|--|------------|
| 5.5 | What Modes are used to Amplify/Attenuate Risks? (RQ5) | 278 |
| 5.5.1 | Modes in the Amplification/Attenuation of Risks | 278 |
| 5.5.2 | Distinctive Characteristics in the Representation of Risks | 283 |
| 5.6 | How are Meanings Conveyed in the Representation of Risks? (RQ6) | 286 |
| 5.6.1 | Contextualisation of Meaning in the Representation of Risks | 286 |
| 5.6.2 | Discursive Devices in the Representation of Risks | 294 |
| 5.7 | Contributions of the Study | 298 |
| 5.7.1 | Contribution to Knowledge | 298 |
| 5.7.2 | Methodological Contribution | 300 |
| 5.7.3 | Contributions to Media Practice | 301 |
| 5.8 | Limitations of the Study | 302 |
| 5.9 | Suggestions for Future Research | 305 |
| 5.10 | Conclusion | 306 |
| | REFERENCES | 313 |
| | APPENDICES | |

LIST OF TABLES

| | | Page |
|-----------|--|-------------|
| Table 3.1 | List of Malaysian English Language Online Newspapers | 94 |
| Table 3.2 | Sample size Summary | 100 |
| Table 3.3 | Newspaper Coding and Interview Questions Protocol | 113 |
| Table 4.1 | Summary of (sub)themes from Content Analysis | 121 |
| Table 4.2 | Summary of (sub)themes from Interviews | 122 |

LIST OF FIGURES

| | | Page |
|-------------|---|-------------|
| Figure 2.1 | Relationship between Risks in Media Representations | 40 |
| Figure 2.2 | Social Amplification of Risk Framework | 71 |
| Figure 2.3 | Conceptual Framework | 80 |
| Figure 3.1 | Research Design | 86 |
| Figure 4.1 | Data Analysis Steps | 120 |
| Figure 4.2 | Typification of Environmental risk | 124 |
| Figure 4.3 | Typification of Health risk | 126 |
| Figure 4.4 | Typification of radioactive risk from the LAMP as a 'Radioactive Factory' | 128 |
| Figure 4.5 | Relationship between Various Forms of Risks | 131 |
| Figure 4.6 | Illustration Associating Radioactive to Health risk | 132 |
| Figure 4.7 | Residents resonating implications of radioactive exposure from the LAMP to the people, environment and economy of Kuantan | 134 |
| Figure 4.8 | Category of Sources in the Representation of Risks in the news on the LAMP | 160 |
| Figure 4.9 | Pattern of Attribution for Known news Sources | 162 |
| Figure 4.10 | Pattern of Attribution for Known/unknown news Sources | 163 |
| Figure 4.11 | Pattern of Attribution for Unknown news Sources | 164 |
| Figure 4.12 | Intertwining of Risks during Amplification | 169 |
| Figure 4.13 | Illustration Amplifying Radioactive and Health Risks | 172 |
| Figure 4.14 | Amplification of Radioactive, Environmental and Financial Risks | 173 |
| Figure 4.15 | Pre-TOL Visual Representation of the LAMP's Construction site | 176 |
| Figure 4.16 | Pre-TOL Phase Visual Representation of the LAMP | 176 |
| Figure 4.17 | Groundwork Visual Representation of the LAMP at pre-TOL Phase | 177 |

| | | |
|-------------|--|-----|
| Figure 4.18 | Amplification of Environmental Risks at the pre-TOL Stage by a Mainstream Malaysian Online Newspaper | 179 |
| Figure 4.19 | Residents Holding Rare earth Samples to Show it is safe | 187 |
| Figure 4.20 | Protesters at a Green Assembly anti-Lynas rally | 196 |
| Figure 4.21 | Use of colour as a tool to embody the core message of the Anti-Lynas campaign | 196 |
| Figure 4.22 | Anti-Lynas protesters conveying a core message of their campaign – saying no to radiation to stop Lynas | 197 |
| Figure 4.23 | Protesters Appealing to Australia’s Diplomat in Kuala Lumpur to urge his government to ensure Malaysians are safe from potential radiation poisoning | 197 |
| Figure 4.24 | The Human Anatomy is used to Amplify Health risk using Image and Writing as Modes | 198 |
| Figure 4.25 | A map Visualising the Location of the LAMP and the Origin and Transport Route of the Rare Earth ore | 199 |
| Figure 4.26 | Google map Illustration to Amplify Environmental risk, especially to the Vegetation and Aquatic Habitat | 199 |
| Figure 4.27 | Use of Non-complementary Photos in news Articles | 200 |
| Figure 4.28 | Protesting in the Social Context and urging Malaysians to Unite to Reject Lynas Rare Earth Project in Malaysia | 201 |
| Figure 4.29 | Lynas’ Residue Storage Facilities (RSFs) at the Gebeng Plant Repeatedly Used to Convey its Safety | 203 |
| Figure 4.30 | Anti-Lynas campaigners’ combination of distinctive characteristics (design and aesthetics) with a mode (colour) to contextualise forms and meanings in multimodal semiotic resources | 204 |
| Figure 4.31 | Anti-Lynas campaigners’ appropriate combination of colours, writing and image with aesthetics to convey meaning | 205 |
| Figure 4.32 | Anti-Lynas campaigners’ inappropriate combination of design and aesthetics with colour, image and writing that poorly contextualises and conveys incoherent meanings | 206 |
| Figure 4.33 | Anti-Lynas campaigners’ inappropriate combination of design and aesthetics with colour, image and writing that is incoherent | 206 |

| | | |
|-------------|---|-----|
| Figure 4.34 | Incompletely-framed photo with lost message | 207 |
| Figure 4.35 | Amplification of Environmental Risks within the Cultural Context | 208 |
| Figure 4.36 | Combining Symbolic Cultural Gesture to Show Defiance amid the Social Context of Freedom of Expression to Protest the LAMP | 209 |
| Figure 4.37 | Protesting in the Social Context and urging Malaysians to Unite to Reject Lynas Rare Earth Project in Malaysia | 210 |
| Figure 4.38 | Protest in the Social Context against the LAMP – I | 211 |
| Figure 4.39 | Protest in the Social Context against the LAMP – II | 211 |
| Figure 4.40 | Protest, Combining the Social and Cultural Contexts to Express Opposition to the LAMP and Defiance to Government’s Decision to Approve the LAMP’s TOL | 212 |
| Figure 4.41 | Image of Risks from Environmental Pollution as a Hazard | 214 |
| Figure 4.42 | The Human Anatomy is used to Convey Health Hazards from the LAMP | 215 |
| Figure 4.43 | Photo of the Worker at the Mitsubishi ARE Plant (and her son who died from Alleged Radiation-Related Complications from the ARE plant) | 217 |
| Figure 4.44 | Politicisation of the LAMP by the Political Movement and NGO, Bersih | 219 |
| Figure 4.45 | History as a Lesson is used to Highlight how Protesters against the ARE in Bukit Merah Requested the Japanese Government to take care of and Guarantee the Health of Malaysians | 221 |
| Figure 4.46 | History as a Lesson is Illustrated and Related to Health Risks from the LAMP Based on the Bukit Merah Experience of Leukaemia Cases and Fatalities | 222 |
| Figure 4.47 | Survival Guide for the Radioactive Village, Combines Situation Description and Dramatisation, to Suggest Consequences and Exaggerate facts in the Representation of Radioactive, Health and Environmental risks from the LAMP | 224 |
| Figure 4.48 | Posing a Question to the Consequences of Radioactive Waste Pollution to Aquatic Habitat | 225 |
| Figure 4.49 | Repurposing to Amplify Health Risks using Situation Description and Dramatisation as Discursive Devices | 225 |

