AN ASSESSMENT AND CRITIQUE OF CRISIS MANAGEMENT IN THE OIL AND GAS INDUSTRY IN ENSURING COMPANY CONTINUITY

by

Warren J. Ray

JOHNNY MORRIS, PhD, Faculty Mentor and Chair

RUBYE BRAYE, PhD, Committee Member

LINDA DELL'OSSO, PhD, Committee Member

Barbara Butts Williams, PhD, Dean, School of Business and Technology

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

Capella University

April 2013

Abstract

The purpose of this dissertation was to investigate the level of preparation and capability of oil and gas companies to meet the emergent crisis situations in their operating environments. The BP gulf oil spill and the earlier Exxon Valdez incident pointed out the dangers that attend the operations of the exploration and extraction aspect of their operations, and numerous concerns revolve around the transportation, distribution, and storage of fossil fuels that could pose environmental threats such as oil spills and carbon dioxide emissions. The researcher interviewed 30 upper and middle managers from the oil and gas industry, distributed among 10 companies from the upstream, midstream, and downstream sectors of the industry. They were asked open-ended questions formulated pursuant to the Issue and Crisis Management Relational Model developed by Jaques (2007), which touched on crisis preparedness, crisis prevention, crisis event management, and post-crisis management. The study employed qualitative data analysis to scrutinize the responses of the participants to determine the state of crisis management of the company. The findings indicate substantial differences between the crisis management styles of companies situated in the downstream sectors vis-à-vis that of companies in the upstream sector, with upstream companies being more systematic and organized, and being concerned with a wider range of crisis situations. The level of crisis preparedness and prevention is more seriously considered by large upstream companies.

Dedication

I dedicate this dissertation to my wonderful family, particularly to my understanding and patient wife, Carol, who has put up with these many years of research, and to my daughter Erin and son Jeff, who never gave up on me.

I must also thank my wonderful family who have all given me their fullest support. Also, I dedicate this work to my late father, Lawrence Vernon Ray, and my late mother, Julia Klein Ray, both of whom believed in diligence, science, art, and the pursuit of academic excellence.

Acknowledgments

This project would not have been possible without the support of many people. Special thanks to my advisor and mentor, Dr. Johnny Morris, who read my numerous revisions and helped to make some sense of the confusion. Also, thanks to my committee members, Dr. Rubye Braye and Dr. Linda Dell'Osso who offered guidance and support. Thanks to Capella University School of Business and Technology for awarding me a Dissertation Completion.

Table of Contents

List of Tables

List of Figures

CHAPTER 1. INTRODUCTION

Introduction to the Problem

The 1989 Exxon Valdez oil spill in Alaska and the 2010 BP oil spill in the Gulf of Mexico are ranked among the most disastrous man-made crises attributable to commercial operations. Damage from these incidents affected the lives and livelihoods of people distributed over a broad geographical area, and experts expect the repercussions to extend to subsequent generations because of their effect on the environment and wildlife. The oil industry, unfortunately, did not see the Exxon Valdez as a sufficient precedent to prompt the development of a standard crisis prevention and mitigation protocol to apply in the future.

Taken together, oil and natural gas pipeline accidents have occurred over decades, often resulting in a significant number of fatalities. In 2011, a pipeline fire killed 100 people and seriously injured 120 in Nairobi ("Kenya Fire," 2011). In 2010, a Pemex (Petroleos Mexicanos) pumping station in Central Mexico exploded, killing 27 and injuring 50 (Ellingwood, 2010). In 2006, a pipeline explosion in Nigeria killed up to 500 people ("Probe Ordered," 2006), but the fatalities in this incident are only second to the Ufa train disaster in Russia in 1989, during which train sparks set off a gas leak from an LPG pipeline and killed 645 people ("Careless Workers," 1989).

Oil and gas accidents can have catastrophic results, which underscores the importance of assessing the crisis management systems in this industry and ascertaining

whether or not these systems are within acceptable standards to ensure the protection of the public.

Background of the Study

One of the more comprehensive and meticulous definitions of "crisis," as conceived in business crisis management, is that of Fink (1986), who stated that:

> A crisis is any situation that runs the risk of:
> 1. Escalating in intensity.
> 2. Falling under close media or government scrutiny.
> 3. Interfering with the normal operations of business.
> 4. Jeopardizing with the positive public image presently enjoyed by a company or its officers.
> 5. Damaging a company's bottom line in any way. (pp. 15–16)

Fink's well-crafted enumeration of the attributes of a crisis situation noticeably lacks one element: that of being unforeseen or unexpected. This is a defining trait of a crisis for other authors (Boin, et al., 2009; Hoff, 2001; Laws, Prideaux, & Chon, 2007), but apparently not for Fink, whose definition focuses on the impacts rather than the causes of the crisis situation. In many instances, crises are characterized as such not because they are unforeseen. Rather, they are foreseen (or at least foreseeable), but are historically and statistically deemed so unlikely to happen that precautionary and preventive measures against them are overlooked (Daft & Marcic, 2011).

The deleterious effects of the 2010 BP oil spill in the Gulf of Mexico warrant the necessity for the enhancement of crisis planning, prevention, assessment, and mitigation for the oil and gas industry (Casale, 2010). Despite the serious harm to the environment and to livelihoods in the affected area, the potential closure of large oil and gas companies or the shutdown of their pipelines are risks that major oil producers should not

be taking because of their critical role in the world economy (Kamal, 2012; Omolara & Olayide, 2011). The matter of oil and gas crisis management to ensure continuity of supply, therefore, becomes an important area of study.

Unfortunately, few academic studies exist that have addressed this area. Lee Clarke of Rutgers University underscored the fact that the minimum that most oil and gas companies have to rely on are what he called "symbolic planning" and "fantasy documents" upon which crisis strategies are built (as cited in Morse, 2004, p. 97).

Statement of the Problem

The threats of impending crises (i.e., crises that are unlikely, but may eventually happen) confront all organizations in varied ways. All organizations need some form of crisis management in order to contain the effects of crisis incidents. In defining a manageable research problem that can produce meaningful, properly contextualized findings, therefore, it becomes necessary to delimit the particular crises and the organizations whose crisis management responses are to be assessed.

This research dealt with the question of determining whether or not systematic crisis management programs or policies are in place for the oil and gas companies and the industry in general, and how these may be improved to sufficiently address the crisis incidents that recur in the industry. The study applies to crisis incidents that have happened in the past, that are particular to the oil and gas industry, and that have a likelihood of recurrence, for which reason an investigation into organizational readiness to respond to them is warranted.

Purpose of the Study

The purpose of the research study was to determine whether or not sufficient preparation and capability exist on the part of oil and gas companies to meet the contingencies that may arise as a result of their operations and incidents in their operating environment. Additional study is warranted in this area because the BP oil spill in the gulf proved that crisis preparedness for the most wealthy oil companies is still found wanting. Failure to address this issue in the hypothetical context in order to arrive at a solution will inevitably result in a reprise of the past crises, with possibly more aggravating circumstances. To the extent that shortfalls in preparedness are evident, this research presents recommendations that will improve the crisis management process.

Rationale

This study provides a much-needed assessment of the crisis prevention, preparedness, mitigation, and response capabilities of the oil and gas companies. This assessment is necessary because the safety of the public is highly dependent upon the physical integrity of the transportation, pipeline transmission, storage, and high-volume distribution of highly combustible, volatile, and toxic materials. The proximity of vast quantities of gas and oil to populated areas and the likelihood of accidents necessitates a study of the industry's crisis management.

