Combining Qualitative and Quantitative Methods
In Environmental Accounting Research

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ABSTRACT

Purpose: To explore how the combination of quantitative and qualitative methods can enhance a study on the environmental reporting decisions made by Malaysian companies using the emergent stakeholder theory.

Methodology/approach: The paper provides an illustration of how the descriptive, exploratory and explanatory type of research is entrenched with the objectives of the research and how the combination of quantitative (statistical regression and weighting/mean ranking) and qualitative (archival analysis, qualitative interviews) methods may enhance accounting research not only from results that corroborate.

Findings: The three-fold objective of this study, corresponding to its three phases, illustrates that combining qualitative and quantitative methods involves considerations at each phase of the investigation. The research design shows that when the researcher work with different types of data within the same project, the way data is used varies according to the objective and type of each phase (descriptive, explanatory and/or explanatory) of the research project. Each phase may have a particular aim and may address different concerns. However, taken together, the quantitative and qualitative findings may either corroborate, elaborate, complement or even contradict each other.

Originality/value: The paper claims that the enhancement of accounting research is not only achieved when the findings from mixed methods corroborate. Rather, it is submitted that the value of combining methods arise from different research outcomes – be it corroborative, elaborative, complementary or even contradictory.

Key words: Mixed Methods, Accounting Research, Stakeholder Theory, Malaysian environmental reporting.

Paper type: Research Paper.
Introduction

Whilst recent surveys of accounting journal quality, influence and research paradigm (see, for example, Bonner, et al., 2006; Lowe and Locke, 2005) suggest that accounting research is still largely dominated by quantitative and positivistic studies, it is clear that over the years, the qualitative and interpretivist research paradigm has attracted a number of proponents in the accounting literature.

Qualitative studies are distinct from quantitative research in terms of the ontological and epistemological assumptions underpinning the investigation. The choice of research paradigm depends on the basic belief about how ‘reality’ is perceived (ontological assumption) and what one accepts as valid knowledge (epistemological assumption). Qualitative researchers agree that reality is not merely a concrete structure but a social construction - one that is subjectively created and objectified by human interaction (Morgan and Smircich, 1980; Chua, 1986; Hines, 1988). In the same token, the validity of qualitative research is not purely dependent on empirical findings but is “shaped by the theoretical interests of the researcher” (Ahrens and Chapman, 2006, p. 820).

Despite these differences, engaging in qualitative research is not limited to the issue of methods but more of a methodological choice (Tomkins and Groves, 1983; Silverman, 1993; Ahrens and Chapman, 2006). Both qualitative and quantitative researchers may use similar data gathering methods such as document analysis, interviews, experimental technique and even field visits. The distinction lies in the way data is used and the type of research being conducted. Qualitative studies are useful in exploratory and explanatory type of research given that it involves an ongoing reflection on how the information is positioned against emergent theories with a view of exploring how a particular theoretical framework can be further developed, i.e. ‘theory development’. On the other hand, quantitative studies are useful in descriptive and predictive type of research when the research purpose is ‘theory testing’, that is, to test developed theories to describe current practices and/or to forecast the likelihood of a similar situation occurring elsewhere.

Although the proponents of each research paradigm have differing views, the methodological literature concedes to the fact that both qualitative and quantitative methodologies have their place in accounting research as both have prominent strengths and weaknesses (Veal, 2005; Modell, 2005; Ryan, et al., 2002; Hussey and Hussey, 1997). Given that each research paradigm is useful for different research types, an example of how both methodologies can be integrated into an investigation is paramount in providing a link to what was commonly considered as two competing paradigms.

The purpose of this paper is to explore how the combination of quantitative and qualitative methods can enhance a study on the environmental reporting decisions made by Malaysian companies using the emergent stakeholder theory. The three-fold objective of this research corresponds to the three phases of the study. Phase 1 is mainly descriptive employing quantitative analysis aimed at identifying the determinants of and describing environmental reporting practices of Malaysian listed companies using content analysis and ordinary least squares regression. Phase 2 is both explanatory and exploratory as it has a dual purpose: (1) to probe deeper into the possible motivations behind environmental reporting in Malaysia; and (2) to explore
how the application of stakeholder theory can be extended through the identification of salient stakeholders and relevant environmental events. These purposes call for a qualitative approach necessitating a deeper understanding and ongoing reflection of the Malaysian business psyche through unstructured and semi-structured qualitative interviews (Rubin and Rubin, 2005) and documentary analysis of relevant website/media reports. In phase 3, an experimental technique is used by conducting structured qualitative interviews using hypothetical vignettes to solicit the views of the interviewees representing a wide array of stakeholders identified from Phase 2. Phase 3, whilst also explanatory, is mainly exploratory as it is aimed at refining and extending the application of stakeholder theory to analyze environmental reports prepared for the salient stakeholders. Thus, the research design and the purposes of this study provide an opportunity to investigate how the integration of both quantitative and qualitative methods can complement each other to make the application of an emergent theory such as stakeholder theory more efficacious.

The remainder of the paper is organized as follows. The next section provides a discussion of how the methodological choice is made based on the objectives and the assumptions underpinning the study. Section three describes how the quantitative phase of this research is conducted. Section four and five describe the qualitative phases of the study, Phases 2 and 3. A discussion of the implications of the research design and the value of mixed methods is offered in section six. Finally, the summary and conclusion is provided in section seven.

**Methodological Choice, Research Type, Purpose and Methods**

**Methodological Choices**

Behind any research study is an assumption about the approach in which the entire investigation is conducted. The assumption behind the research paradigm adopted provides the basis for research methodology which in turn dictates the appropriate choice of research methods used in the study. Veal (2005) states that a paradigm:

… is a shared framework of assumptions… it reflects a basic set of philosophical beliefs about the nature of the world… it therefore provides guidelines and principles concerning the way research is conducted (p. 24).

The paradigmatic choice is either implicitly or explicitly made by the researcher and is inherently reflected in the way research is designed. Ryan, et al. (2002) suggest that:

… the assumptions which the researcher holds regarding the nature of the phenomenon’s reality (ontology), will affect the way in which knowledge can be gained about the phenomenon (epistemology), and this in turn affects the process through which research can be conducted (methodology). Consequently, the selection of an appropriate methodology cannot be done in isolation of a consideration of the ontological and epistemological assumptions which underpin the research in question (p. 35).

To make an explicit choice on the ‘theory of being’ and what constitutes reality, Morgan and Smircich (1980) provide a continuum of core ontological assumptions ranging from a purely objective view of concrete reality to a subjective view of reality being merely a projection of one’s mind as shown in Figure 1.
The ontological view adopted in this study is somewhere in between the two extremes of the continuum. It is acknowledged that whilst there is a reality ‘out there’ waiting to be discovered, this reality is neither static (objectivist view) nor is it purely a projection of one’s imagination (subjective view). Because it is people who perceive the realities in the world, they inevitably play an important role in the social construction of reality (Easterby-Smith, et al., 1991; Hines, 1988; Morgan, 1997).  

A major purpose of this study is to use stakeholder theory to understand why some Malaysian companies provide environmental disclosures in their Annual Reports whilst others do not. The Annual Report environmental disclosures (AREDs) and the other variables of interest such as the size of the firm, profitability, share ownership, leverage, etc. are already ‘out there’ ready to be analyzed. Hence, a quantitative analysis of these data can provide a descriptive knowledge of what is the current practice of Malaysian companies pertaining to environmental disclosures. However, while the analysis may reveal associations between variables which can be taken to suggest tendencies of causal interplay, it is important to recognize that quantitative methods are rarely able to provide more than surface information. Therefore, the findings could raise more questions given that making sense of the quantitative findings is driven by theory and not merely statistical correlations.