| | | |
|-------------|--|-----|
| Figure 4.50 | Image of a Chicken with two Heads uses Irony, Situation Description and Dramatisation to Convey and Establish Association between Health and Radioactive Risks | 226 |
| Figure 4.51 | Effective Combination of Multimodal Semiotic Resources (Illustration, Writing and Colour) to Convey Radioactive risk | 228 |
| Figure 4.52 | Himpunan Hijau's Forceful Entry into the Venue of a 2014 Australian National Day Celebration at the Kuala Lumpur Convention Centre | 231 |
| Figure 4.53 | [Former] Penang Chief Minister and Secretary-General of Democratic Action Party (DAP), one of Malaysia's [former] Opposition Political Parties and a Strong Opposer of the LAMP and now Finance Minister | 231 |
| Figure 4.54 | Malaysian Prominent Personality, Datuk Abdul Samad bin Mohamed Said (Pak Samad), Southeast Asia's Laureate, Novelist and Activist at an anti-Lynas Rally | 232 |
| Figure 4.55 | Former Political Opposition Leader [in white shirt], Prime Minister-in-waiting and President of the People's Justice Party at an Advocacy Campaign | 232 |
| Figure 4.56 | Kuantan Member of Parliament and Fierce Opposer of the LAMP at an anti-Lynas rally | 233 |
| Figure 4.57 | Online Newspaper News Social Amplification/ Attenuation of Risk Model | 239 |

LIST OF ABBREVIATIONS

| | |
|--|--------|
| 9th Malaysia Plan | 9MP |
| Academy of Sciences Malaysia | ASM |
| American Standard Code for Information Interchange | ASCII |
| Anti-Nuclear Alliance of Western Australia | ANAWA |
| Asian Rare Earth | ARE |
| Atomic Energy Licensing Board | AELB |
| Badan Bertindak Anti-Rare Earth Refinery | Badar |
| Barisan Nasional | BN |
| Civil Society Organisations | CSOs |
| Columbia Broadcasting Service | CBS |
| Commerce Venture Manufacturing | CVM |
| Communications and Multimedia Act | CMA |
| Computer Assisted Qualitative Data Analysis Software | CAQDAS |
| Critical Discourse Analysis | CDA |
| Democratic Action Party | DAP |
| Department of Environment | DoE |
| Detailed Environmental Impact Assessment | DEIA |
| Deutsche Press Agency | DPA |
| Dialectical-Relational Approach | DRA |
| Director-General | DG |
| Discourse-Historical Approach | DHA |
| East Coast Economic Region | ECER |
| Foreign Direct Investments | FDIs |
| Free Malaysia Today | FMT |

| | |
|--|-------|
| Full Operating Stage Licenses | FOSLs |
| Gross Domestic Product | GDP |
| International Atomic Energy Agency | IAEA |
| Kuala Lumpur Convention Centre | KLCC |
| Kuala Lumpur Stock Exchange | KLSE |
| Lynas Advanced Materials Plant | LAMP |
| Magnetic Resonance Imaging | MRI |
| Malaysia Digital Association | MDA |
| Malaysia-China Kuantan Industrial Park | MCKIP |
| Malaysian Bar Council | NBC |
| Malaysian Chinese Association | MCA |
| Malaysian Civil Liberties Movement | MCLM |
| Malaysian Communications and Multimedia Commission | MCMC |
| Malaysian Medical Association | MMA |
| Media Development Investment Fund | MDIF |
| Media Prima Berhad | MPB |
| Members of Parliament | MPs |
| Metric Tonnes | MTs |
| Millisievert | mSv |
| Ministry of International Trade and Industry | MITI |
| Ministry of Science, Technology and Innovation | MOSTI |
| Multimodal Semiotic Resources (also modes) | MSRs |
| National Indian Advancement Team | NIAT |
| National Professors' Council | NPC |
| National Union of Journalists | NUJ |
| Naturally Occurring Radioactive Material | NORM |

| | |
|--|--------|
| New Straits Times Press | NSTP |
| Non-Governmental Organisations | NGOs |
| Northern Corridor Economic Region | NCER |
| Not dated | n.d. |
| Opinion-editorials | op-eds |
| Parliamentary Select Committee | PSC |
| Parti Islam Se-Malaysia | PAS |
| Parti Keadilan Rakyat [People’s Justice Party] | PKR |
| People’s Party of Malaysia | PPM |
| Permanent Operating License | POL |
| Portable Document Formats | PDF |
| Printing Presses and Publications Act | PPPA |
| Really Simple Syndication | RSS |
| Residue Storage Facility(ies) | RSF(s) |
| Ringgit Malaysia | RM |
| Sabah Development Corridor | SDC |
| Sarawak Corridor for Renewable Energy | SCORE |
| Save Malaysia Stop Lynas | SMSL |
| Short Message Services | SMS |
| Social Amplification of Risks Framework | SARF |
| Social Semiotic Theory of Multimodality | SSTM |
| Socio-Cognitive Approach | SCA |
| Southeast Asian Press Alliance | SEAPA |
| Television | TV |
| Temporary Operating License | TOL |
| The Edge Media Group | TEMG |

| | |
|---|----------|
| The Malaysian Insider | TMI |
| United Malays National Organisation | UMNO |
| United Nations Conference on Trade and Development | UNCTAD |
| United States Dollars | USD |
| Universiti Kebangsaan Malaysia | UKM |
| Universiti Malaysia Pahang | UMP |
| Universiti Sains Malaysia | USM |
| World Association of Newspaper and News Publishers and the Centre for International Media Assistance | WAN-IFRA |

**REPRESENTASI AKHBAR ARUS PERDANA DAN ALTERNATIF
MALAYSIA TENTANG RISIKO DARI PROJEK NADIR BUMI LYNAS DI
PAHANG, MALAYSIA**