Research Question

The question addressed in this dissertation is: Are the crisis management policies and programs of companies in the oil and gas industry sufficient to address the potential crises faced by these firms and to ensure their survival as corporate entities? The

continued inquiry along this line of research is pursuant to earlier findings by Thamotheram and Le Floc'h (2012), which indicated that the BP crisis would have been preventable had managers and investors decided according to the principles of sustainable capitalism; in so doing, management and investors in the oil and gas industry could pro-actively avert crises similar to the Gulf of Mexico oil spill of 2010.

Significance of the Study

This study makes a significant contribution to the existing academic literature on crisis management, from which both students and operations management practitioners may gain new insight. Crisis management continues to be considered as merely an adjunct to the general field of operations and production management, and in practice is regarded almost as an afterthought. This study may be significant in providing the basis for a more systematic, organized, and mainstream approach to crisis management than is currently available.

Definition of Terms

The definitions provided below are concepts integrally related to the theoretical framework known as the Issue and Crisis Management Relational Model developed by Jaques (2007). The concepts are therefore adopted from that study in order to remain close to the relationships described in that study. The terms have been given special meanings by the author in the context of the model, which may not be construed in their usual meaning.

Planning Processes. This is the first step in crisis preparedness, which includes putting planning in place, assigning roles and responsibilities, and establishing process ownership.

Systems and Manuals. After planning processes, this step attends to crisis management infrastructure, equipment, war rooms, resources, and documentation.

Training and Simulations. This is the last step in crisis preparedness, which includes familiarization programs, testing table-top exercises, and live simulations.

Early warning scanning. This is the first step in crisis prevention and encompasses audits, preventive maintenance, issue scanning, social forecasting, environmental scanning, anticipatory management, and future studies.

Issue and risk management. After early warning scanning, this step includes identification, prioritization, strategy development, and implementation.

Emergency response. The last step in crisis prevention, which includes infrastructure, documentation and training.

Crisis recognition. This is the first step in crisis event management that covers the transition from emergency, objective assessment, and early recognition.

System activation/response. Following crisis recognition, this step involves the activation process, effective mechanisms for call out, availability of back-ups, and systems redundancy.

Crisis management. This is the last step of crisis event management and should be distinguished from pre-crisis management; it includes strategy selection and implementation, damage mitigation, stakeholder management, and media response.

Recovery, business resumption. This is the first step in post-crisis management and includes operational recovery, financial costs, market retention, business momentum, and share price protection.

Post-crisis issue impacts. Defined by after recovery and business resumption, this second step involves coronial inquests, judicial inquiries, prosecution, litigation, reputational damage, and media scrutiny.

Evaluation, modification. The final step of post-crisis management includes root cause analysis, management assessment, process review, and implementation of change.

Assumptions and Limitations

The key assumptions for this research are (a) that the respondents are competent with respect to their position and knowledge to answer the protocol questions effectively and comprehensively and (b) that the respondents answered the questions honestly.

The principal limitation of the study was that its outcomes are not guaranteed. The analytic schema employed in the study produced information that bears directly on the research question. Its iterative loops theoretically allowed the research considerable flexibility in re-trying questions for which respondents' answers were unclear. Notwithstanding, the analyzed body of interview data produced new insights for crisis management in the oil and gas industry.

Nature of the Study

The theoretical framework that guided the method for addressing the research questions is the Issue and Crisis Management Relational Model (ICMRM) developed by Jaques (2007). In the development of this theory, a parallel was drawn between the

concepts of *issue management* and *crisis management*, which are different in their connotation, but are essentially similar in the way they impact a business and in the manner in which management must deal with them.

An issue is "an unsettled matter which is ready for decision" (Chase, 1984, p. 38). Subsequently, the meaning of issue had come to include events and situations that could profoundly and adversely affect an organization's operations if they are left unaddressed. On the other hand, a "crisis" as commonly understood as "a low probability, high impact event that threatens the viability of an organization" (Pearson & Clair, 1998, p. 68). An issue and a crisis are different in that an issue is not a low-probability event and does not spontaneously develop when least expected. Rather, an issue is a controversy left unaddressed for a long-enough period of time so that it eventually does become a problem for the organization. A crisis is an unexpected event that does spontaneously and rapidly develop, for which reason a decision must be quickly made. A similarity between the two concepts is that both need to be critically resolved by management; otherwise the absence of a decisive resolution and action would tend to impair the operations of the business and may even threaten its continuance.

Clear examples of crises are the Exxon Valdez oil spill that occurred in Alaska in 1989 and the more recent 2010 oil spill by BP, which dwarfed the Exxon Valdez event in terms of geographical area affected and amount of material released into the environment. According to Bourne (2010), BP's Macondo well spewed the equivalent of the Exxon Valdez oil spill every four days, from April 20 to July 15. These topics will be further discussed in the chapter 2. Examples of *issues* include the report of certain

multinational corporations outsourcing jobs to sweat shops in Asia as well as the more recent issue of unconscionable executive compensations among financial intermediaries and institutions whose clients had suffered insurmountable losses in the last financial crisis. Whereas crises develop quickly, issues develop slowly over time, but both will lead to negative public perception that may eventually put a company out of business.

Crises and issues may therefore be addressed in a similar manner, an insight recognized by Jaques (2007) and embodied in his issue and crisis management relational model, which guided this study and is graphically depicted in Figure 1.

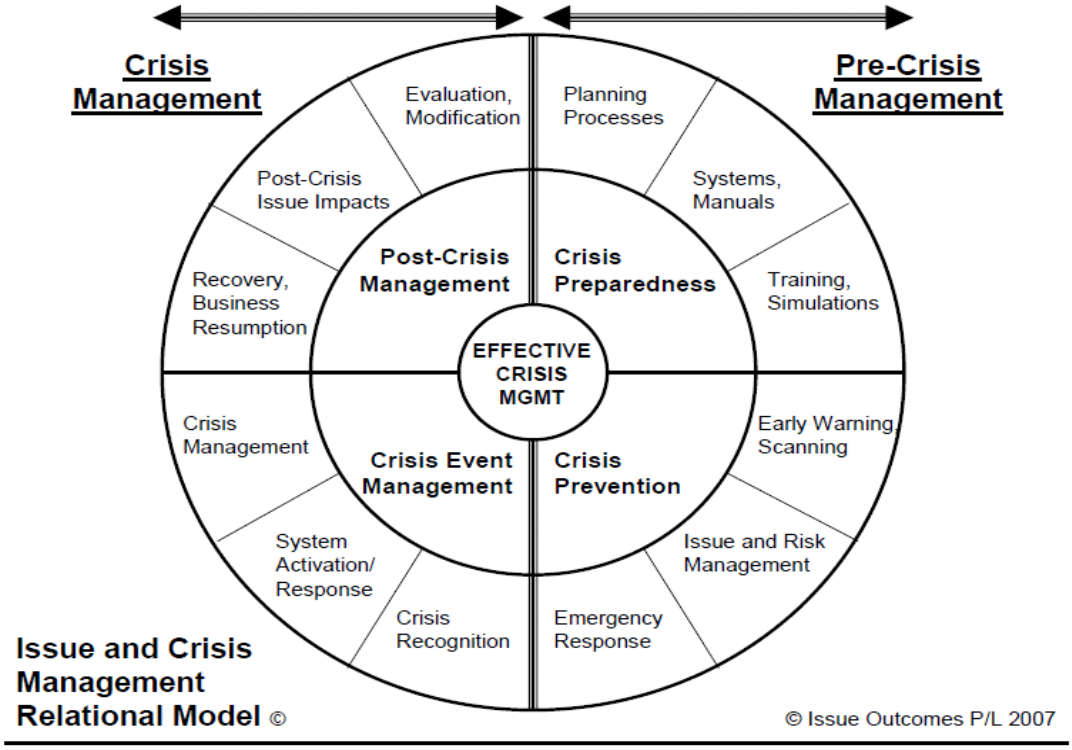

Figure 1. Issue and crisis management relational model. From "Issue Management and Crisis Management: An Integrated, Non-linear, Related Construct," by T. Jaques, 2007, *Public Relations Review, 33*(2), p. 152. Copyright 2007 by Tony Jaques. Reprinted with permission.