Stakeholder theory provides some possible explanations as to why certain management actions (e.g. providing environmental disclosures) are favoured. The management and their salient stakeholders perceive the issues through their own eyes and their actions need to be interpreted according to their own understanding of the circumstances. In this context, the epistemological assumption of extreme positivist view which promotes that knowledge can only be based on observing ‘what is out there’ is not supported. It is argued that in order to understand a socially constructed phenomenon such as the decision to provide environmental disclosures, the researcher can not be totally objective and independent. Hence the positivist notion that data should be value free and objective cannot be fully accepted. This is not to say that one view is considered superior than the other, rather it is claimed that each view offers a different way of discovering realities. Thus, the need to understand management’s actions through an in-depth investigation of management’s perceptions and preferences is tempered by the recognition of the inevitable role of the researcher and the researched as active participants of knowledge creation (Burrell and Morgan 1979). This is the relativistic epistemology favoured in qualitative and interpretivist research.
Research Types

Having established the research paradigm as well as the ontological, epistemological and methodological assumptions underpinning this research, it is acknowledged that appropriate methods for data collection and analysis must be chosen. Hussey and Hussey (1997) explain that:

...your choice of paradigm has implications for your choice of methodology (the overall approach to the research process) and to a lesser extent, your research methods (the way in which you collect data) (p. 51, italics original).

Hussey and Hussey (1997) further suggest that the paradigm and methods adopted are determined partly by the nature of the research problem, i.e. the purpose of the research. They classify research into four categories according to its purpose: (1) exploratory; (2) descriptive; (3) analytical or explanatory; and (4) predictive research. **Exploratory research** is conducted when there are very few studies to which one can refer for information. The aim of this research type is to look for patterns, ideas or propositions rather than to test or confirm hypotheses. **Descriptive research** describes the phenomena as they exist and the data collected is often quantitative using statistical techniques to summarize the information. **Analytical or explanatory** research goes beyond merely describing the characteristics of a phenomenon to analyzing and explaining why or how it is happening. **Predictive research** goes even further than explanatory research in that it forecasts the likelihood of a similar situation occurring elsewhere. Predictive research aims to generalize from the analysis by predicting certain phenomena on the basis of hypothesized, generalized relationships.

Research Objectives and the Three Phases of the Study

The purposes of this study call for a mix of **descriptive**, **explanatory** and **exploratory** type of research necessitating a mix of both quantitative and qualitative methods. Table 1 summarizes the research objectives, data sources and the methods of analysis.

<table>
<thead>
<tr>
<th><strong>Research Objectives</strong></th>
<th><strong>Phase of the Study</strong></th>
<th><strong>Sources of Data and Main Method of Analysis Used</strong></th>
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</thead>
</table>
| 1. To identify the determinants of Annual Report Environmental Disclosures (AREDs) of Malaysian public companies using a stakeholder model. | Phase 1 (Quantitative) | ■ Annual Reports from Kuala Lumpur Stock Exchange (KLSE) Main Board listed companies  
■ Content analysis and Ordinary Least Squares (OLS) Regression Analysis |
| 2. To investigate the motives for providing AREDs and to understand the Malaysian business psyche | Phase 2(a) (Qualitative) | ■ Semi-structured interviews with top executives of companies included in Phase 1  
■ Question by Question Matrix and Conceptual Matrix analysis of interviews |
| | Phase 2(b) (Qualitative) | ■ Unstructured interviews and website/media reports analysis  
■ ‘Read & recall’ analysis of interviews triangulated with archival analysis |
| 3. To apply and refine stakeholder theory by developing a framework that can be used to analyze environmental disclosures prepared for its stakeholders in the Malaysian context. | Phase 3 (Quantitative and Qualitative) | ■ Structured interviews using hypothetical vignettes (experimental approach) with various representatives of stakeholder groups identified from Phase 2  
■ Weighting/Averaging and Ranking  
■ Question by Question Matrix and Conceptual Matrix analysis of interviews |
For the first objective, identifying the determinants of Malaysian companies’ current environmental reporting practices necessitates the use of secondary data utilizing publicly available information from such sources as Annual Reports, suitable websites and databases. The purpose here is to provide a descriptive account of ‘what is’ the current reporting practice in Malaysia and how it may or may not be related to certain variables in a stakeholder model. In this sense, the use of quantitative method employing ordinary least squares regression technique is considered most appropriate for the first phase of the study.

The second objective is divided into two parts: Phase 2(a) and Phase 2(b). Phase 2 (a) aims to explain reporting practices directly from the perspective of the management of the reporting entities. Phase 2(b), on the other hand, aims to explore ideas as to how stakeholder theory can be applied in the Malaysian context through an understanding of the Malaysian business environment. Phase 2(b) provides a link to Phase 3 which explores and further develops stakeholder theory particularly in its application to corporate environmental reporting practices while seeking further explanations on environmental disclosure motivations. Given the explanatory and exploratory nature of Phases 2 and 3, it is considered most appropriate to employ qualitative methods to obtain rich and in-depth contextual understanding. Figure 2 shows how each phase of this study correspond to the research purposes.
The succeeding three sections describe in detail how the three phases of the investigation is conducted in order to give an example of how the combination of quantitative and qualitative methods may enhance accounting research not only from results that corroborate but also from findings that might even seem contradictory.
Phase 1 - Quantitative: Regression Analysis

Building up on the basic premise of stakeholder theory, i.e. that firms use social disclosures as a means to manage their relationships with their stakeholders, Ullmann (1985) introduced a three-dimensional stakeholder model consisting of: 1) \textit{stakeholder power}; 2) \textit{strategic posture}; and 3) \textit{economic performance}. Ullmann’s model has been used in a number of ‘hypothesis-testing’ studies focussing on social and environmental disclosures and performance (refer to Elijido-Ten, 2007; Chan and Kent 2003; Roberts 1992). Hence, in line with prior stakeholder literature, the first phase of this study replicates the application of stakeholder theory by adopting this three-dimensional stakeholder model, operationalized using ordinary least squares (OLS) regression.

The Regression Model and Hypotheses Tested

Regression analysis is a statistical technique used to assess the relationship between a dependent variable and one or more independent variables. Content analysis, is used to analyze the dependent variables of quality (QLENDIS) and quantity (QTENDIS) of voluntary Annual Report environmental disclosures (AREDs). Two ordinary least squares regressions are conducted: one for QLENDIS and another for QTENDIS as dependent variables. There are six independent variables namely: 1) shareholder power (SP); 2) creditor power (CP); 3) government power (GP); 4) environmental concern (EC); 5) ISO 14001 certification (ISO); and 6) average return on assets (AROA). The first three are measures of \textit{stakeholder power}, the fourth and fifth are alternate measures of \textit{strategic posture} and the sixth is a measure of \textit{economic performance}. To control for the possible effects of other extraneous variables that could influence the result of the quantitative analysis, two control variables are introduced – the log size (LSIZ) of the firm in terms of average sales and the firm’s age since incorporation (AGE). The regression model is shown in Table 2: Panel A. Each of the six independent variables corresponds to the hypotheses tested as shown in Table 2: Panel B.