ABSTRAK

Kajian ini bertujuan meneroka representasi risiko dari projek Lynas Advanced Materials Plant (LAMP) dalam enam akhbar Malaysia dalam talian (*The Star*, *New Straits Times*, *The Edge Markets*, *Malaysiakini*, *The Malaysian Insider* dan *Free Malaysia Today*). Perbincangan mengenai risiko LAMP mula diperkatakan dalam berita dalam talian di Malaysia selepas akhbar *The New York Times* melaporkan bahawa sebuah syarikat Australia telah diberikan lesen oleh Kerajaan Malaysia pada tahun 2012 bagi mengimport dan memproses nadir bumi di Kuantan. Kajian ini bertujuan untuk menjelaskan bagaimana berita media mengukuh (*amplification*) dan mengurangkan (*attenuation*) risiko dari LAMP. Sebanyak 1,167 berita dianalisis kandungannya dan dua orang wartawan telah ditemu bual. Analisis data dipandu oleh dua rangka teori - *Social Amplification of Risks Framework* dan *Social Semiotic Theory of Multimodality* dengan menggunakan analisis tematik dan strategi wacana oleh van Dijk. Dapatan menunjukkan terdapat tujuh jenis risiko (persekitaran, kewangan, kesihatan, pekerjaan, harta, radioaktif, teknologi) dan wujudnya perkaitan di antara risiko persekitaran, kewangan, radioaktif dan kesihatan. Risiko radioaktif pula beberapa kali dikaitkan dengan risiko lain dan menjadi kunci serta agen utama pengukuhan (*amplification*) untuk menarik perhatian orang ramai terhadap risiko radioaktif dari projek LAMP. Tiga kategori sumber berita yang telah dikenal pasti adalah – sumber diketahui, diketahui/tidak diketahui dan tidak diketahui – selain dari dua lagi kategori yang sedia ada dalam sorotan literatur. Sumber yang diketahui juga adalah yang paling dominan berbanding yang lain. Kebanyakan sumber berita (NGOs, organisasi profesional dan perdagangan,

penduduk setempat, kerajaan pemerintah dan pembangkang) mendefinisi risiko dari segi kesihatan. Selain kesihatan, penduduk setempat juga mendefinisi risiko dengan mengaitkannya dari segi alam sekitar dan kewangan. Selain itu, akhbar dalam talian alternatif didapati memperkukuhkan ketujuh-tujuh jenis risiko berbanding lima akhbar arus perdana. Oleh itu, akhbar dalam talian alternatif menyediakan pelbagai rangkuman berbanding arus perdana. Peranan wartawan dalam memperkuatkan/melemahkan risiko termasuklah: menggunakan sumber yang pelbagai, menyemak fakta, menapis maklumat berkaitan risiko, mengekod maklumat risiko dan mematuhi etikaewartawanan. Mod yang diguna untuk memperkuat atau melemahkan risiko adalah: warna, ilustrasi, imej, penulisan dan semua mod ini berlaku dalam konteks budaya, sosial, kewangan, bahaya, sejarah dan politik. Bentuk wacana yang digunakan untuk menyampaikan makna risiko terdiri dari sejarah sebagai pengajaran, deskripsi situasi, penggunaan nombor (*number game*), dramatisasi, ironi, *counter-factual*, dan pengulangan. Manakala, mekanisme penyampaian maklumat yang digunakan termasuklah: pempolitan, kempen sokongan, pendakwaan/tuduhan dan peranti diskursif. Secara keseluruhan, kajian ini berjaya mengupas representasi risiko dari projek nadir bumi dalam persekitaran berita digital sebagai satu proses multi-dimensi yang diperkukuh/dilemahkan melalui beberapa proses wacana. Pemegang taruh juga terlibat dalam perdebatan untuk menyusun naratif risiko, sama ada menentang atau menyokong, mengikut kepentingan masing-masing. Naratif risiko pula diperkukuh atau dilemahkan oleh berita media yang bertindak sebagai pengkalan pengukuhan sosial.

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IN PAHANG, MALAYSIA**

ABSTRACT

This study purposively explores representations of risks from Lynas Advanced Materials Plant (LAMP) in six Malaysian online newspapers (*The Star*, *New Straits Times*, *The Edge Markets*, *Malaysiakini*, *The Malaysian Insider* and *Free Malaysia Today*). Discourse on the LAMP's risks was pervasive in online news after report in the *New York Times* highlighted that, an Australian company was granted licence in 2012 to import and process rare earth in Kuantan. The aim of this study is to explain the role of the media in the amplification and attenuation of risks from the LAMP. A total of 1,167 news articles were content analysed and two journalists were interviewed. Coding of data was guided by two frameworks – the Social Amplification of Risks Framework and the Social Semiotic Theory of Multimodality using thematic analyses and van Dijk's discursive strategies. The research found seven types of risks (environmental, financial, health, occupational, property, radioactive, technological); and connections between environmental, financial, radioactive and health risks. Radioactive risk was repeatedly intertwined with other risks and was a key ingredient and major agent of amplification to direct public attention toward radioactive risk from the LAMP. Three categories of news sources – known, known/unknown and unknown emerged against the two categories in existing literature, but known sources predominated. A handful of news sources (NGOs, professional and trade organisations, residents, opposition and Malaysian government) defined risks from the LAMP in terms of health, though residents'

definition also covered environmental and financial risks. Furthermore, alternative online newspapers amplified all seven risk types against mainstream's five. Thus, the alternative online newspapers provided diverse coverage than the mainstream. Likewise, journalists' roles in amplifying or attenuating risks included: using multiple sources, (non)fact-checking, (non)filtering risk information, decoding risk information and (non)application of journalism ethics. Modes used to amplify, or attenuate risks were: colour, illustration, image, writing; and these occurred within cultural, social, financial, hazardous, historical and political contexts. Discursive devices used to convey meaning were history as a lesson, situation description, number game, dramatisation, irony, counter-factual and repetition. The information and transmission mechanisms used included: politicisation, advocacy campaigns, allegations/brickbats and discursive devices. Overall, this study revealed that risk representation from rare earth in a digital news environment is multidimensional and intensified or weakened in a multi-layered discourse. The stakeholders are engaged in a contestation by positioning their narratives to oppose or support their interests, which are amplified or attenuated by the online newspapers as social amplification stations.

CHAPTER 1

BACKGROUND

1.0 Introduction

Narrations in existing literature show that the Lynas Advanced Materials Plant (LAMP) in Gebeng, Pahang, Malaysia generated anxiety and outrage due to fears of radioactive exposure. The anxiety was related to claims that radioactive contamination occurred at the defunct Mitsubishi Chemical Asian Rare Earth (ARE) factory, which operated in Bukit Merah, Perak, Malaysia in the 1980s. Allegedly, this caused workers and inhabitants to suffer bouts of coughs and colds, birth defects with links to at least eight leukaemia cases among workers and residents, including seven deaths. The factory was eventually shut and cleaned up at over RM300 million (Bradsher, 2011; Md & Ida, 2012; Nik, 2012; Shannon, 2011).

The above depicts a scenario of the type of perceived risk from the LAMP. This fear of risks from rare earths processing is even more complicated since the notion of risk is contentious and means different things to different people. For example, to the media, risk is about safety or danger (Sandman, 1986) while to the expert, risk means hazard, in terms of death rate while to the public, risk is about the outrage that results from a collection of factors (Sandman, 1987). Meanwhile, Kamrin, Katz, and Walter (1995, pp. 84-86), explain that outrage is the emotional reaction to risk news and plays a bigger role in public reaction than scientific information on risk, which are provided by experts. Outrage factors could include, but are not limited to involuntariness, uncontrollability, uncertainty, untrustworthiness, unpleasant memories.

Nevertheless, in risk communication, Tong (2014, pp. 13-14) submits that people are exposed to risks in societies where technological innovations are rampant; and Boykoff (2009) views that media representations can provide critical links

between politics and realities of how people experience and interact with their environments. Therefore, people turn to media like television, newspapers, magazines, radio, and the internet to make sense of complexities that shape their lives.

Some of these experiences of people about risk from technological innovations are conveyed through media representations and according to Hall (1997, p. 15), ‘representation is an essential part of the process by which meaning is produced and exchanged between members of a culture. It does involve the use of language, of signs and images which stand for, or represent images’, from several events in society, including from a risk event like rare earth.