The clusters into which the elements of Jaques's (2007) model are arranged are interrelated disciplines that sometimes overlap and necessarily create a fluid continuity, even among non-adjacent elements (for instance, between early warning scanning and crisis recognition). Jaques (2007) stressed that crisis prevention and crisis preparedness, though appearing adjacent on the board, actually should happen simultaneously in an organization. The full assimilation of issue management is implied in the model, since "the best way to manage crises is to understand and manage issues" (Jaques, 2007, p. 152). For other authors such as Heath (1997), crisis management is absorbed within issue management, and crisis management is a function of issue management; not only can crises arise from issues, but issues can arise from crises.

Although the model is easily visualized, the model is not so easily articulated in the realities of organizational operations. The challenge lies in the likelihood of turf wars between units, which lead to barriers being set up that delimit functional jurisdictions. An example is when staff members perform administrative functions, such as auditing, and view themselves as performing a role that may be critical to financial risk management, but which has nothing to do with corporate crisis prevention, although financial crises and company closures often trace their root cause to poor auditing practice (Jaques, 2007). This was certainly true of the past subprime crisis, which led to the rethinking of accounting standards.

The concepts behind each cluster of actions in the relational model have been articulated in the preceding definition of terms and concepts. The definition of these clusters are not so much useful in the application, but in an appreciation of their

relationship to one another and how they relate to management practices and processes currently being implemented.

Organization of the Remainder of the Study

Chapter 2 includes a review of related literature to establish the theoretical underpinnings of this study and to position the study within the conceptual realm of the academic literature devoted to this subject. Chapter 3 discusses the research methodology that the study employed to link the research question to the findings and conclusions. The chapter describes the data as well as its source and the applied analysis. Chapter 4 presents the findings and discussion, and chapter 5 contains the conclusion and recommendations.

CHAPTER 2. LITERATURE REVIEW

This literature review provides an incisive discussion on the existing academic literature upon which the research problem was based and situates the present study within the body of theory on crisis management. The discussion first elaborates on the implications of business continuity and thereafter on the concept of "crisis" and how such a concept is similar yet different from the concept of "issue" in so far as the two pertain to corporate crisis management. On this basis, the issue and crisis management relational model developed by Jaques (2007) is expounded, as is the framework it provides for the analysis of corporate crisis models. Supporting discussion on crisis communication theory provides insight into how management may more effectively project the corporation to the public and reduce the adverse consequences of the occurrences of issues and crises.

Crisis Management

Crisis management provides a means of systematically addressing contingencies and the risk of unforeseen occurrences. The systematic approach to crisis management is necessarily limited and accompanied by the existential aspect of the crisis. Many authors view crises not as random events, but as "an accumulation of likely events at the level of any part of the organization as a whole and which may disrupt its present or future operations, affecting individuals and communities at a physical, psychological, and/or existential level" (Pauchant & Mitroff, 1998, p. 10).

Rather than being thought of as infrequent and unexpected random events, studies have shown that crisis events take place more frequently, and even regularly, and cover a wider range of issues (Hart, Heyse, & Boin, 2001). The concept of crisis is approached in several ways. One is the event approach, which places emphasis on the characteristics of crisis to surprise, its unpredictability, and its improbability. Another is the procedural approach, which views crises as progressing in intensity and visibility; this latter approach makes it possible to anticipate a crisis or to determine the genealogy and dynamics of its development (Tănase, 2012). When a crisis is viewed as procedure, it ceases to be characterized by mere symptoms and instead is described in terms of lifecycle; in this case, the development of a crisis can be anticipated, the losses incurred there from mitigated, and the speed of the recovery hastened by adopting the proper measures (Hargis & Watt, 2010).

Regardless of how crises may be viewed, it is generally acknowledged that crises disrupt normal business operations and may result from industrial accidents (e.g., Exxon Valdez and BP oil spills), the collapse of the financial and real-estate markets (e.g., Bear Stearns bankruptcy), corporate transgression or poor decision making (e.g., Nike, Intel, Mattel, etc.), bacterial contamination, sabotage (e.g., the Tylenol cyanide scare), or simply fraud or product liability cases resulting in recall (e.g., Ford Explorer, Toyota; Hargis & Watt, 2010). Generally, three linked crisis issues threaten a firm's survival: public safety, financial loss, and loss of reputation (Coombs, 2007).

Instances exist when the corporate crisis is a result of management error or indecision during crucial moments. In these instances, a clear and identifiable pattern of

typical successive reactions by management emerges, described by Dubrovski (2009) as follows:

Neglecting symptoms and principles of strategic management. Management overlooks early indications of systems stresses or organization dysfunction. The signs are already evident which a more vigilant management staff would have been alerted to, and timely resolved. At this point the incipient crisis would go by unnoticed or, even if noticed, neglected by management (Dubrovski, 2009).

Denial of existence of critical circumstances. At this point, management disclaims any serious problems and outwardly issues statements that current problems are only short-term, temporary disturbances, and that the business as a whole is running smoothly. Management may resort to distorting accounting data or their interpretations; focusing on short-term solutions without being aware of the longer-term repercussions; "conformism" (that is, resorting to prescriptive, formulaic statements and solutions); and attempting to buy time while searching for strategic partners. In short, management makes an effort to ignore the signs of crisis and conducts its business as if there were no crisis (Dubrovski, 2009).

Powerful opposition to changes and untimely confrontation with serious problems. Internal pressures start to build up as the critical situation worsens despite management's denials. Employees, middle managers and the union begin to exert internal pressure on the top management or the managers, while external pressure starts to build from the shareholders, customers, suppliers, the board, and government regulators. Reacting to the pressure, management issues stronger opposition to the clamor for

changes to be adopted, particularly that of a change of top management. Typical would be attempts by management to raise additional resources from shareholders, creditors, or state institutions, which may either exacerbate or resolve the crisis (Dubrovski, 2009).

Orientation towards inappropriate causes. Management offers excuses for the business decisions it has been making which have so far failed. At this point management overestimates the external pressures and underestimates the internal pressures. Individual managers may resort to distorting the negative information he/she has for it to conform to his/her initial positive beliefs (a behavior called "belief inertial distortion") (Dubrovski, 2009).

Substitution of causes by consequences of crisis and vice versa. In the case where a change in management is effected as a result of the mounting crisis, oftentimes the tact of new management, in its attempt to control the crisis, is to put the blame for the crisis on the very change in management (i.e., that the continued problematic situation was due to the disruption of the management change), when actually the change in management is the consequence, not the cause, of the crisis. Concurrently, displaced members of the old management team will be quick to point out that the new management are wrong or lacking in their attempts to reform the organization, and will tend to hinder the progress of the new team (Dubrovski, 2009).

Sobering-up and leaving or facing the crisis. There comes a point in the development of the crisis when it no longer could be denied that the crisis has overwhelmed management's efforts to conceal it. Members of the previous management team step down and withdraw from their positions, either because they were compelled

to, or did so of their own volition. More often than not, they resign and leave the company. They are replaced by individuals who approach the situation with a sober reassessment of the crisis, without the influence of misleading factors. Such replacements are the key to the eventual successful resolution of the crisis (Dubrovski, 2009).