Table 2: Regression Model and Hypotheses

<table>
<thead>
<tr>
<th>Panel A: Regression Model</th>
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<tbody>
<tr>
<td>QLENDIS/QTENDIS = B_0 + \beta_1 SP_i + \beta_2 CP_i + \beta_3 GP_i + \beta_4 EC_i / \beta_5 ISO_i + \beta_6 AROA_i + \beta_7 LSIZ_i + \beta_8 AGE_i + e_i</td>
</tr>
<tr>
<td>\textit{Where:}</td>
</tr>
<tr>
<td>QLENDIS (quality)</td>
</tr>
<tr>
<td>QTENDIS (quantity)</td>
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<td>( \beta_0 )</td>
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Panel B: Hypotheses

Legend: H1 - Stakeholder Power; H2 - Strategic Posture; H3 - Economic Performance
*Note that H2a and H2b are alternative dependent variables.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Legend</th>
<th>Hypothesis</th>
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<tbody>
<tr>
<td>H1a: Firms with high level of shareholder concentration are less likely to provide more and better quality environmental disclosures than firms with low level of shareholder concentration.</td>
<td>Shareholder Power (SP)</td>
<td>Firms with high level of shareholder concentration are less likely to provide more and better quality environmental disclosures than firms with low level of shareholder concentration.</td>
</tr>
<tr>
<td>H1b: Firms with high leverage (i.e. debt/equity ratio) are more likely to provide more and better quality environmental disclosures than less leveraged firms.</td>
<td>Creditor Power (CP)</td>
<td>Firms with high leverage (i.e. debt/equity ratio) are more likely to provide more and better quality environmental disclosures than less leveraged firms.</td>
</tr>
<tr>
<td>H1c: Firms that belong to environmentally sensitive industries are more likely to provide more and better quality environmental disclosures than those in non-sensitive industries.</td>
<td>Government Power (GP)</td>
<td>Firms that belong to environmentally sensitive industries are more likely to provide more and better quality environmental disclosures than those in non-sensitive industries.</td>
</tr>
<tr>
<td>H2a: Firms with environmental committees and/or environmental concern in their vision/mission statement are more likely to provide more and better quality environmental disclosures than those firms without such committees or concern.</td>
<td>Environmental Concern (EC)</td>
<td>Firms with environmental committees and/or environmental concern in their vision/mission statement are more likely to provide more and better quality environmental disclosures than those firms without such committees or concern.</td>
</tr>
<tr>
<td>H2b: Firms that are ISO 14001 certified are more likely to provide more and better quality environmental disclosures than firms that do not have such certification.</td>
<td>ISO 14001 certification</td>
<td>Firms that are ISO 14001 certified are more likely to provide more and better quality environmental disclosures than firms that do not have such certification.</td>
</tr>
<tr>
<td>H3: Firms with higher AROA are more likely to provide more and better quality environmental disclosure than firms with lower AROA.</td>
<td>Ave. ROA (AROA)</td>
<td>Firms with higher AROA are more likely to provide more and better quality environmental disclosure than firms with lower AROA.</td>
</tr>
</tbody>
</table>

Sample and Data Collection

In 2002, the Association of Chartered Certified Accountants (ACCA) engaged Environmental Resources Management Malaysia (ERMM) to conduct a study on the current status of environmental reporting in Malaysia. The study covering the period 1999 to 2001 surveyed all the companies listed in the Main Board of the Kuala Lumpur Stock Exchange (KLSE). The ERMM Report (2002) served as a starting point for the identification of corporate entities providing AREDs. Hence, in order to document Malaysian voluntary environmental disclosure practice using Ullmann’s (1985) stakeholder model, all the reporting companies identified in the ERMM Report are used as the sample for this study. The quality and quantity of Annual Reports environmental disclosures (AREDs) for the period 2000 to 2001 were analyzed.

Phase 1 – Relevance and Limitation of Findings

The results derived from the statistical analysis in Phase 1 provide some insights based on the hypotheses supported and rejected. The multiple OLS regressions (result not shown but available if requested) show that only Hypotheses 1c, 2a and 2b are supported. Both the government power (GP) and environmental concern (EC) are significant and positively associated with the quality and quantity of disclosures (QLENDIS and QTENDIS) at p<.10 and p<.01 respectively. ISO 14001 certification (ISO) is also significantly positively related with QLENDIS at p<.05 although the relationship is weaker at p<.10 for QTENDIS. This suggests that EC is a better proxy for the firm’s strategic posture. All the coefficients of the independent variables have the expected sign except for the economic performance measure, the average return on assets (AROA), which shows a negative sign but is not significant suggesting that economic performance is not significantly associated with the level of AREDs.

One of the recognized strengths of this type of analysis is its statistical generalizability, whereby inferences about a population are made possible from a large sample of data used. Although Veal (2005) asserts that, strictly speaking, any research finding relates only to the subjects involved at the time and place when the research is conducted, the techniques commonly used in ‘theory testing’, such as OLS regression, can offer scientific power given that it identifies a small number of ‘key variables’ that affects the
outcome over a large number of cases. However, this strength can also pose as a major limitation because the regression model cannot accommodate too many independent variables. Thus, a decision has to be made regarding the number of stakeholders represented (e.g. three stakeholders in the model corresponding to shareholders, creditors and government). The difficulty in finding the most suitable proxy for each key variable further exacerbates this limitation.

Another constraint in this type of research pertains to causal explanations, that is, the established associations between the dependent and independent variables do not imply cause and effect. For example, whereas QLENDIS and EC are significantly and positively associated, the statistical correlation does not determine whether EC causes QLENDIS or vice versa. The findings, therefore, can not produce causal predictions given the complex interplay between causal powers. Furthermore, the established relationship between variables cannot provide a rich explanation as to why some companies provide disclosures while others do not.

Despite the above constraints, the usefulness of Phase 1 quantitative findings is not only limited to the established significant relationships. In other words, whilst the aim in this phase is to conduct ‘hypotheses testing’, the findings also open up research opportunities given that the results particularly in the stakeholder power dimension for shareholders (SP) and creditors (CP) showed insignificant relationships with the dependent variables: QLENDIS and QTENDIS. This provides an impetus to ask further questions in order to understand the motives behind environmental reporting. For example, some of the questions raised as a result of the findings from Phase 1 include:

- Does top management consider the stakeholders included in the model (i.e. the shareholders and creditors) in preparing the environmental disclosures in the Annual Report?
- From the management’s point of view, are there other stakeholders interested in environmental matters and reporting?

Even with the marginally significant relationship established for the government power (GP) variable proxied by industry sensitivity, a question that could be asked is:

- Does industry sensitivity really play a role on the firm’s level of environmental awareness and environmental disclosure?

Although the results suggest that the two alternative proxies to strategic posture (EC and ISO) are both significantly related to environmental disclosures, it is clear from the results that ISO is weaker. The result also confirms that not all ISO 14001 certified companies show environmental concern (EC) in their Annual Reports. This is despite the fact that ISO 14001 certification requires companies to make their environmental policy available to the public. Thus, a question that begs to be asked is:

- Why don’t all ISO14001-certified companies provide environmental policy disclosure in their Annual Reports? Is the Annual Report perceived by top management as an effective way of communicating their environmental concern/performance to their relevant stakeholders?
Another curious finding from Phase 1 is the insignificant relationship between economic performance and environmental disclosures and the unexpected negative sign of its coefficient. It is, therefore, interesting to ask the top management the question:

- **Whether or not they believe that providing environmental disclosures affect firm value?**

It is evident that whilst quantitative techniques, such as OLS regression, have obvious strengths and weaknesses, its value is not only based on the hypotheses supported but also on the opportunity to probe deeper into the possible explanations behind the significant/insignificant relationships discovered which can be more appropriately achieved through qualitative means. Hence, it is clear that the quantitative findings can be enhanced by further investigations using a more in-depth approach such as qualitative interviewing adopted in Phase 2 which is discussed next.