Rare earth are series of 17 chemical elements. These include: Scandium, Yttrium, Lanthanum, Cerium, Praseodymium, Neodymium, Promethium, Samarium, Europium, and Gadolinium. The others are: Terbium, Dysprosium, Holmium, Erbium, Thulium, Ytterbium, and Lutetium. The elements are found in the earth’s crust and are vital in producing hybrid cars, electronics, mercury vapour lights, camera lenses, mobile devices, computers, communications and health care equipment, weapons, among others that currently help fuel global economic growth, maintain high standards of living and even save lives (Ng, 2012; Rare Earth Technology Alliance, 2015).

Relatedly, rare earths are precious and Malaysia is a major player in the global rare earth trade. Aspa (2017b) estimates that rare earth market value will rise to \$9 billion by 2022 and data from the United States Geological Survey (2017) shows that China continues to be the world’s largest rare earth producer. The top seven rare earth producers in ranking order in metric tons (MTs) are: China (105,000), Australia (14,000), Russia (3,000), India (1,700), Brazil (1,100), Thailand (800), and Malaysia and Vietnam (300 each). Both Malaysia and Vietnam shared the 7th position. Meanwhile, according to the United Nations Conference on Trade and Development

(UNCTAD) the annual production of rare earth back in 2010 was 136,100 tonnes (UNCTAD, 2014).

The above statistics shows that Malaysia is currently the 7th largest producer of rare earth. The LAMP in Kuantan makes Malaysia a significant global rare earth competitor. When the project became public knowledge following media reports on the issue in 2011, there were series of protests, campaigns and concerns by citizens, civil society organisations (CSOs) and former political oppositions. These agitations sought but failed to halt the construction and operations of Lynas' rare earth plant in Malaysia. This was amid allegations that there were inadequate long-term disposal plans for radioactive wastes which may be toxic and have diverse effects on the people and environment. The concerns were linked to fatal experiences from the defunct ARE plant in Bukit Merah and uncertainties about risks from rare earth processing. In the wake of the controversy, the Academy of Sciences Malaysia (ASM) and the National Professors' Council (NPC) (ASM & NPC, 2011) also explained that rare earth technologies have both risks and potential economic opportunities.

Meanwhile, as stated earlier, the LAMP generated anxiety and outrage due to fears of radioactive exposure amidst fears of a reoccurrence of similar fatalities reported at Mitsubishi's defunct ARE factory at Bukit Merah. The LAMP subsequently became a discursive event due to its pervasiveness in media discourses, including in online newspapers, for a prolonged period. Although the extent of the role of the media in shaping audience knowledge and understanding of issues and events have been contentious; Fowler (1991, p. 25) argues that events and ideas are not communicated neutrally, in their natural structure, but through some medium with structural features, and infused with social values. The argument here is that, media representation is a constructive practice.

Therefore, this study purposively explores three alternative Malaysian online newspapers' (*Malaysiakini*, *The Malaysian Insider* and *Free Malaysia Today*) and three mainstream Malaysian online newspapers' (*The Star*, *New Straits Times*, *The Edge Markets*) representations of risks from the LAMP to generate understanding on the role of the news media in the amplification or attenuation of risks in today's digital news environment.

In this study, alternative online newspapers are used within the definitions by Dowmunt and Coyer (2011, p. 1) as those newspapers that are small-scaled, more accessible and participatory, and less constrained by bureaucracy or commercial interests than the mainstream media and often in some way in explicit opposition to mainstream media. Meanwhile, mainstream online newspapers are used within the notion buttressed by Chomsky (1997) as major, very profitable, news corporations, mostly linked to, or owned by bigger corporations, who are way up at the top of the power structure of the private economy. The mainstream newspapers according to George (2007, p. 895) are also 'structurally tied to the centres of power' and 'usually encompass large commercial or state-run organisations.'

1.1 Statement of the Problem

This study explores the representation of risks from the LAMP in Malaysian online newspapers. Tengku Ismail et al. (2016, p. 744) and Ng (2014) highlight that public concern about the LAMP is the potential contamination of the environment and the adverse health impact which could result from the mismanagement of radioactive waste streams. This fear stemmed from the experience in the 1980s at Mitsubishi Chemicals' ARE plant in Bukit Merah, which was shut down and linked to cases of leukaemia and deaths because of radioactive exposure.

Studying the representation of risks from the LAMP in Malaysian online newspapers is essential. Firstly, Hove, Paek, Yun, and Jwa (2015) posit that attributes of news reporting on risk affects the way the public understand and respond to the risk while the way uncertainty is presented affects the height of uncertainty and public response to the risk. Macdonald (2007) adds that risk is primarily associated with anxiety and, injected as an element of unpredictability into the routines of the everyday. In addition, according to Jäger and Maier (2009, p. 48), ‘all events are rooted in discourse. However, an event only counts as a discursive event, if it appears on the discourse planes of politics and the media intensively, extensively and for a prolonged period’.

The discourse on the LAMP became pervasive in the Malaysian media, including in online newspapers after a report by the *New York Times* in early 2011. It reported how the Malaysian government granted construction approval and intends to grant operating license to Lynas Corporation for the LAMP; and how the LAMP, like the ARE, could cause fatal consequences to the environment and people. The pervasiveness of the discourse on the LAMP on the internet is not unusual. The Department of Statistics Malaysia (2016a) found that 71.1 percent Malaysians who are above 15 years use the internet for different purposes. These users represent over 21million people (Department of Statistics Malaysia, 2016b), more than two-third of Malaysia’s population estimated at over 31 million. A snapshot of the Malaysian media landscape in 2017 show that 19% read electronic news daily; 74% use the internet; 94% of young adults between 15 and 24 years old consumed both traditional and digital media; and smartphone penetration is 98% (The Nielsen Consumer and Media View, 2018). Likewise, the 2017 Reuters’ Digital News Survey show that 86% of Malaysians consume online news (including on social media). The survey add that

Malaysia's growing internet penetration is a main reason why online news portals are the medium of choice for many. Specifically, in terms of Malaysians who rely on social media as a source of news: 58% use *Facebook*, 51% use *WhatsApp*, 26% use *YouTube*, 13% use *WeChat* and *Instagram* respectively (Newman et al., 2017). Ding, Koh, and Surin (2013, pp. 19-24) also highlight that online portals are not only significant sources of news in Malaysia, but more Malaysians are consuming news online.

Notably, Jenny and Jacquie (1997, p. 320) argue that 'risk has become a defining concept in public debate and the mass media are seen to play a key role in this social transformation'. However, despite the pervasiveness of the discourse on the LAMP in several media forms, the uncertainty and heightened apprehension of risks from rare earths processing amidst reminiscences of fatal consequences in Malaysia; there is a dearth of research on media representation of risks on rare earth processing in Malaysia.