Resolving the crisis. The crisis eventually reaches a stage when measures in earnest are taken, but either these measures arrive too late that the chances for a favorable outcome are limited, or the measures applied are too general or radical to effectively relieve the effects of an acute crisis, leading the company to eventually cease operations (Dubrovski, 2009).

When a crisis has progressed to the stage at which failure is inevitable, the management that was in place when the crisis was developing would be unable to resolve it because the style, outlook, and vision remain unchanged. When resolution is reached under new management, then members associated with the old management would tend to belittle any successes achieved under the new management (Dubrovski, 2009). The attribution of faults, real or perceived, which usually accompanies (negative or positive) crisis resolution, is commonly called the "blame game." Political and administrative leadership are necessary to address a crisis successfully by recognizing the threat at its early stages, initiating mitigating courses of action, addressing the consequences of the threats, and recovering from the crisis to once more resume a sense of normalcy. However, new and unfamiliar threats are constantly emerging in an environment of increasing vulnerabilities. It therefore becomes the norm to find fault and pass the blame even when the fault and blame are ill-founded (Boin, Hart, McConnell, & Preston, 2010).

In the aftermath of a crisis, three challenges typically face top management: the challenge of facing inquiries, the challenge of dealing with public criticism, and the challenge of coping with the resultant verdict. In facing inquiries as to how and why the crisis was allowed to progress in the first place, the leadership may choose to either stonewall (i.e., to show reluctance in providing information and explanation) or to extend full co-operation in the ensuing investigation. In between these two extremes are a good number of alternatives; a firm may feign cooperation but in actuality is withholding information and diverting the investigation. These tactics include placing a *spin* on the events, providing investigators with too much tangential information to obscure the vital ones, and so forth (Boin et al, 2010).

When dealing with the second crisis, public criticism, the top leaders of the organization may either deny they are at fault or accept the blame for the manner of crisis response. Again, the modes of alternative responses are less clear than this direct choice. Firms, for instance, may seek to preserve legitimacy by appearing to accept responsibility, but plead some mitigating circumstance or deflect the fault and instead point a finger at force majeure, acts of God, or other actors as the principal cause of the crisis. The third challenge, coping with the resultant verdicts, the management may either elect perseverance or resignation (Boin et al., 2010). The choice will impact the future of that management in the firm or even under the law, where legal ramifications are in order. Management may choose to hold out and deploy dilatory tactics in an effort to diffuse criticism and preserve a semblance of legitimacy; they may likewise argue that continuity is crucial even as the investigation on the crisis proceeds; or they may even

appear conciliatory and announce sweeping reforms purportedly to address the weaknesses that gave rise to the crisis (Boin et al., 2010).

Business Continuity

According to Osborne (2008), a number of factors are necessary to ensure the successful implementation of business continuity plans. First, the continuity effort must have the full support of senior management, most importantly the top executive of the company. This is necessary to ensure that plans do not encounter undue barriers and delays from higher levels and to enable the business continuity perspective to become integrated in the company's culture. Second, a realistic balance must be achieved between the substantial costs that may be incurred in implementing the continuity plan and the risk of not having any continuity plan at all. To attain this balance, the firm must be clear on the reason and purpose for which the firm is adopting the plan, depending upon the environment and circumstances in which it operates. There may be purposes external to the organization, such as the need to comply with industry regulation, or the desire to respond to pressure from consumers. All the benefits to be realized by addressing these concerns must be weighed against the cost they require (Osborne, 2008).

Thirdly, business continuity plans must be viewed not just within the purview of one function or department such as IT, operations, or strategic planning, but as a company-wide undertaking. The human resource department should play a central role in developing a business continuity culture in the organization, providing the staff with information, training, and the necessary framework in business continuity arrangements. Fourthly, business continuity strategists should ascertain the maximum length of time the

business will be able to survive pending the restoration of normal operations. The assessment should be made from the perspective of financial losses as well as customer retention. The business continuity plan must not sufficiently detract from day-to-day procedure; in fact, it must form an integral part of it, with a continual review process and timely testing and amendment of the plan to keep it updated. Full documentation of the plan should be conducted at least once every year, not only for managerial purposes, but also for external parties such as insurers and customers (Osborne, 2008).

The Concept of *Crisis* Distinguished from *Issue*

The term *crisis* refers to "a social, economic, technological, or natural disaster creating conditions so severe as to propel an issue onto the national agenda" and which is punctuated by "public outcry for immediate policy action" (Kurtz, 2004, p. 201). Some researchers have gone to great lengths to distinguish between issue and crisis. An issue as juxtaposed to a crisis is "a condition or event, either internal or external to the organization, which, if it continues, will have a significant effect of the functioning or performance of the organization or on its future interests" (Regester & Larkin, 2002, as cited in Jaques, 2007, p. 147). Crisis in an organization, on the other hand, is understood and accepted to be "a low probability, high impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effects and means of resolution, as well as by a belief that decisions must be made swiftly" (Pearson & Clair, 1988, p. 60).

Studies have viewed issue and crisis not as separate or parallel constructs, but as consequential –that is, the management of emergent issues is viewed as a post-crisis discipline. Issue, in this sense, looks beyond the initial short-term post-crisis response and

pertains to the long-term post-crisis scenario after business resumption and recovery of reputation (Jaques, 2009). More specifically defined, therefore, issues are unlike crises in that they are foreseeable, develop over time, and their management impacts on both strategic and tactical decision-making. Crisis management, on the other hand, is reactive, generally unexpected and unforeseeable, and develops too quickly to be addressed by strategic planning.

The Issue and Crisis Management Relational Model

Jaques's (2007) study surveyed the academic literature and developed qualitative data analytic techniques to arrive at a new relational model for issue and crisis management. He combined issues management and crisis management, perceiving that crisis events often materialize when unaddressed or poorly managed issues deteriorate. This brings crisis management out of the merely reactive, tactical scope of management, and into the area of strategic management.

The nonlinear, relational construct proposed by Jaques (2007) dealt with both issues and crisis management in terms of activity clusters interdependent upon each other in progressive stages of development. Issue management is seen in continuity with crisis management and is a component of both the pre-crisis and post-crisis phases. The theoretical framework picks up from the simple classic disaster management cycle articulated by the Asian Development Bank (ADB) in Figure 2.

Strictly speaking, disaster management and crisis management are different from each other, although they are often taken to be synonymous with each other. *Disaster* is often used in government administration to refer to adverse events affecting a generally

significant area of the national territory or the community. What is remarkable in the disaster management model developed by the ADB, however, is that the model is cyclical rather than linear; because the expected recurrence of disasters, disaster prevention, mitigation, and preparedness are never-ending. The cycle is perpetual and stresses national readiness rather than mere reaction to the occurrence of disastrous events.