**Phase 2: Qualitative Interviews & Archival Analysis**

**Multiple Data Sourcing and Qualitative Interviewing Rationale**

Phase 2 uses both secondary (news articles and website analysis) and primary data in the form of unstructured and semi-structured *qualitative interviews*. The qualitative literature suggests that the use of multiple sources of evidence such as documentary analysis and different forms of interview (including unstructured and semi-structured) enhances research quality through data triangulation (Jick, 1979; Modell, 2005).

*Qualitative interview* is the preferred term used in this study to distinguish this method from the highly structured line of questioning normally used in survey research. According to Rubin and Rubin (2005, p. 4):

> Qualitative interviews are conversations in which a researcher gently guides a conversational partner in an extended discussion. The researcher elicits depth and detail about the research topic by following up on answers given by the interviewee during the discussion. Unlike survey research, in which exactly the same questions are asked to each individual, in qualitative interviews each conversation is unique, as researchers match their questions to what each interviewee knows and is willing to share.

Rubin and Rubin add further that qualitative interviewing is useful to understand experiences, to reconstruct events, to describe social and political processes and to elicit reasons as to why particular actions are made. The explanatory and exploratory nature of this phase demands a research method that can provide depth and detail which can only be achieved through actual conversations with the intended participants.

**Phase 2 Analysis Techniques**

The analysis process in Phase 2(a) starts with the transcription of the audio-taped interviews. Then each of the main sections of the semi-structured questionnaire (see Appendix A) is placed in a ‘question-by-question matrix’. The construction of this matrix allows an efficient data display and enables ‘memoing’ to self. *Memoing* is a technique that allows the researcher to write ‘memos’ which help to identify recurring themes and to “tie together different pieces of data into a recognizable cluster” (Miles & Huberman 1994, p. 72). Finally, ‘thematic conceptual matrix’ together with ‘pattern
matching techniques are used to enhance the analysis through a logical data reduction and display. In Phase 2(b), a simple ‘read and recall’ analysis of archival data from the relevant media and website articles and memoing are considered sufficient.

**Phase 2(a): Findings from Further Probing**

Phase 2(a) is targeted directly at eliciting the views of the top management regarding ARED decisions. The semi-structured interview is deemed appropriate as it provides some guide on the line of questioning needed in order for the issues raised from Phase 1 to be covered while at the same time allowing for further probing. The main findings, summarized in Table 3, provide explanations to the earlier findings in Phase 1. For example, in-depth interviews reveal that whilst it is true that shareholders and creditors are considered by the management in their ARED decision, a possible reason why there is no significant relationship between Malaysian shareholders/creditors and the quality and quantity of AREDs is because there is no evidence to prove that these stakeholders demand such disclosures. The analysis also confirms that while top management believes that AREDs can indirectly enhance firm value, its effect is not immediate given the perceived low level of environmental awareness among the Malaysian public. Other stakeholders considered by top management to be interested with environmental matters and reporting are also identified. These include the customers, employees, environmentalists and the media.

<table>
<thead>
<tr>
<th>Stakeholder Power:</th>
<th>Phase 2(a) Questions &amp; Key Findings</th>
</tr>
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<tbody>
<tr>
<td>Are shareholders and creditors considered in the preparation of Annual Report environmental disclosures (AREDs)?</td>
<td>Providing ARED</td>
</tr>
<tr>
<td>■ <strong>YES. Shareholders and creditors</strong> are considered in preparing AREDs but no evidence of ARED demand from both stakeholders is established.</td>
<td></td>
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<tr>
<td>Does industry sensitivity really play a role on the firm’s level of environmental awareness and environmental disclosure?</td>
<td>■ <strong>YES.</strong> Respondents mentioned that the increase on environmental concern is partly attributable to the sensitivity of their industry.</td>
</tr>
<tr>
<td>Are there other stakeholders interested with environmental matters and reporting?</td>
<td>■ <strong>YES.</strong> Among those mentioned are the customers, employees, NGO/greenies, media.</td>
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<th>Strategic Posture:</th>
<th>ISO 14001 Policy and ARED:</th>
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<tbody>
<tr>
<td>Why don’t all ISO-certified companies provide environmental policy disclosure in their Annual Reports?</td>
<td>■ <strong>YES.</strong> AR is perceived as an effective way by both respondents but there are other ways of communication.</td>
</tr>
<tr>
<td>Is AR perceived as an effective way of communicating environmental performance and concern to relevant stakeholders?</td>
<td>■ <strong>YES.</strong> It will take time before Malaysian companies embrace the idea of reporting but pressure on ESI-companies will improve AREDs.</td>
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<th>Economic Value:</th>
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<tr>
<td>Does the provision of AREDs enhance firm value?</td>
<td>■ Respondents agree that AREDs can enhance firm value but more indirectly rather than directly and is necessary for long-term focus.</td>
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</table>

**Table 3: Phase 2(a) Key Findings**
Phase 2(b): Findings from Exploring the Malaysian Setting

Phase 2(b) uses relevant media report/website archival analysis and unstructured interviews with other relevant parties familiar with the general Malaysian government and business environment. The aim here is to generate ideas as to how stakeholder theory can be applied in the Malaysian context through an understanding of the Malaysian psyche. Apart from finding explanations and/or confirming previous findings from Phases 1 and 2(a), the analysis in Phase 2(b) leads to the identification of the relevant environmental issues/events and the salient stakeholders. Mitchell et al.’s (1997) typology, characterised by the attributes of power, legitimacy and urgency, together with the background knowledge gained from both the primary (interviews) and secondary (news/website analysis) data sources proved to be an important source of information in this identification process. The environmental events/issues as well as the salient stakeholders identified are needed if the application of stakeholder theory to ARED decisions is to be developed.

Overall, the conclusion drawn from Phase 2 is that, top managements’ conviction to adopt and disclose environmentally-friendly practices is very much related to the increasing demand from various stakeholders, not all of which are represented in Phase 1 analysis because of the limitations in the quantitative model. This conclusion points to the suitability of using stakeholder theory in the analysis. It also confirms the usefulness of further refining the application of stakeholder theory to the management’s decision on whether to provide or not to provide environmental disclosures. This is the focus of Phase 3 which is discussed next.

Phase 3: Interviews & Experimental Approach

In his landmark book entitled “Strategic Management: A Stakeholder Approach” Freeman (1984), one of the main proponents of stakeholder theory, introduced a typology that can provide relevant insights on generic strategies formulation. By analyzing the cooperative potential and competitive threat of each stakeholder, a surrogate for the stakeholder potential to affect any strategic program is developed. The propositions emanating from Freeman’s typology, shown in Table 4, has never been used in the environmental reporting literature. As Phase 3 intends to explore and further develop stakeholder theory particularly in its application to corporate environmental reporting decisions, Freeman’s typology is used as a guide. Thus, a slightly modified set of propositions are adopted (see Table 4).