Few past research on Lynas rare earth processing in Malaysia exists and have either focused on the media but unrelated to risks or on Lynas but unconnected to its risks. Sualman, Jaafar, and Salbiah (2017) investigated five Malaysian newspapers' Framing of the Lynas project in terms of sources and slant. Tengku Ismail et al. (2016), whose study is unrelated to the media, surveyed the local community's acceptance of the LAMP. In another study, Kai (2016) evaluated persuasive strategies used by Lynas and its supporters to engage environmental campaigners and residents in three Malaysian newspapers, press releases, online comments of Lynas' supporters and interviewed environmental activists, residents and politicians. Kiranjit (2015) examined how social media platforms (*Facebook* and *Twitter*) created digital environmental publics in online discourse from the LAMP; Mustafa (2012) examined

three Malaysian mainstream print newspapers' environmental reporting of Lynas' project.

Furthermore, related research on media representations of risk in Malaysia, but unconnected to the LAMP, have focused on: environmental rhetoric of haze risk in Malaysian mainstream newspaper (Nik, 2016); risk messages on climate change in Malaysian and German online newspapers (Nik, 2015); and representing immigrants as risks (i.e. illegals and threats) in Malaysian newspapers (Don & Lee, 2014). Yet, the discourse on the LAMP, as noted earlier, was pervasive across media platforms.

Particularly, some previous research on media representations have associated some forms of risks with another: environmental risk to health risk (Amberg & Hall, 2008) and technological risk to health risks (Metag & Marcinkowski, 2014). Therefore, it can be assumed that media representations from rare earth processing in online newspapers in Malaysia can also provide evidence on the relationships between various risk types. More so, the [defunct] Malaysian National Professors' Council and the Academy of Sciences Malaysia acknowledge that rare earth elements have environmental risks and potential economic opportunities, if managed with improved technologies and better understanding of the implications on health and environment (ASM & NPC, 2011).

Thus, this study investigated alternative and mainstream Malaysian online newspaper representation of risks. The study was guided by a synthesis of the Social Amplification of Risks Framework (SARF) and the Social Semiotic Theory of Multimodality (SSTM). The aim is to uncover the role of online news media in risk amplification or attenuation and how discourse strategies are used to (de)legitimise public consent of a risk event in digital news environment. The synthesis is used to develop a model for online newspaper social amplification or attenuation of risks. The

intent is to uncover the role of online newspapers in the amplification or attenuation of risks.

1.2 Research Questions

Based on the research problem, the research questions are:

1. How are risks typified in Malaysian mainstream and alternative online newspaper representations from Lynas rare earth project in Malaysia?
2. How are news sources represented?
3. How do the news sources describe the risks?
4. How are risks amplified or attenuated?
5. What semiotic resources are used to amplify or attenuate risks?
6. How are meanings conveyed in the representation of risks?

1.3 Research Objectives

The research objectives are:

1. to explore the representations of risks from Lynas rare earth project in Malaysian mainstream and alternative online newspapers;
2. to explain how the risks are amplified/attenuated; and
3. to explore how meanings are conveyed in the representations.

1.4 Significance of the Study

This study aims to understand the role of the media in the social amplification of risks using Malaysian online newspapers, considering the fears and anxiety generated by the news of rare earth processing in Malaysia in reminiscence of claims of fatal experiences caused by radioactive contamination at the defunct Bukit Merah rare earth factory, which allegedly caused workers and inhabitants to suffer bouts of coughs and

colds, infant and adult deaths in Malaysia at the time, according to the literature (e.g.: Bradsher, 2011; Nik, 2012; Shannon, 2011).

This study is significant because it generates knowledge and understanding on the types and association between risks, how news sources are represented and their roles in the news; description of risks, and the process of amplification and/or attenuation of risks in online newspapers. The study also unearthed how different modes are used in different contexts to convey similar, different or complementary meanings in online newspapers. Meanwhile, the discourse among news sources also revealed diverse interests. For example, Taylor (2013) explain that those who have access to the media are better positioned to influence the promotion of political arguments and to establish consensus. This buttressed the assertion by Prasana, Lean, and Khor (2013, p. 36) that ‘the media is not dominated by one actor but represented by multiple actors and discourses, each negotiating to ensure that their views predominate and influence significant groups’ interpretation, understanding and actions’.

Therefore, this study used the representations from Lynas’ rare earth project in Malaysian online newspapers, and the journalists’ experiences from the process of news gathering and reporting of a risk event, to understand how stakeholders articulate risks on essential, yet controversial emerging technologies like rare earth. This is further corroborated with assertion by Janks (1997) that language is used for reproducing or contesting existing social relations to serve different interests. Hence, the study fills a research gap due to the scarcity of studies on media and risks in Malaysia, especially since most studies are related to media and the environment.

1.5 Scope of the Study

This work focuses only on online newspapers and news reporters (media) and news sources in the news within the SARF to broaden the understanding of the role of the media as a social amplification or attenuation station of risk using representations from the LAMP. Other social amplification stations in the SARF, which were not within the scope of this study include: government agencies, cultural and social groups, opinion leaders, voluntary organisations, among others. Notably, online newspapers, which are the focus of this study are social amplification stations and major component of the SARF. The operationalisation of online newspapers in this study includes news content and journalists.

The scope of the study is limited to the representations of risks on Lynas rare earth project in Malaysian English Language online newspapers. It is limited to six online newspapers, comprising three mainstream: *The Star*, *New Straits Times* and *The Edge Markets online* and three alternatives: *Malaysiakini*, *The Malaysian Insider* and *Free Malaysia Today*. The online newspapers were purposively selected based: on the April 2015 MDA and comScore, Incorporated Media Metrix ranking (MDA & comScore, 2015) circulation and readership statistics, and newspaper milieu. English Language newspapers were purposively sampled due the researcher's language barrier as a non-Bahasa Melayu native speaker. Online newspapers are purposively studied due to their ubiquitous nature, the widespread publicity of information on the LAMP online and the daily possible accessibility of information on the internet by between 1.7million and 2.8million unique Malaysian internet browsers according to the Malaysian Digital Association (http://www.digital.org.my/pdf/MDA-EM_WebsiteRanking_Report_Feb12.pdf, 2012). Online communications are also significant in the Malaysian mass communication landscape considering that the

Nielsen's Southeast Asia Digital Consumer Report shows that Malaysians averagely spend between 20 to 22 hours weekly online (PRNewswire, 2014, p. 63).

1.6 Outline of Chapters

This study contains five chapters. Chapter 1 (Background of the Study) comprise an introduction, research problem statement, questions, objectives and scope.

Chapter 2 (Literature Review) consist of a systematic review of approaches to media representation of risks, definitions of risk, representation and the media, previous studies. It also discusses the relationship between risks in media and representations, sources' roles in news and sources in the representation of risks, alternative and mainstream media in Malaysia, online newspaper content, Malaysian online newspaper context, theoretical and conceptual framework and research gaps.

Chapter 3 (Methodology) comprise an introduction, research approach, populations of the study, sampling, period of the study, units of analyses, news search procedure, data analysis for newspaper content, data analysis for interviews, as well as coding of content analysis and interview.

Chapter 4 (Findings) reveals the types of risks in the Malaysian online newspapers, how news sources are represented and how they described risk, how risks are amplified and attenuated, and the roles of journalists in this process. Other sections showed the modes for amplifying and attenuating risks, how meanings are conveyed in the representation and a model for online news social amplification of risks developed from the findings.