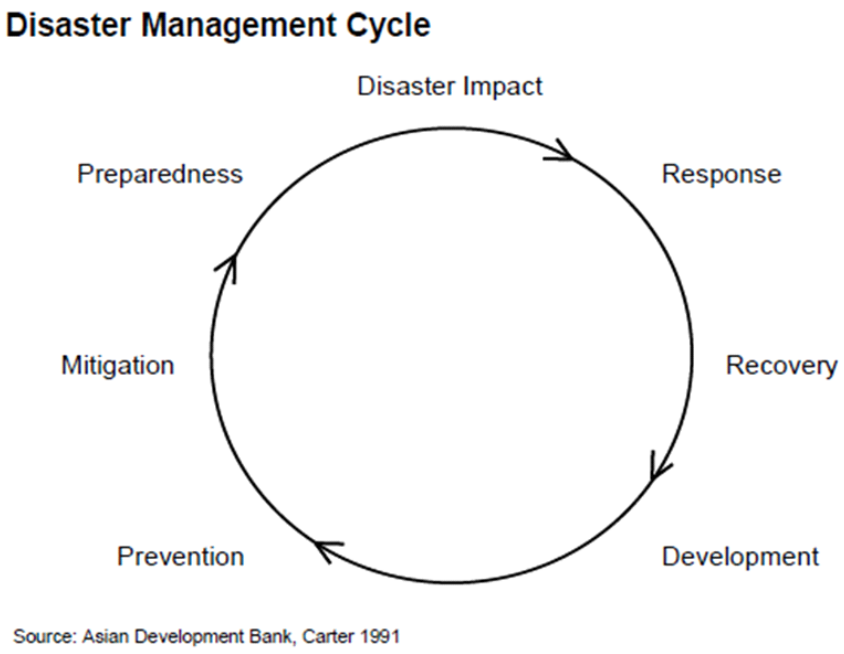

Figure 2. Disaster management cycle. From *Disaster Management: A Disaster Manager's Handbook* (p. 21), by W. Nick Carter, 1991, Asian Development Bank. Copyright 1991 by Asian Development Bank. Reprinted with permission.

This cyclical pattern of activities is adapted by Jaques (2007) into his crisis management framework, making crisis readiness a matter of strategic concern rather than maintaining a reactionary approach to addressing a crisis event. This model (Figure 1) forms the theoretical framework that guided this study, because it construes crisis management in the broadest strategic sense, rather than the mere enumeration of reactionary measures to the occurrence of a contingent event.

Crisis Communication Theory

Corporate communication is defined as "the process through which stakeholders perceive that the organization's identity, image, and reputation are formed" (Balmer & Gray, 2003, p. 972). The role and impact of corporate communication are particularly highlighted during a crisis because the quality of information dissemination reflects the strategic management skills of the firm in addressing a potential or actual threat. Such close attention directed at the company's response will naturally impact greatly in diminishing or enhancing the firm's public image. Sometimes, the impressions garnered by the public through general information channels are farfetched or misled, because ordinary people would generally attribute some fault of the crisis to the organizations or industry involved in the crisis. This tendency makes strategic and well-managed corporate communication machinery even more important to the timely preemption of potential negative publicity and protection of the company's reputation (Weber, Erickson, & Stone, 2011).

Jaques's (2007) study provided a model of crisis communication that is both broad and coherent–broad, to flesh out all activities in crisis management, and coherent, to create the logical link among these activities. Through the model, Jaques (2007) aimed to comprehensively assess the accrued effectiveness of crisis management in the industry. Other studies focused on specific aspects of crisis management, such as the strategy employed in communicating and articulating the crisis situation, and employed a more definitive, quantitative approach in establishing the direct effects of the chosen strategy on the resultant overall quality of crisis management.

Wright (2009) identified three sets of crisis response strategies, or *postures*, where each posture shares common communicative goals and focus, as shown in Table 1.

Table 1

Crisis Response Strategies by Postures

Crisis Response Strategies by Postures		
Deny postures (low concern for victims and responsibility acceptance)	Attack the accuser	Crisis manager confronts the person or group claiming something is wrong with the organization.
	Denial	Crisis manager claims that there is no crisis.
	Scapegoat	Crisis manager blames some person or group outside the organization for the crisis.
	Justification	Crisis manager minimizes the perceived damage caused by the crisis.
	Ingratiation	Crisis manager praises stakeholders and/or reminds them of past good works by the organization.
Deal postures (high concern for victims and responsibility acceptance)	Concern	Crisis manager expresses concern for the victims.
	Compensation	Crisis manager offers money or other gifts to victims.
	Regret	Crisis manager indicates the organization feels bad about the crisis.
	Apology	Crisis manager indicates the organization takes full responsibility for the crisis and asks stakeholders for forgiveness.

Note. From *Ongoing Crisis Communication: Planning, Managing, and Responding*, by T. Coombs, 2007. Thousand Oaks, CA: Sage Publications. Copyright 2007 by W. Timothy Coombs. Reprinted with permission.

Perusing the different postures and the strategies classified under them fosters the question whether some of these postures are transparent or ethical, and as such, whether they might be improper under any circumstances. The study built on Coomb's situational crisis communication theory (SCCT) such that the correct posture and strategy employed in response to the proper situation is capable of turning perceptions about organizations involved in a crisis, and thereby influencing its chances for continuity. SCCT matched the organizational response to the crisis situation, as shown in Table 2.

Table 2

SCCT Match for Crisis Situation with Recommended Crisis Response

Crisis situation	Recommended crisis response
Rumor	Use any of the denial strategies
Natural disaster	Use instructing information
Workplace violence	Use instructing information
Product tampering	Use instructing information
Product recall, technical error, mega damage; and accidents, technical error	Use excuse and/or justification
History, relationship history and/or severe damage	Use any of the deal strategies
Product recall, human error; and accidents, human error	Use any of the deal strategies
Organizational misdeeds	Use any of the deal strategies
When victims occur	Use the concern crisis response strategy in combination with other recommended strategy(ies)

Note. From *Ongoing Crisis Communication: Planning, Managing, and Responding*, by T. Coombs, 2007. Thousand Oaks, CA: Sage Publications. Copyright 2007 by W. Timothy Coombs. Reprinted with permission.

Wright (2009), however, failed to find conclusive evidence of the above-matched response approach. Wright employed a hypothetical crisis method based on a possible crisis situation with serious repercussions for the stakeholders. A survey questionnaire with forced responses was administered to the participants, for which respondents' perceptions were assigned a score according to a Likert scale (McDaniel & Gates, 1998), according to the following criteria: (a) organizational reputation, (b) crisis responsibility, and (c) potential supportive behavior. Descriptive statistics included mean and standard deviation, whereas inferential statistics used analysis of variances, including Levene's Test for Equality of Variances and the t-test for Equality of Means. Wright (2009) concluded that a matched response is not supported by the findings suggested by the statistical indicators.

Often, the importance of corporate communication as a channel for early crisis warning is underestimated, although generally acknowledged. Gupta (2011), reprising Goodman (2006), identified the following imperatives that corporate communication needs to address in order to function as an effective instrument for crisis management communication. It must achieve the need to (a) develop trust between the company and its internal and external audiences; (b) attain cost efficiency, and to implement plans within the company's available resources while achieving the necessary level of risk readiness; (c) build a global corporate culture that embodies accountability and responsibility to its stakeholders while maintaining competitiveness in its industry; (d) project the corporate communication executive as the main risk adviser to the CEO and guardian of the firm's reputation; (e) impress upon corporate leadership an appreciation

of "the global impact of the local act, and the local impact of the global act" (Gupta, 2011, p. 58); (f) attain a higher level of transparency and disclosure, and to develop media relations that have become increasingly complex and strategic; (g) achieve the concurrent yet conflicting goals for the company to become a model corporate citizen while maximizing profits for the shareholders; (h) address the possibility that global terrorism may threaten the organization, particularly in certain sensitive and vulnerable industries, and explore how this may be dealt with; and (i) promote transparent and ethical practices as the key strategy for reputation management.