Phase 3 is designed to accommodate an ex ante analysis of how the management makes ARED decisions depending on the enormity of environmental issue/event. Much of prior research on corporate environmental reporting provides evidence from an ex post perspective thereby excluding the possibility of uncovering the complex interplay behind the decision of whether to provide or not to provide AREDs.
### Table 4: Strategy Formulation Typology

<table>
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<tr>
<th>Proposition Number</th>
<th>Freeman’s Propositions: (Source: Freeman 1984, pp. 143-44)</th>
<th>Adaptation of Freeman’s Propositions Used in Qualitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The relative power of stakeholders, in terms of potential for changes in current actions, affects the success of particular strategic programs of a firm.</td>
<td>The manager’s perception of the stakeholders’ potential to either cooperate or threaten the firm’s survival will determine the Annual Report environmental disclosure (ARED) strategy used.</td>
</tr>
<tr>
<td>2</td>
<td>If a set of stakeholders in a firm has relatively high cooperative potential and relatively low competitive threat, the firm should adopt an offensive strategy to try and bring about the cooperative potential of this set of stakeholders.</td>
<td>If the salient stakeholder/s has/have relatively high potential for cooperation (PC) and low potential for threat (PT), the manager is likely to provide disclosures to exploit the situation in an attempt to either maintain their support or, at the least, improve current adversarial relationship.</td>
</tr>
<tr>
<td>3</td>
<td>If a set of stakeholders in a firm have relatively high competitive threat and relatively low cooperative potential, then the firm should adopt a defensive strategy to prevent competitive threat on the part of these stakeholders.</td>
<td>If the salient stakeholder/s has/have relatively low potential for cooperation (PC) and high potential for threat (PT), the manager is likely to provide disclosures that will defend their position in an attempt to gain the support of these stakeholders.</td>
</tr>
<tr>
<td>4</td>
<td>If a set of stakeholders has relatively high cooperative potential and competitive threat, the firm should adopt a strategy which seeks to change or influence the rules of the game which govern firm-stakeholder interactions.</td>
<td>If the salient stakeholder/s has/have relatively high potential for cooperation (PC) and high potential for threat (PT), the manager is likely to provide disclosures that will seek to influence the rules of the game to enable collaboration with these stakeholders.</td>
</tr>
<tr>
<td>5</td>
<td>If a set of stakeholders has relatively low cooperative potential and competitive threat, the firm should adopt a strategy which seeks to continue current strategic programs, and holds the current position of these stakeholders in place.</td>
<td>If the salient stakeholder/s has/have relatively low potential for cooperation (PC) and low potential for threat (PT), the manager is likely to hold current position and not provide any environmental disclosures.</td>
</tr>
</tbody>
</table>

### Experimental Approach, Purposive Sampling and Role Playing

Although qualitative interviewing is again used as the main data gathering method in this final phase of the study, an experimental approach is also employed. As it is conceivable that different companies are bound to face different environmental issues, the only way to get the target respondents to react to the same set of environmental issues/events is to give all the interviewees the same hypothetical events. The experimental approach makes this possible through an introduction of fictitious vignettes (referred to as ‘Cases’) based from real-life environmental issues/events identified from Phase 2. These vignettes are incorporated into the questionnaire forming the basis of qualitative interviews. A structured interview questionnaire is designed to include both closed and open-ended questions (see Appendix B).

Given that the questionnaire asks for the participants’ reactions and opinions regarding the chosen environmental issues/events, it is considered important not to select the participants randomly. Choosing participants based on their knowledge and experience should provide a rich understanding of the phenomenon under investigation. This is the
essence of Rubin and Rubin’s (2005) suggestion as they elaborate on making research credible through the proper choice of interviewees.

Your interviews gain credibility when your conversational partners are experienced and have first-hand knowledge about the research problem. To convince readers that your research does not have an unintended slant, you select interviewees whose views reflect different, even contending, perspectives. Once you have formulated your tentative theory, you choose interviewees who can help you flesh out the theory … Interviewees should be experienced and knowledgeable in the area you are interviewing about. (p. 64, italics original).

Miles and Huberman (1994) and others (Kuzel 1992; Morse 1989) also argue that “qualitative samples tend to be purposive rather than random” (Miles and Huberman 1994, p. 27). Thus, in order to extend the application of stakeholder theory, participants are chosen on the basis of their current and/or previous exposure to Malaysian corporate business and legal environments or based on their direct involvement in related fields, for example, media reporters, environmentalists and business academics/researchers. Furthermore, in order to gain different perspectives, the participants are chosen on the presumption that they represent a variety of company stakeholders ranging from shareholders to major/long-term creditors, relevant government agency officer, employees, customers, suppliers, media, environmentalists and competitors.

Freeman (1984, p. 133) suggests that in order to understand stakeholder behaviour, the manager should put him/herself in the stakeholder’s position in order to feel and see the world from their perspective. Freeman adds that, by role playing, the manager is able to synthesize and fully understand the objectives and beliefs of particular stakeholders. With the aid of a structured interview questionnaire, the participants are asked to take the role of the senior manager in charge of Annual Report preparation. Through the introduction of the three fictitious environmental events, the respondents are able to provide ex ante insights on their ARED decisions and preferences without the worry of giving away proprietary information.

The Structured Questionnaire

The structured interview questionnaire is in two parts (see Appendix B). Part I asks the participants to provide general information like their current/previous position and their length of service to the company. This part also asks the participants to rank the stakeholders in the order of their perceived significance to company survival. They are also asked to elaborate on their reasons for ranking. The purpose here is to probe deeper, albeit indirectly, on the respondents’ perception of the stakeholder’s cooperative/threat potential to the firm. Indirect probing in this situation is considered appropriate given that the stakeholder’s potential for cooperation (PC) or potential for threat (PT), while dependent on the enormity/seriousness of the event/issue, is also a matter of personal perception for which a numerical value provides limited meaning. Hence, a direct question which asks ‘how much PC/PT do you believe each stakeholder has?’ is argued to be inadequate, even inappropriate. This line of questioning is also envisaged to lead to a biased response as it is suggestive of a particular frame of reference. Saunders et al. (2003) refer to this as a possible interviewer bias where a researcher may:

…attempt to impose [their] own beliefs and frame of reference through the questions that [they] ask (p. 252, italics added).
Part II of the questionnaire asks the participant to read each of the three fictitious vignettes (referred to as Cases 1 to 3) developed to represent environmental issues/events of different levels of impact. The purpose in choosing representative events of varying degrees of impact is to understand better how corporate management’s ARED preferences may differ depending on the environmental issue/event presented. This is in accordance with the attribute of urgency in stakeholder salience identification (Mitchell et al., 1997) and issues management literature (Mitroff, 1994; Nasi et al., 1997; Wartick and Mahon 1994). Whilst all the three ‘cases’ involve large publicly listed companies, each case represents different industries. Details of these ‘cases’ are shown in the structured questionnaire in Appendix B.

In Part II, the participant is asked to assume the role of the senior officer responsible for the decision to provide or not provide ARED. Part II asks three main questions. Question 1 asks each participant, on a scale of 1 (Extremely Significant) to 5 (Not Significant), to provide their opinion as to how significant each environmental issue/event, outlined in Cases 1 to 3, is to the various stakeholders identified. They are also asked to elaborate on their reasons for providing such significance level for each stakeholder. The purpose here is to elicit the respondent’s perception on how urgent they believe each environmental issue/event is to the company’s stakeholders. This reinforces the attribute of urgency in identifying stakeholder salience and managing the more pressing issues since it is conceivable that the management is likely to base their decision to provide AREDs in the order of their priority. The response here is also intended to be analyzed in light of the responses provided in Part I of the questionnaire which asks for the ranking of stakeholder’s significance to company survival.