Chapter 5 (Discussion and Conclusion) discussed the findings from the study, highlighted its contributions, stated the limitations of the study, suggested areas for further studies and concludes.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature on approaches to media representation of risks; definitions of risk; representation and the media; and previous studies. It also examines relationship between risk types in media representations, sources' roles in news and sources in the representation of risks in the media. The remaining parts of the chapter discusses alternative and mainstream media in Malaysia, the nature of online newspaper content, the Malaysian online newspaper context, theoretical and conceptual frameworks and establishes the research gaps.

Observably, research on the representations of risks in the Malaysian media are scarce. The few existing ones have focused on environmental rhetoric of haze risk in mainstream newspaper (Nik, 2016); risk messages on climate change in Malaysian and German online newspapers (Nik, 2015); and representation of immigrants as risks to Malaysians (Don & Lee, 2014). Additional literature on risk representations in the Malaysian media in *Bahasa Melayu* was also sought on *Google* search and academic databases like *Google Scholar* and the Malaysia Citation Centre (also known as *MyJurnal*) using '*Representasi media mengenai risiko di Malaysia*' (Media representation of risks in Malaysia) and '*Representasi berita risiko di Malaysia*' (News representation of risks in Malaysia) in whole or in part. However, no other related studies were discovered.

Nevertheless, previous media non-risk related studies exist and have explored representations in Malaysia like the study by Charity Lee (2016) which investigates the representation of refugees in mainstream and alternative Malaysian online newspapers. There are also studies on the representations and media coverage of child

abuse in mainstream newspapers (Niner, Ahmad, & Cuthbert, 2013; Niner, Cuthbert, & Ahmad, 2014); and environmental news and disaster reporting in Malaysia (Azman, Mahyuddin, Mustafa, & Wang, 2012; Hamidah, Adnan, Kamaliah, & Haroon, 2012; Jamilah & Habibah, 2016; Mustafa, 2012; Prasana et al., 2013). Additional studies have investigated: cultural identity and cultural representation on reality TV (Jamilah, 2008); representation of environmental news in Malaysia and New Zealand (Nik, 2007); Non-Governmental Organisations (NGOs) and competing representations of deforestation in Malaysia (Eccleston, 1996); and sex role portrayal in TV advertising in Malaysia and Singapore (Wee, Choong, & Tambyah, 1995).

Additionally, there are few non-risk related media studies on Lynas rare earth processing in Malaysia (i.e.: Kai, 2016; Kiranjit, 2015; Mustafa, 2012; Sualman et al., 2017). Yet, the opposition to the LAMP was hinged to the uncertainty about its human and environmental risks. Similarly, the discourse on the LAMP was extensive in various Malaysian and international media, especially, within the reminiscences of rare earth processing in Malaysia following reports of fatal health and environmental consequences from Malaysia's first rare earth plant at the defunct Mitsubishi ARE plant in Bukit Merah.

2.1 Systematic Review of Approaches to Media Representation of Risks

A systematic review of approaches on some researches on media representations of risks show such studies have examined environmental, health, technological, and radioactive risks.

The motivation for undertaking the researches on the representation of risks and their objectives varied. In the study by Nik (2016), the objective was to uncover evidence of the social construction of news among journalists in persuading the public

about haze risk. The author argued that the haze phenomena overburdens Malaysia and other Southeast Asian countries with severe pollution from Indonesian raging forest fires for the past 20 years. She added that it has become a recurring catastrophic regional crisis with multidimensional consequences on the countries' health, transport, education, economic and social sectors. Thus, it can be used to uncover journalists' social construction of risks amidst the diverse interests, factors and uncertainties. Furthermore, she juxtaposed evidence that people depend heavily on the media to understand environmental issues to show that the media plays significant roles as mediators to inform and educate the public on such a high-risk event like haze. The contention was strengthened with evidence from past research findings on the representation of environmental risk which shows that the audience is left with uncertainties in terms of probabilities, implications, actual risk, and what being at risk means.

However, in the second study, Nik (2015) undertook a cross-cultural analysis of pictures in Malaysian and German online newspapers to explore the representation of environmental risk from messages on climate change. The motivation was to devise unconventional methods to research media representation of environmental risk since previous researches on the subject have focused on the examination of words, sentences and claims made by scientists and government officials (risk actors). The author used the 'interpersonal meta-semiotic data analytical approach' proposed by Kress and van Leeuwen (2001) to study signs and meanings in the pictures of climate change. The objective was to understand how journalists use pictures to create and exchange meaning of the long-term effect of environmental risks from climate change. Subsequently, the author sought to understand how text (headlines, captions) and still images work together to make meaning of environmental risk; and to explore the

environmental risks in the pictures. The author also found motivation from lack of concrete visual description of what climate change really is despite the widespread debate about the high risks that climate change poses. She argues further that unlike other environmental issues like haze, air and river pollution or oil spills, where the impact, effect and risks are visible, the media leaves the public to imagine the risks from climate change, but if the appropriate pictures are used in news, they could create greater public understanding of risks from climate change. In other words, Nik's contention is that, climate change is an 'invisible' phenomenon. Therefore, unless its risks are related to tangible images of the environment that people can see to establish association between the environmental risk depicted in the image and climate change, people will fail to understand the risks from climate change.

In the study by Don and Lee (2014), the authors used Van Leeuwen's Social Actor Network model and Reisigl and Wodak's discourse-historical approach to analyse how discursive strategies and different features of a text and how they are used to construct specific meaning in the social world. The authors' motivation derived from literature evidence that as constructors of ideology, 'the media play a prominent role in the representation of refugees and asylum seekers' (Don & Lee, 2014, p. 688) as risks to citizens of a nation. The methodological motivation in their study was to 'illuminate the link between media and political agendas and politicians' (Don & Lee, 2014, p. 688). Therefore, the authors examined 'statements made by government leaders and officials on issues relating to asylum seekers and refugees drawn from 62 newspaper articles from mainstream and alternative newspapers published in 2003–2012' (Don & Lee, 2014, p. 690). However, 12 articles were purposively analysed, and the authors admit that this may be a limitation of the validity of their findings. They supported their limitation with argument from Van Leeuwen (2009, p. 146) that

few selected voices ‘could be used for methodological demonstration’ of how linguistic tools can be used to analyse the discourse within a critical perspective. It is argued further in this study that the presupposition in the latter position of the authors goes to prove that the essence of a qualitative study is not to justify the occurrence of a phenomenon in quantum, but rather the extent to which a critical analytical evidence can be derived, even if the occurrence is a singular case.

Meanwhile, existing literature on mass media representation of risks globally revealed that several research on risks are conducted using quantitative research methods (e.g.: Amberg & Hall, 2008; Hove et al., 2015; Kim et al., 2017; Metag & Marcinkowski, 2014; Rowe, Frewer, & Sjöberg, 2000). Some adopt mixed-methods (e.g.: Boholm, 2009; Evans, Mindy Thompson, Green, & Levison, 2002) or qualitative research approaches (e.g.: Don & Lee, 2014; Nik, 2015; Nik, 2016).

The issues and risks are mostly researched in either online or print news media. The newspaper titles sampled in the content-analysis so far reviewed ranged from one to 20. The newspaper titles were mostly selected based on circulation and readership figures, national outlook, geographical spread and credibility (in for example: Ashlin & Ladle, 2007; Hamidah et al., 2012; Rooke & Amos, 2014; Tong, 2014).