The Center for Disaster Control and Prevention (CDCP) has identified 12 essential elements of a complete crisis communication plan, and formulated a nine-step approach to crisis communication. They are briefly explained here to provide this study with a practical viewpoint on the implementation of a crisis communication program. The CDCP's list of essential elements of a crisis communication plan specified the inclusion of: (a) signed endorsement from the director, CEO, or top management to establish from the beginning that the plan to be undertaken has the backing of executive leaders; (b) designated staff responsibilities to ensure that everyone is apprised of their roles; (c) information verification and clearance/release procedures that all pieces of information have to undergo prior to release in order to eliminate the chances that unverified and false information might be released to the public or audience with disastrous consequences; (d) agreements on information release authorities; (e) media contact list to ensure that none of the important channels are left out, and that information is disseminated quickly, accurately, and equitably among the media outlets; (f) procedures to coordinate with

public health organization response teams in order to ensure smooth and accurate flow of information while eliminating irritants and false sources; (g) designated spokespersons to ensure that information is provided by a competent and authorized individual, outside of which media and other channels should be cautioned against entertaining as a credible source; (h) emergency response team after-hours contact numbers in order to facilitate expedient notification; (i) emergency response information partner contact numbers in order to ensure fast communication; (j) partner agreements with strategic support groups nationwide and in the community; (k) plans and procedures on how to source and obtain the needed resources; and (l) pre-identified vehicles of information dissemination. Figure 3 shows the Nine Steps of Crisis Response as formulated by the CDCP:

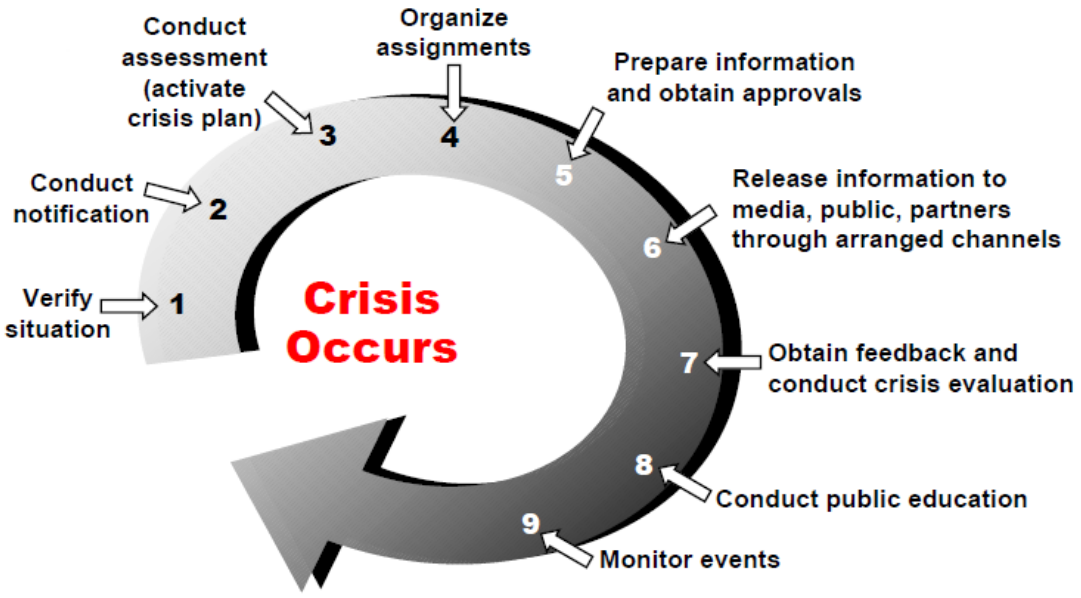

Figure 3. Nine steps of crisis response. From "Crisis communication Plan," (p. 1), Center for Disaster Control and Prevention. Copyright CDCP. Reprinted with permission.

The first step, system verification, requires the crisis manager (CM) to obtain the facts and assess their validity based on the source of the information. He/she must likewise confirm the plausibility of the information with an expert on the subject matter and try to determine the magnitude and severity of the crisis event. Next, the CM must conduct notification (referring to the chain of command) and coordination (with response peers and partners). For every political jurisdiction and authority level, a different procedure must be presumed. The third step is to conduct a crisis assessment and the activation of a communication plan. Included in the assessment is impact analysis on the communication operations and staffing as well as a determination of the organization's role in the event. At this point also, media and Internet monitoring should be activated, and the affected population identified together with its initial communication needs.

The fourth step, organizing assignments, is a constant and ongoing process that requires the CM to determine and coordinate with the person in charge of the overall emergency response, to make assignments for communication teams, to continually evaluate resource needs and hours of operations, to ask ongoing organization issues and questions, and to initiate partner involvement. The fifth step is to prepare the collated information and obtain the necessary approvals. This is done by developing the message the CM would want to send out, identifying the target audiences, determining what information media might want to know, stating exactly what the organization's response should be, identifying action steps for the public, executing the approval process for the plan, and most importantly, conveying empathy to those who are most affected by the crisis event.

The sixth step is the release of information to the public. The CM should select the channels appropriate for the communication and apply them simply, timely, accurately, repeatedly, credibly, and consistently. Upon the release of public information, the CM should continue to monitor for feedback, to execute the planned steps with the stakeholders, and then reassess these elements throughout the unfolding of the event. The seventh step is to obtain feedback and conduct crisis evaluation that includes an assessment of the crisis response, receiving and evaluating the feedback from the target audience as well as the coverage of the media, conducting a hot wash, developing a SWOT (strength-weakness-opportunity-threats) evaluation, then sharing these assessments with the leadership and revising crisis plans as may be considered necessary.

The eighth and ninth steps are conducted as post-crisis activities, immediately after the height of the danger has passed. A public education forum should be established to highlight any public health issues related to the crisis event. The education thrust should also take into account that segment of the public that had not directly been involved in the crisis but show a material interest in its development and outcome. This is also the stage when the documents and materials pertaining to the crisis should be collated and organized, and eventually institutionalized as a source for future information. The final step, monitoring events, is actually an activity that should be conducted throughout the different crisis stages. This step involves monitoring media and Internet information channels and assessing their possible impact, exchanging information with resource partners, and monitoring public opinions and sentiments.

Corporate Crisis and Its Effects on Corporate Reputation

Crisis communication management should likewise take into account information that should be gathered from and conveyed to people who are not involved in the crisis, but who have an interest, even if it be a human interest, in the crisis, and that public opinion about how the crisis and its management were perceived. In crisis communication, the necessity of meeting these expectations is crucial for the post-event recovery of the organization. Aside from meeting natural disasters and calamities, business organizations should also respond to corporate crises and how they affect the reputation of the organization.

Corporate crisis is "the unexpected, non-routine event that creates uncertainty and threatens an organization's legitimacy" (Seeger et al., 1998 as cited in Weber et al., 2011, p. 36). Although the event may have started out as generally benign to many observers, it may quickly develop into a source of psychological and financial harm to stakeholders, including employees, customers, suppliers, and most especially shareholders (Coombs, 2007). The harm caused by corporate crises usually stems from a persistent and magnified form of negative publicity that has the capability of harming the organization's good name and standing. The public's perception of the corporation is formed by the information that is projected in the broadcast and print media and the Internet, particularly informal comments that may proliferate in the social networks. Media coverage and Internet monitoring are therefore vital features of reputation management (Weber et al., 2011). Corporate reputation, though intangible, is nevertheless a valuable asset with real-world implications that "attract[s] customers, generate[s] investment

interest, improve[s] financial performance, attract[s] top employee talent, increase[s] the return on assets, create[s] a competitive advantage, and garner[s] positive comments from financial analysts" (Coombs, 2007, p. 164). The protection of corporate reputation should therefore not be treated as a trivial or random matter.

Crisis Communication: Implications of Online Connectivity

Today, more than one-fourth of the world's population, or more than 2 billion people, have access to the Internet. Asia leads with more than 1 billion users, Europe follows with slightly over 500 million, and North America is third with almost 300 million Internet users (Internet World Stats, 2012). The speed and geographical reach of this communication multi-medium as well as its interactive capabilities introduces "new potential scenarios to plan for, and new forms of power configuration in the communication model" even while the basic goals and principles remain the same for the crisis management approach (Gonzalez-Herrero & Smith, 2010, p. 99).