Question 2 asks the participants to rank four different types of ARED approaches given two scenarios: (1) when the issue/event has not been publicized (NP) by the media yet; and (2) when the issue/event has already been publicized (P) by the media. These two scenarios are incorporated in the questionnaire design in order to explore how the media may or may not act as a factor on management’s perception of how urgent the issue is at hand. The four types of ARED approaches are chosen in line with what the literature on stakeholder theory (Freeman, 1984; Savage, et al., 1991) proposed, namely: (1) do nothing - hold current status, i.e. provide no disclosure; (2) exploit – make some disclosure but concentrate only on good aspects; (3) defend – disclose the issue/event but defend the reasons why it was done and/or what has been done to rectify the situation; (4) influence the rules of the game – provide some disclosure regarding the event in an attempt to sway/change the beliefs of others regarding the event and the role of the firm. Once again, the respondents are asked to provide the reason/s for their choice of disclosure approach in order to have a deeper understanding. Finally, in order to accommodate other disclosure media apart from the AREDs, question 3 asks the respondents if they are likely to provide environmental disclosures regarding the event/issue in other ways of communication and the reason for their choice.

**Analysis Techniques**

Analysis for the structured interview data is done in two distinct stages. In the first stage, the responses to the closed and open-ended interview questions are separately analyzed. For the answers from the closed interview questions, a quantitative technique such as weighting/mean ranking is used and the information is displayed either in tables
or in graphs whichever is more appropriate. On the other hand, upon transcribing the responses to the open-ended interview questions, the qualitative techniques of ‘question-by-question matrix’ and ‘memoing’ are used. In the second stage, both the quantitative and qualitative analysis are linked using ‘thematic conceptual matrix’ and ‘pattern matching’ techniques.

**Phase 3 Main Findings**

It is not the intention of this paper to discuss in detail the findings in Phase 3. Suffice it to say that the results generally confirm, to a certain degree, that the stakeholder’s potential to either cooperate with or threaten the firm’s survival influence the type of disclosures the management is willing to provide. This potential for cooperation/threat is, however, dependent on the perceived seriousness of the environmental event and whether or not the event is published by the media. The more immediate the threat of the event is to human life/environment, the higher the potential threat exercised by the stakeholder groups, which then determines the type of ARED approach (do nothing, exploit, defend and influence the ‘rules of the game’) most preferred by the firm’s management.

As expected, the experimental approach enables the setting of the same condition to all respondents which is not possible in ‘real-world’ type of research as in case studies. The experimental approach also allows for different scenarios to be accommodated such as the “published” and “not published” scenario.

In Case 1- ‘not published’ scenario, it is highly unlikely for the stakeholder groups to have high threat/cooperation potential given that they have no knowledge of the environmental event. Hence there will be no demand for ARED, even from the adversarial stakeholder groups (media, environmentalists and competitors). Thus the prediction of Proposition 5, i.e. to do nothing is likely to happen in the ‘not published’ scenario. The results shown both in the quantitative and qualitative analysis confirm this prediction with do nothing as the most preferred ARED while defend is the least favourite. The situation is, however, reversed once the event is ‘published’. The analysis showed that the ‘published’ scenario creates the perception of increased potential for threat among overseas customers and the adversarial stakeholders. As such, the prediction in Proposition 3 (i.e. that top management is likely to defend its position in an attempt to gain the support of these stakeholders) is likely to happen in the ‘published’ scenario. Once again, both the quantitative and qualitative results confirmed that the most preferred ARED strategy is defend while do nothing is now the least favourite.

Given the immediate threat to human life featured in Case 2, the overall consensus is such that this event cannot be hidden from the public, thus the management’s perception of the stakeholders’ potential for cooperation/threat and ARED preference are the same regardless of whether the event is ‘published’ or ‘not published’. Similar to Case 1 ‘published’ scenario, the high potential for threat from the adversarial stakeholders (environmentalists and media) magnified by the added pressure from both the customers and employees make the prediction in Proposition 3 most likely to occur, that is, to adopt the ARED strategy of defending the firm’s position. The results confirm that the most preferred ARED strategy is to defend and do nothing is the least preferred.
As Case 3 features an event that promotes a sustainable and environmentally friendly practice, there is a consensus that the management is likely to adopt the same ARED approach regardless of whether this event is ‘published’ or ‘not published’. Likewise, given the event’s positive impact, most of the stakeholders including the environmentalists, major shareholders, relevant government agency, employees, suppliers and customers are expected to have high potential for cooperation and low potential for threat. Hence, the prediction in Proposition 2 is likely to happen, that is, the management is likely to provide AREDs that will exploit this event. Once again, both the quantitative and qualitative results confirmed this prediction with the most preferred ARED approach being exploit and, as expected, do nothing is the least favourite. Not surprisingly, the second most preferred ARED strategy is to influence the ‘rules of the game’ since it is believed that there is a need to influence and improve the environmental awareness of the general public by adopting the influence strategy.

The conclusion reached from this phase clearly indicates that the significance of the event to the salient stakeholders is an important factor in determining the ARED approach adopted by the management. This is because the event’s significance has a direct impact on the stakeholder’s level of cooperation and threat potential which could either make or break the company.

**Discussions and Implications of Research Design**

**Triangulation and Mixed Methods Debate**

Combining quantitative and qualitative methods has been referred to, in the methodological literature as a form of method triangulation, in particular, between-method triangulation (see Denzin, 1978; Jick, 1979; Modell, 2005). Triangulation originated as a navigational strategy for locating an object’s exact position using multiple reference points (Smith, 1975; Jick, 1979; Ahrens and Chapman, 2006). In the social sciences, the conventional purpose of triangulation is to improve the representational accuracy of a particular phenomenon through the use of different methods (method triangulation), theories (theory triangulation), investigators (investigator triangulation) and multiple data sourcing (data triangulation).

The proponents of triangulation and mixed methods argue that by combining seemingly diverging methods, the relative strengths of one can counterbalance the weaknesses of the other thereby enhancing the credibility of results (Jick, 1979; Hoyles *et al*., 2005; Modell, 2005, 2007). In this sense, the main justification for mixing quantitative and qualitative methods is the enhancement of the validity of research. This logic, however, is based on the ‘realist ontology’ that presumes an objective empirical reality independent of human cognition. In this regard, others oppose triangulation (Ahrens and Chapman, 2006; Brannen, 2005) and the integration of qualitative and quantitative methods on the basis that the philosophical assumptions underpinning the two methods are incompatible. This is consistent with the incommensurability thesis paradigm (Smith, 1983; Smith and Heshusius, 1986). The opponents’ criticisms are two-fold: (1) there is limited probability that the two methods may reflect the same empirical interpretation if the subjectivist assumptions are adopted; and (2) the assumption that researchers are detached and neutral adjudicators is not fully supported (Modell, 2007).
The Value of Mixed Methods

It is not the intention of this paper to enter the triangulation debate given that triangulation is not claimed in this study as the *only* tool for improving research validity since as Cronbach (as cited in Ahrens and Chapman, 2006, p. 834) suggests:

> Validity is subjective rather than objective: The plausibility of the conclusion is what counts and plausibility, to twist a cliché, lies in the ears of the beholder.