The news items are sourced from online news databases and physical press archives using key words or combination of key words and phrases related to the topic of interest. The period of studies differed but was mainly determined by the occurrence of the event of interest and/or when the occurrence gained publicity within society and with media coverage. Pertinently, it was observed that several studies on risk representations in the media hardly specify or infer the method of data analysis adopted.

2.2 Meanings of Risk

The notion of risk is multidimensional and contextual. Thus, it means different things to different people, scholars and different segments of society. Dunwoody and Peters (1992, p. 202) explain that risk information is often a subset of science reporting; and are in many cases only perceptible through scientific methods (statistics, modern chemical analysis methods, animal experimentation, epidemiology, etc.) and often are the by-products of applications of science and technology (nuclear power, genetic engineering, etc).

Sandman (1986) explains too that, to the media, risk is about safety or danger; and Dunwoody and Peters (1992, p. 202) submit that ‘a study of media coverage of risk is likely to define risk information as part of a large, probably diffuse, package of information about such things as technological disasters (controversial) technologies, environmental issues, and health problems.’ Sandman (1987) adds that to the experts, risk means hazard, in terms of death rate while to the public, risk is about the outrage that results from a collection of factors. Kamrin et al. (1995, pp. 84-86) explain further that outrage is the emotional reaction to risk news and this plays a big role in the reaction of members of the public than scientific information provided by experts.

The preceding argument is directly related to the central argument within the discourse on the perceived risks from the LAMP in Malaysia because Kamrin et al. (1995, p. 84) argue that in a risk event, ‘when people are outraged, they may overreact. Conversely, if people are not outraged, they may underreact’. These outrage factors, according to Kamrin et al. (1995) includes: involuntariness, immorality, unfamiliarity, dreadfulness, uncertainties, catastrophe, memorable, unfairness, and untrustworthiness. Kamrin et al. (1995, pp. 85-86) explain that:

involuntariness is where people don’t like to be forced to take risk. The uncontrollable is when preventing risk is in someone else’s hands like government or industry.

Immorality occurs where risk for example, from pollution is viewed as an evil and people consider it unethical for government and industries to claim that a risk is acceptable based on cost-benefit analysis. *Unfamiliarity* occurs where an industrial process producing an unpronounceable chemical is a much less acceptable risk than everyday activity. *Dreadfulness* occurs where a risk could cause a much feared or dreaded disease like cancer, is more dangerous than a risk than could cause a less feared disease. *Uncertainties* occur where people become uneasy when scientists are not certain about the risk posed by a hazard based on its effect, severity or prevalence. *Catastrophe* is where a risk resulting in a large-scale disastrous event is more dreaded than a risk affecting individuals singly. Meanwhile, *memorable* [as an outrage factor] is where potential risk is like a remarkable event embedded in memory of the people. The *unfairness* element in outrage is where people become outraged if they feel they are being wrongfully exposed like where the exposure to risk is limited to a community or different economic bracket or where the exposure to risk has no benefit. Lastly, the *untrustworthiness* element is where people become outraged if they have no confidence in the source of the risk, such as industry or government.

Risk may also be objective in terms of numerical estimates or perceived, in terms of the combined evaluation made by an individual. However, there is no full understanding of how perceived risk is represented in the mind of the individual. This is because, the public seldom has a different perception from that of the expert (Illing, 2001, pp. 43-44). The different perception of risk can be direct, scientific, or virtual. For instance, directly perceived risk could result from riding a bicycle or climbing a tree. Scientifically perceived risk could be from cholera or any other infectious disease. Virtual risk could be risk that scientists do not know or cannot agree about like risk from suspected radioactive or cancer causing agents (Adams, 2000, p. 230).

Furthermore, in accordance with the assertions of Stern and Fineberg (1996, pp. 215-216), 'risk is a concept used to give meanings to things, forces, or circumstances that pose danger to people or to what they value. Descriptions of risks are typically stated in terms of the likelihood of harm or loss from a hazard, and usually include an identification of what is 'at risk' and may be harmed or lost (e.g. health of human beings or an ecosystem, personal property, quality of life, ability to carry on an economic activity). The hazard that may occasion this loss, and a judgment about the likelihood that harm will occur.'

Risk is also synonymous with probability of harm or expected mortality as shown in a study from a health perspective (Slovic, 2016, p. 25). This is an objective perception of risk, and according to Hansson (2010, p. 222), is about possible outcomes and their probabilities. This is also similar to the African perspective of risk, which according to Desmond (2015, pp. 198-199), is often about the unwillingness to expose something to danger, take chances from unpredictable situations, feeling of anxiety and worries, fear of current uncontrollable conditions and misfortune from events whose cause was unknown. In Malaysia, research on the representations of risks from images of climate change have also associated risk to 'threat' and 'danger' (Nik, 2015).

Therefore, risk varies and could derive from lack of knowledge on a risk or an event that contains such a risk. It could also be related to uncertainty about risk from an event and this can generate anxiety. Meanwhile, increase in information can be used to overcome the uncertainty, and lead to the reduction of uncertainty and subsequently to the reduction of perceived individual or public risks. This study, therefore, explores the information used to represent perceived risks from Lynas' rare earth project in Malaysian online newspaper news.

2.3 Representation and the Media

The term 'representation' has several connotations but with a central relation to meaning-making within a context. Cultural theorists like Stuart Hall view it as an interaction between how language is used within a culture to share meaning (for example, in: Hall, 1997). Semioticians (also semiologists) like Charles Sanders Peirce and Ferdinand de Saussure, from the Linguistic perspectives consider representation from the notion of how a system of signs through language, image, and object is used

to create meaning. For example, Peirce (1955, p. 98) argues that semiotics is synonymous with logic, that is, a doctrine of signs that can be represented through a process of abstraction, using scientific intelligence and learning by experience. In the arguments of Peirce, representation in the field of semiotics comprises three elements of *Sign*, in relation with the *Object*, that determines the *Interpretant*. The premise is that in a representation, meaningful interpretations from a semiotic perspective must reflect all three components.

Hall (1997, p. 15) also clarifies that representation has been exploited in the context of using language to say something meaningful, or to represent the world meaningfully, to other people. This is an essential part of the process by which meaning is produced and exchanged between members of a culture using language, signs and images. It is also how media texts deal with and present aspects of society, identity and social issues, ethnicity, as well as demographic characteristics like gender and age to an audience.

Meanwhile, in the media, representation is inherent in diverse forms like print, online or broadcast. These representations may appear in a newspaper, magazine, television, and so on. The representations in various media forms appear in ‘texts’, including writing, audio, video, image, maps, illustrations, infographic or symbols. In online newspapers, representations can occur in several or specific news elements like headline (story title), lead (first few paragraphs in a news story), body text, photograph, photo caption, image, illustrations and cartoon, quotes, among others.

It is worthy to state that newspaper representations are structured differently from other forms of media representations. For example, the newspaper representation writing style differs from radio’s. News writing formats in newspapers use active tenses, while the latter uses passive tenses. As a non-visual medium, the language in

radio news presentation, for example, uses a lot of descriptive words, thereby narrowing the gap between proximity and actuality of the event and the listener. Meanwhile, in newspaper representation, lesser descriptive words are used. Instead, short, concise words are used and where necessary, direct or indirect quotations are used to attribute the information to sources.