The influence of the Internet has changed the way crisis situations are analyzed. Two types of crisis scenarios exist, the traditional and the unconventional. Traditional crisis situations have been occurring over decades even before the Internet was created, and therefore systems and methods are already established in dealing with them. With these types of events, the Internet performs the role of catalyst by accelerating the crisis news cycle and providing "a new and viral dimension" (Gonzalez-Herrero & Smith, 2010, p. 99). However, the impact of the Internet, although still important, does not change the basic crisis elements except to speed it up.

The other type of crisis is the new or unconventional events that owe their creation to the existence of the Internet itself. Under this type may be classified spoof sites, rumors, hacking, shadow or copycat web sites, web security breaks, and all forms of cyber-terrorism (Gonzalez-Herrero & Smith, 2010). This particular crisis event has the potential of creating a great deal of reputational damage to the firm in such a short span of time, and any underestimation of a potential issue in the Internet could quickly escalate if not directly addressed and dissipated early on. Unlike mass media prior to the web, social networks on the Internet today follow a many-to-many communication model. Crisis managers today must therefore be aware of the new environment characterized by:

Instant audience access to information. Most electronic communication devices are personal handheld models which people carry around with them all day, allowing information to be literally at their fingertips.

Highly fragmented stakeholders because of the wide choices of mass media available. Stakeholders are no longer limited to newspapers with information that may have gone stale, or television and radio broadcasts which are programmed to promote the networks' views and advocacies. A wider choice means a more diverse set of viewpoints from which the public may draw a more balanced opinion.

Quick accessibility and mobilization. Participants in social networks who are "active" about an issue can have easy access to each other and mount a concerted effort against organizational interests quite easily. Though fragmented, the public is empowered by near instantaneous and easily accessible information to quickly organize into mobile groups.

Redefinition of the role of mass media. Traditional media used to perform the function of "gatekeeper" of public opinion – that is, the manner in which information is packaged and disseminated. This used to have a filtering effect (although unintentionally) in the reportage because reporters will interpret the facts and convey them as they see it. Information considered by media reporters to be unimportant will receive little or no attention in the reports. In the Internet and social networking, on the other hand, a confluence of even the minutest information exists about the seemingly unimportant matters, leaving it up to the public to judge for themselves what is credible and what is not (Gonzalez-Herrero & Smith, 2010).

Crisis Leadership

A marked distinction exists between leadership as a general attribute and crisis leadership. The good leader is one who could envision the goal of the firm and effectively motivate his or her followers toward that goal. In comparison, the good crisis leader is one who employs knowledge and skills that exceed those needed to address day-to-day concerns and is always prepared for the unknown (Muffet-Willett & Kruse, 2008). Crises are not elements that could be planned for in the manner that regular operations can be forecasted, scheduled, and provided for in the regular sense. Regular activities require a different set of competencies than those demanded by crisis management. Managers who would normally prove effective leaders in the firm's operations may be entirely out of their element in a crisis situation, and vice-versa.

Figure 4 shows the crisis leadership continuum and the types of situations that confront the leader under various degrees of urgency. The irony here is that the most

effective risk management programs are those that make crisis management obsolete (if only such could be achieved) because crises would theoretically be prevented from developing or even beginning because of prevention and mitigation efforts. The nature of crises is to have some element of unpredictability, and so crisis preparedness could never entirely be discounted (Muffet-Willett & Kruse, 2008).

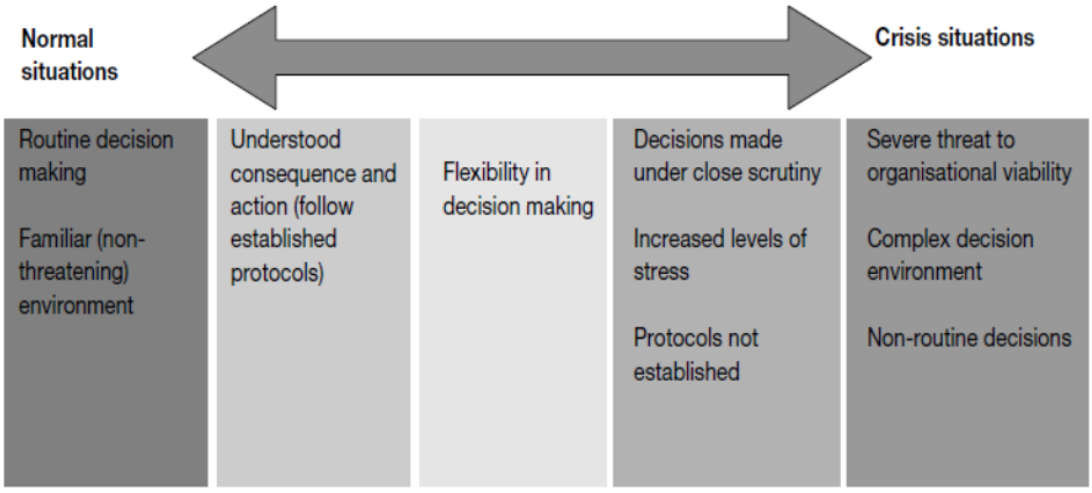

Figure 4. Crisis leadership continuum. From "Crisis Leadership: Past Research and Future Directions," by S. Muffet-Willett and S. Kruse, 2009, *Journal of Business Continuity & Emergency Planning, 3*(3), p. 255. Copyright 2009 by Muffet-Willett, S., & Kruse, S. Reprinted with permission.

One of the more contentious aspects of crisis leadership that affects organizations is the post-crisis blame games (Boin et al., 2009). Two factors are determinative of the outcome of blame games, namely: (a) the degree to which the blame for the poor management of a crisis is attributed to the leadership and (b) the blame management behavior of leaders during the crisis and in response to crisis inquiries. The development of the correct attitude and behavior among crisis leaders is as important as, if not more so

than, the planning and strategizing that are devoted to meeting organizational contingencies.

Structural Implications of Crisis Management on the Organization

A novel perspective was forwarded by Gumbs and Qian (2012) when they observed that a well-managed crisis serves not only the aversion of the danger, but also an opportunity captured. More and more, risk management structures are becoming integrated with corporate governance structures, prompting boards to devote attention to crisis management and to arrive at ways and means to respond to risks that cannot be eliminated.

Table 3 provides an illustration of how a risk management structure is adopted at the board level and down through the organization. Formerly, the board of directors would concern itself principally with the general policy formulations and leave the detailed planning to management. A study conducted among New York CEOs found that "insufficient transparency about risk taking" was the primary corporate governance concern at their firm ("CEOs Feel Pay," 2010, n.p.). With the greater accountability mandated by corporate governance and ethical business, the board now involves itself in the systematic coordination of disaster control and risk management. More than the mere social impetus towards increased corporate governance and responsibility, corporations in the U.S., particularly those that have been receiving Troubled Assistance Relief Program (TARP) assistance, have to comply with legal requirements to undergo an annual review of risk management policies. The purpose of board of director's (BOD) involvement in

Table 3

Example of Risk Management Structure

Board of Directors							
Committee	Technology (if applicable)	Audit			Finance (if applicable)	Nominating and Governance	
Management	IT	Security	Legal	Operations	Finance	Human resources	Marketing Communications
•Risks	•Cyber attack • Data breach • IP theft/loss	• Cyber attack • Data breach • Domestic or foreign terrorism • Crime	• Products liability (recall) • Environ-mental disaster • FCPA/ Bribery • Extortion • Insider trading • Other civil or criminal liability for employees	•Products liability (recall) •Health and safety •Natural disaster •Environ-mental disaster	• Credit • Liquidity • Counter party	• Succession planning • Accident or death/health issues of leader • Scandal • Criminal conduct • Fair Labor Standards Act	• Reputational loss • Outrage on social media

Note. From *Ongoing Crisis Communication: Planning, Managing, and Responding*, by T. Coombs, 2007. Thousand Oaks, CA: Sage Publications.

risk management structures is to adopt a holistic approach in risk oversight and to internalize risk management not as a separate function, but as an integral part of the operational and governance structure of the company.