Rather, the intention of this paper is to show how the combination of both the quantitative and qualitative methods can be seen in the light of its ‘possibilities’. As implied from the original triangulation metaphor, the researcher would have done well if, for example, the data from different methods ‘corroborate’ one another (Yin, 1984; Jick, 1979) since it is then that the object’s exact position can be determined. However, corroboration is not the only useful outcome arising from mixing methods as Brannen (2005, p. 176) rightly pointed out:

> When we combine methods, there are a number of possible outcomes; corroboration of results is only one of at least four possibilities:

- **Corroboration** – the ‘same results’ are derived from both qualitative and quantitative methods.
- **Elaboration** – the qualitative data analysis exemplifies how the quantitative findings apply in particular cases.
- **Complementarity** – the qualitative and quantitative results differ but *together* they generate insights.
- **Contradiction** – where qualitative data and quantitative findings conflict

The three-fold objective of this study, corresponding to its three phases, illustrates that combining qualitative and quantitative methods involves considerations at each phase of the investigation. The research design shows that when the researcher work with different types of data within the same project, the way data is used varies according to the objective and research type of each phase (descriptive, explanatory and/or explanatory) of the research project. Each phase may have a particular aim and may address different concerns. However, taken together, the quantitative and qualitative findings may either corroborate, elaborate, complement or even contradict each other.

In this research, for example, while the quantitative (weighted mean ranking) and qualitative (open-ended responses) analyses in Phase 3 corroborate the findings on the stakeholders’ cooperation/threat potential and the ARED preferences shown by the management, the findings from the first two phases appear to be contradictory at first glance. In Phase 1, the quantitative regression analysis shows that the shareholders and creditors are not significantly associated with ARED quality and quantity. This can be taken to suggest that these stakeholders are not considered by top management when making ARED decisions which seems to contradict the qualitative findings from Phase 2(b) given that the respondents and the archival data analysis suggested otherwise. Taken together, however, the findings generated useful insights attesting to the complementarity of the findings from the two methods - quantitative OLS regressions from Phase 1 and qualitative interviews and archival analysis in Phase 2(b).  

Furthermore, the qualitative findings from Phase 2 exemplify Phase 1 findings through the provision of the much needed explanations and answers to the questions raised from the quantitative analysis. This is an example of the elaborative outcome from mixing methods.
Finally, the insights from both the quantitative and qualitative findings from Phases 1 and 2, enables the refinement of stakeholder theory in its application to the management’s ARED type decisions which is the main objective of Phase 3. This is another example of the complementary power of combining qualitative and quantitative methods.

**Summary and Concluding Comments**

This paper describes research design issues and implications through the justification of methodological assumptions as well as the methods used in light of these assumptions. The descriptive, exploratory and explanatory type of research is discussed in line with the three-fold objective of this investigation. The three objectives of this research correspond to the three phases of the study.

Phase 1 is mainly *descriptive* employing quantitative analysis aimed at identifying the determinants of and describing environmental reporting practices of Malaysian listed companies using content analysis and ordinary least squares regression. Phase 2 is both *explanatory* and *exploratory* given its dual purpose of probing deeper into the possible motivations behind environmental reporting in Malaysia and exploring how the application of stakeholder theory can be extended to the Malaysian context. Given the nature of this phase, a qualitative approach necessitating a deeper understanding of the Malaysian business psyche through qualitative interviews and archival analysis are considered suitable. In phase 3, an experimental technique is adopted by conducting structured qualitative interviews using hypothetical vignettes to solicit the views of the interviewees representing a wide array of stakeholders identified from Phase 2. Phase 3, whilst also *explanatory*, is mainly *exploratory* as it is aimed at refining and extending the application of stakeholder theory to analyze environmental reports prepared by the management for the salient stakeholders.

The main intention in this paper is to explore how the combination of qualitative and quantitative methods can enhance accounting research. It is not claimed in this paper that the enhancement of research is only achieved when the findings from mixed methods corroborate. Rather, it is submitted that through the integration of qualitative and quantitative methods, research is enhanced by making sense of the insights generated from corroborative, elaborative, complementary and even what appears to be contradictory findings.
REFERENCES


Hoyles, C., Kuchemann, D., Healy, L. and Yang, M. (2005). Students Developing Knowledge in a Subject Discipline: Insights from Combining Quantitative and...


APPENDICES
APPENDIX A
SEMI-STRUCTURED QUESTIONNAIRE
(Interview Duration: Between 30 to 45 minutes)

QUESTIONS FOR DISCUSSION:

1. Stakeholder Power and Motivations behind Environmental Disclosures:
   a) The Environmental Resources Management Malaysia (ERMM, 2002) commissioned by the
      Association of Chartered Certified Accountants (ACCA) conducted a study on “The State of
      Corporate Environmental Reporting in Malaysia.” Your company has been identified as one of
      the only forty Main Board KLSE listed companies that provide environmental disclosures in the
      Annual Report (AR). Given that there is very limited legal requirement in Malaysia to disclose
      environmental information in the company’s annual report (AR)\(^1\), the question therefore is why
      do it?

   b) Do you believe that environmental concerns are perceived as important by your company’s
      major stakeholders and the Malaysian public?

2. Strategic Posture and Environmental Disclosures:
   a) Does your firm have current or in the process of getting any environmentally-related
      certification, e.g. ISO 14000 series?

   b) The ERMM (2002) Report suggests (on page 48) that there appears to be no correlation
      between ISO 14001 certified companies and the amount and quality of information provided in
      AR. It is, however, worth noting that the report also specifically states (on page 47) that “only 3
      of 13 reporting companies certified to ISO 14001 included an environmental policy statement
      within their AR. Note that ISO 14001 certification requires companies to make their
      environmental policy available to the public. Based on your extensive business experience,
      what comment can you offer regarding these findings?

   c) Do you see the AR as an effective way of communicating to your company stakeholders the
      company’s environmental performance? In other words, do you feel that the company’s
      environmental performance is well reflected in the AR environmental disclosure?

3. Economic Value and Environmental Disclosures:
   Do you think providing environmental disclosure enhances firm value either directly or
   indirectly?

4. Possible Way Forward and Other Concerns:
   The ERMM report also noted on p. 46 that “very few companies reported environmental
   financial information and candid acknowledgement of negative information.” It was further
   noted that “none of the reports were verified by a third party to provide assurance that the
   information provided was true and fair.” Do you see this as a possible way forward for
   environmental reporting in Malaysia, in general and perhaps your company, in particular? Is
   there anything else you would like to add, i.e. other concerns re: environmental matters?

\(^1\) Except MASB 1 par 10 (additional disclosure on environmental disclosures to assist users), MASB 20
appendix 4 (disclosure on types of liability including contingent liabilities) and for listed companies, LR
item 16 of Appendix 9C requiring disclosure of “particulars of all sanctions and/or penalties imposed on
the listed issuer and its subsidiaries, directors or management by the relevant regulatory bodies => this
makes it compulsory for any public listed company to disclose in their annual report (AR) environment-
related litigation or penalties.
APPENDIX B
STRUCTURED QUESTIONNAIRE
DURATION: Between 1 to 1 ½ hours

PART I: GENERAL INFORMATION

What is/was your current/previous position? _______________________________
Name of the Company: _______________________________________________
Nature of the Company: ______________________________________________
How long have you been working (have worked) in this position? ____________

RELEVANCE OF STAKEHOLDERS:

Please rank the following stakeholders in the order of their importance to a company’s survival with 1 (most important) to 10 or 11 (least important).