In this study, newspaper representation is used within the context of how Malaysian alternative and mainstream online newspapers, which are accessible from a website, are used to heighten or reduce risks from the Lynas rare earth project in news elements including headline, news lead, attributions to news sources, photographs, photo caption, illustration, writing and colour. The conceptualisation of news is provided in chapter three in the section on content sampling.

On representation of risks in Malaysia, as earlier noted, few previous studies have focused on environmental rhetoric of haze risk in mainstream newspaper (Nik, 2016); risk messages on the climate change in Malaysian and German online newspapers (Nik, 2015); and representing immigrants as risks (i.e. illegals and threats) in alternative and mainstream Malaysian newspapers (Don & Lee, 2014).

In the study on environmental rhetoric of haze risk in a mainstream Malaysian newspaper (*The Star*), Nik (2016) use the Social Construction of Reality and Rhetorical Analysis and uncovered that rhetorical strategies convey persuasive messages on haze risk using traditional inverted pyramid news writing style. Further scrutiny reveal that the most important information was conveyed in the leads. Subsequently, supporting information were conveyed in key quotations using ethos to ascertain credibility, expertise and consonance. Additional facts were conveyed using logos to present data, evidences and examples, and to support claims. The least information at the bottom of the pyramid was conveyed using pathos to locate human

interest, health and sympathy. The current study submits that the order of the arrangement of the information in the above findings is indicative of the level of importance assigned to each rhetorical strategy. Ethos was the most important, then logos while pathos was the least important. Hence, the findings provide fresh and revealing evidence that, rhetorical persuasive strategies on haze in the newspaper studied are structured in layers and in a hierarchy.

Meanwhile, in the study on risk messages on the climate change in Malaysian and German online newspapers, *The Star* and *Spiegel* (Nik, 2015), the meanings of environmental risk from climate change in pictures predominantly appealed to human emotions. The study used the Visual Social Semiotics Theory to explore meanings of climate change risks in still images, headlines and captions to show how Malaysian and German journalists constructed climate change risk by associating it with other events. However, there was a difference in the social construction of the environmental risk from climate change between German and Malaysian journalists. German journalists presented climate change risk as a choice between economic challenges and environmental sustainability. Malaysian journalists associated climate change to threat and danger. The difference in this socially constructed reality can be related to the summation by the author that within the context of social semiotics, signs are used differently by communities. Additionally, she posited that a semiotic analysis from one social setting may not be relevant to other traditions who have developed different conventions of imaginations and reading. The present study argues further too that the debate on environmental risks and related issues on climate change between the two countries differ as depicted in the visuals used to construct social realities. This is another concrete evidence of the contextualisation of environmental risks from climate change. For example, visuals of flood signified danger while rainforests signified loss

of biodiversity in Malaysian newspapers. Meanwhile, the visualisation of coal-powered and wind turbine electricity generating plants signified a choice between economic prosperity and environmental sustainability in German newspapers' construction of environmental risk from climate change.

However, in the study on the representation of immigrants as risks (illegals and threats) in alternative (*Malaysiakini*, *The Malaysian Insider*) and mainstream (*Bernama*, *The Star* and *New Straits Times*) Malaysian media (Don & Lee, 2014), the authors did not situate the study within any theoretical framework. This subject may seem contentious to be considered as a representation of risk. However, threat to people is an element of risk according to literature definitions of risk. The categorisation of this study as a risk-related representation became evident in the study findings showing that political elites as news sources in Malaysia portrayed asylum seekers and refugees as a threat. This, according to the authors, reflect the ideology of the Malaysian political class, whose government is not a co-signer to the United Nations (UN) Convention of 1951 and the additional protocol of 1967 on the Rights of Refugees.

Furthermore, the representation of asylum seekers and refugees as threats in the above study showed that the reporter's account were complemented with elite narratives, which appeared as (in)direct quotations. The representation appeared in two contrasting themes: (i) a problem to be dealt with, and (ii) as victims that need help. The first theme was conveyed by political elites in the mainstream press. This corroborates literature arguments that the Malaysian government controls the country's mainstream press (e.g.: in Adnan, Nik, & Azlan, 2012; Bolongaita & Means in Kenyon & Marjoribanks, 2007; Sheena, 2013). If combined with the fact that Malaysia is not a signatory to the UN convention on refugees, it can be assumed that

this may have been used to legitimise government policies. The second theme, which appeared in alternative news websites portrayed refugees and asylum seekers as victims of circumstance. This is empathetic and could infer that the alternative news website disagrees with the government's actions.

Don and Lee (2014) argue further too that the way voices of the political elites were linked to the accounts of the reporters and statements from officials of the UN High Commission for Refugees (UNHCR) in alternative news sites is indicative of the portrayal of the Malaysian government as a perpetrator of injustice. This study argues that if this is considered alongside the criminalisation of asylum seekers and refugees as threats to Malaysia by the mainstream press, then the alternative news media also criminalised the action of the Malaysian government and indirectly, its constituted authority, since the reportage portrayed the asylum seekers and refugees as victims of the Malaysian government's inhumane treatment. This positioning challenges the Malaysian government's policies and engagement in a criminal act. Therefore, this study submits that both the mainstream and alternative online newspaper representations may appear contrasting but reflect the other because while one defends the action of its ownership, legitimise its action and criminalise the refugees; the other empathises with the refugees to delegitimise and criminalise the action of the Malaysian authorities.

It is interesting to note that there is some similarity between the findings from the three studies on media representation of risks in Malaysia. For example, the representations in the research by Nik (2016) and Nik (2015) on haze risk and climate change in Malaysian newspapers both targeted human emotions, despite using different theoretical assumptions. The finding associating climate change risk to threat and danger in Nik (2015) is also within the context of some of the broad definitions of

risk in existing literature. Meanwhile, this is also similar to some of the findings in the study by Don and Lee (2014) since immigrants were represented as threats to Malaysians. Some of the finding in Don and Lee (2014), which is typical of news report structure where contents are alternated between the reporter's accounts and use of (in)direct quotations from sources, are also similar to findings in Nik (2016) since in the latter, supporting information were also conveyed in key quotations.

Furthermore, researchers in other countries have studied representations of other risk events in different aspects of the media. These include studies on technological risks (from e-cigarette and nanotechnology in newspaper and TV news representations (Kim et al., 2017; Metag & Marcinkowski, 2014; Rooke & Amos, 2014); radioactive risks in newspaper representations (Tomkiv et al., 2016); environmental and health risks in newspaper representations (Amberg & Hall, 2008; Hove et al., 2015; Jönsson, 2011).

In Kim et al. (2017), the authors study print and online newspapers, and TV to analyse the representation of technological risks from electronic cigarettes in newspaper news articles and TV news transcripts in South Korea. The authors argued that previous studies have examined 'how' the media present e-cigarettes in news coverage, but little effort has been made to understand 'why' the media present them in certain ways. Therefore, they applied the notion of Frame Building to explore factors that influence use of news sources, story topics, issue attributes, and story tones. The population sample comprised five most-widely circulated newspapers and three national TV networks.

The authors' motivation also drew from literature arguments that e-cigarettes are promoted as a tobacco harm reduction product although their potential harmful effects are still inconclusive. Meanwhile, e-cigarette is an important public health issue