<table>
<thead>
<tr>
<th>Stakeholder Type</th>
<th>RANK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major shareholders =&gt; Owns &gt; 5% of shareholding / Top 20</td>
<td></td>
</tr>
<tr>
<td>Minor shareholders =&gt; Owns &lt; 5% of shareholding / non-Top 20</td>
<td></td>
</tr>
<tr>
<td>Major / Long-term Creditors</td>
<td></td>
</tr>
<tr>
<td>Relevant government agency</td>
<td></td>
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<tr>
<td>Employees</td>
<td></td>
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<tr>
<td>Customers</td>
<td></td>
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<tr>
<td>Suppliers</td>
<td></td>
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<tr>
<td>Media</td>
<td></td>
</tr>
<tr>
<td>Special Interest Group, i.e. Environmentalist</td>
<td></td>
</tr>
<tr>
<td>Competitors</td>
<td></td>
</tr>
<tr>
<td>Others (please indicate if any)</td>
<td></td>
</tr>
</tbody>
</table>

In your current/previous job or situation, please indicate which type of stakeholder would you most likely be classified: ___________________________________________
PART II: CASE-SPECIFIC INFORMATION

**Instruction:** Please read the following three fictitious cases. THEN, for each case, please answer the questions in this part taking the role of the senior officer of the company responsible for the decision to include (or not include) environmental disclosure in the Annual Report.

**Case 1: Malaysian Holdings Berhad (Plantation and Logging)**

Malaysian Holdings Berhad (MHB) is a large publicly listed company dealing with plantation and logging operations. It has operations in several parts of Peninsular Malaysia and in Sarawak, however its head office is located in Kuala Lumpur. The company has been operating profitably for more than 25 years but because of the Asian crisis in 1998, its profitability has been severely affected. Furthermore, with the increasing campaign for zero-burning policy (MHB decided to adopt zero-burning policy since its major competitors publicised that they have already adopted zero-burning policy), the operational costs to control pest infestation in its logging and plantation operations increased significantly. Since then, its research and development (R&D) team has been investigating the use of a new chemical that could significantly cut the cost of operating activities. Research has indicated that the use of this new chemical pose no immediate threat to human health. However, the R&D team found that the chemical destroys other plant and animal species which could affect the ecological balance. Furthermore, they could not rule out the possibility of any long-term effect to human health if continuous exposure to this chemical occurs. The top management decided to use this new chemical at the beginning of the current reporting period.

**Case 2: Shexxon Refinery Berhad (Oil Refinery)**

Shexxon Refinery Berhad is an international oil company located in Port Dickson. Its core business is the extraction and refining of crude oil. It also sells petroleum products through its own chain of service station outlets. Recently, a significant amount of toxic fume was accidentally emitted to the air. A nearby primary school was directly hit causing many students to experience breathing difficulty and vomiting. More than 20 students became seriously ill and were hospitalised. As soon as the school notified Shexxon of this incident, the company immediately conducted an investigation. Shexxon discovered that a faulty refining equipment caused the unusual emission of toxic waste on the air and as such the equipment was immediately shut down. The Environmental Protection Agency came to investigate whether the level of air emission is still hazardous for human health.

**Case 3: Keluarga Banking Berhad (Banking Industry)**

Keluarga Banking Berhad (KBB) is a large publicly listed company operating profitably since 1975. The company has been an active supporter of socially responsible initiatives including sustainable development. Its corporate mission and vision specifically includes environmental and social concern and this is reflected in the corporate environmental policies which are regularly revised in line with the social audits conducted annually. Recently, KBB spent RM$ 20 million for a state of the art technology which will enable the following:

- reduce energy consumption by 25%;
- make paper and other stationery recycling easy;
- reduce wastes and rubbish collection by 20%;
- promote paperless transactions thereby reducing the use of paper.
Question 1:  
1. How significant do you believe the environmental issues/events, as described in the case are, to the following stakeholders of the company? Please indicate the significance level (i.e. 5=Not Significant; 4 = Moderately Significant; 3=Significant; 2=Very Significant; 1= Extremely Significant) for each stakeholder for each case.

<table>
<thead>
<tr>
<th>Stakeholder Type</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major shareholders =&gt; Owns&gt;5% of shareholding/Top 20</td>
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<td>Competitors</td>
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<tr>
<td>Others (please indicate if any)</td>
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</table>

Can you elaborate as to the reasons for your choice?

Question 2:  
2A) Assume that the event as described in the case has NOT been publicised yet. In deciding what to include (or not include) in the current period’s annual report, place a number in each box (NP column) ranking your choice of Disclosure Approach from 1 (most likely) to 4 (least likely).

2B) Assume that the event as described in the case has NOW been well publicised. In deciding what to include (or not include) in the current period’s annual report, place a number in each box (P column) ranking your choice Disclosure Approach from 1 (most likely) to 4 (least likely).

<table>
<thead>
<tr>
<th>Disclosure Approach</th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NP</td>
<td>P</td>
<td>NP</td>
</tr>
<tr>
<td>a) Do nothing, i.e. provide no environmental disclosure.</td>
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<td></td>
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<tr>
<td>b) Exploit, e.g. make some environmental disclosure concentrating on past</td>
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<tr>
<td>environmental achievements of the company.</td>
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<tr>
<td>c) Defend, e.g. disclose the use of the new chemical and its potential effect to the</td>
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<tr>
<td>environment BUT highlight the negative economic impact of not changing to the new</td>
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<td>technology.</td>
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<td>d) Influence the ‘rules of the games’, e.g. make some disclosure to explain that</td>
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<td>the use of this chemical is a necessary step to ensure the economic stability of the</td>
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<td>large company which is essential if Malaysia is to achieve its 2020 Vision, i.e. to</td>
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<td>be a developed country by 2020.</td>
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Why did you rank these in the order you did?

3) Will you be likely to use other ways of communication to provide environmental disclosure regarding this event? Why or why not? If yes, please indicate what other ways of communication will you use to provide environmental disclosure regarding this event?
A number of articles in top accounting journals such as Accounting, Organization and Society, The Accounting Review and Management Accounting Research (e.g. Ahrens and Chapman, 2006; Chua, 1986; Modell, 2005) along with new journals such as Qualitative Research in Accounting and Management provides evidence to this growing interest in qualitative research.

For a more thorough explanation and example of how Ullmann’s three-dimensional stakeholder model is operationalized, refer to Roberts (1992), Chan and Kent (2003) and Elijido-Ten (2006, 2007).

Content analysis is used to analyze the quality and quantity of AREDs. The quality is evaluated by giving the greatest score of 3 to quantitative specific disclosures related to each of the items in the Environmental Disclosure Index (see Appendix A for a sample). A score of 2 is assigned to non-quantitative but specific information and a score of 1 is given to general qualitative or vague comments (in line with prior studies, eg Al-Tuwajri et al 2004; Hughes et al 2001; Wiseman 1982). The quantity of AREDs is measured using the number of sentences. In cases where tables or figures are provided, each figure and description is counted as one sentence.

Given that Phase 2 employs only qualitative methods (qualitative interviews and archival analysis), this type of triangulation is referred to as within-methods triangulation (see Denzin, 1978; Jick, 1979; Modell, 2005). Denzin and others make the distinction between within-methods triangulation and ‘between (or across)-methods’ triangulation where qualitative and quantitative methods are used.

Miles and Huberman explained that conceptually ordered matrices may follow the format of a thematic conceptual matrix where “more general conceptual themes can be the ordering principle” (p. 131). Furthermore, in drawing conclusions from this type of conceptual matrix, the analyst is “…blending inferences drawn directly from the displayed data (tactics: seeing patterns, themes; and factoring – that is, seeing a few general variables underlying many specifics), with illustrative comments … (Miles & Huberman 1994, p. 131-133). This analysis technique is similar to what Yin (1994) suggests as ‘pattern-matching’.

It appeals to reason that when the stakeholders are perceived to have high significance to company survival, their potential to threaten and/or cooperate with the firm is also high.