In a BOD crisis structure set-up, it will be the responsibility of the board to address the likelihood of risks that cannot be completely mitigated or eliminated, some of which include: a product recall for possibly defective goods that have reached the market, particularly in the pharmaceutical or consumer goods industry; a breach of data integrity or security measures in companies that deal with large amounts of sensitive information on customers, such as credit card companies, banks, or other financial institutions; theft of or compromise of the integrity of crucial intellectual property for companies for which IP is a critical aspect of their business, such as in biotech research and development; the unexpected illness or death of a key corporate leader perceived as the indispensable source of company success, such as Steve Jobs for Apple; and the occurrence of a significant environmental catastrophe related to company operations with profound effects on the environment, such as large-scale mishaps in mining companies and leakages or spills in the oil and gas industries.

The involvement of the BOD is expected to ensure that a high level of commitment to crisis management plans exists for each type of key risk as listed above. This would have the advantage of early deliberation and consideration of the scope and potential impacts not only throughout the entire organizational structure, but on the community as well. A comprehensive plan would include not only meeting the crisis that

is current, but mitigating and avoiding a recurrence of the same in the future (Gumbs & Qian, 2012).

Low Probability, High Consequence Events

Although the Exxon and BP incidents were of such magnitude that outsiders wonder why these companies had not prepared for such a contingency before it happened, it appears that "preparing for and responding to oil spills is difficult because they are extremely rare events with impacts far greater than those experienced during most routine emergencies" (Harrald, Marcus, & Wallace, 1990, p. 16). This is an event that may be described as low-probability, because the event is deemed extremely rare, and yet when it happens the repercussions are far beyond those normally encountered by the more common mishaps in the industry. One may liken this to air travel safety; although accidents are much less frequent in the air than on the road, the number killed in any one airplane crash is much higher than any one road accident, and the imminent certainty of all passengers dying in a plane crash impacts more dramatically on the public (*Daily Mail Reporter*, 2011). Another similar incident is nuclear accidents similar to the Three Mile Island incident (Walker, 2006). The problem, therefore, lies in planning for the avoidance of the risk that a single, rare incident is to occur, when the likelihood is that it may never occur at all. But, if just one such event did take place, the consequences are certain to be of such magnitude that the precautions taken, disproportionate as they may seem to the risk at that time, would have been all worthwhile in hindsight.

Public reaction to such low-probability, high-consequence events is fickle. Prior to the occurrence of such an incident, very few people would even think about such

events taking place because they simply rarely do. When the event does occur, the magnitude of its consequences impact spectacularly on the evening news broadcast (now on the online social networks). The event is thrust so dramatically into the viewers' homes as to immediately create a public outcry against those with the knowledge and expertise to prevent it, yet did not. At that point, media and politicians take advantage of the intense public interest to draw as much following as they can for as long as they can. After some time, if the incident does not recur, then the interest in it dies down quickly and is soon relegated to the back of people's minds, if such is remembered at all (Harrald et al., 1990). If the event does recur and, worse, if it does so repeatedly, then this would be sufficient to permanently damage the brand and diminish loyalty to it. For obvious reasons, this is called "the politics of risk" (Wenk, 1986).

Assessment of the Crisis Prevention and Management System: The Exxon Valdez

The Exxon Valdez became the subject of international notoriety when it ran aground on Bligh Reef on March 24, 1989, rupturing eight cargo tanks and causing the spillage of 10 million gallons of crude oil. At the time of the incident, there were calm seas and clearly marked maps, precluding the chances of weather disturbances and poor visibility as cause for the accident. At the helm was uncertified 3rd Mate Gregory Cousins; Captain Joseph Hazelwood was reported to have earlier been drinking heavily and was resting at the time of the accident (Smith, 2007). The oil polluted the waters surrounding Prince William Sound and cost more than $2 billion to clean up and restore, but the legal troubles of the company did not end there, as it faced lawsuits amounting to several more billion dollars in claims for damages. Although the physical harm to the

environment is itself a crisis of gigantic proportions, the subsequent financial costs not only from the lawsuits, but in lost revenues due to bad reputation, threatened the continuity of the business itself. This is a case in which a crisis is dovetailed by an issue that results from it, and the combined adverse effects of both create a real threat upon the organization (Jacques, 2007).

In a subsequent study of the Exxon Valdez oil spills, there were several problems identified, the most important of which are that decision making early in the response effort was limited by the inadequacy of planning as evident in: (a) the lack of immediately available response resources and (b) the failure to anticipate the decisions and actions required by a major incident, resulting in the absence of information and decision aids to support these actions. The necessary computer technology was not yet available at that time, with which it would have been possible to track resource allocations, clean-up progress, availability of critical key personnel, and spill movement–which are all available today, two decades after the Exxon Valdez disaster–and which would have greatly enhanced decision making (Harrald et al., 1990).

Beyond the immediate problems that contributed to the exacerbation of the Exxon Valdez crisis, the following issues were identified that were considered material in the prevention and management of maritime crises:

Externalities, particularly the role of the federal and state government. The environment in which ocean carriers operate are replete with uncertainties due to the existence of external factors beyond their control, but which nevertheless affect their operations. For instance, the US Coast Guard operated the vessel traffic systems, or VTS,

which affect the manner in which a vessel enters a limited number of ports. Foreign governments have different systems for handling ship safety functions from that of the U.S. One would doubt that all these externalities are properly coordinated to ensure the safety of the vessel (Harrald et al., 1990).

Vessel safety. Elements of safety encompass such concerns are ship design, construction of the vessel, crew training, licensing, and manning standards, pilot licensing, and the proper installation and use of safety devices whether on ship or shore. The safety standards may be active or passive, or internal or external, and may be classified as to intent (i.e., the purpose for which such standards are designed to be used). All these elements provide opportunities by which safety improvements may be explored (Harrald et al., 1990).

Contingency planning. The state (i.e. Alaska, in this case) as well as the federal government, receives substantial economic benefits as a result of oil drilling, pipeline construction, and oil exploration. The responsible persons in authority overseeing the approval and construction of these projects did not foresee, in the case of Exxon Valdez, that a massive oil spill is imminent or that the likelihood of any occurring is high. In effect, in light of the nation's great dependence on oil and the unlikely chance associated with the oil spill, society has in effect accepted the inherent risks and possible damage to the environment that this prospect involves. Deficiencies in the plan which had been obscured even to policy makers became evident only after the incident had occurred and the full implications of the resulting consequences (Harrald et al., 1990).

Response tactics. During the occurrence of the oil spill, a window of response opportunity opens lasting only 72 hours within which the oil may mechanically be removed from the water's surface. During this time, the use of dispersants and burning techniques may also easily be resorted to at the leading edge of the oil spill. The window of opportunity in the case of Exxon Valdez unfortunately ended with the arrival of a storm that emulsified the oil. Even after the oil was emulsified, a second window of lesser opportunity followed that, lasting for a week, wherein a significant amount of free-floating oil may still have been mechanically removed, and preventive booming may have been done. Unfortunately, both these windows of opportunity were not taken advantage of because of the extreme inadequacy of the resources necessary (booms, burning agents, dispersants or skimmers) to conduct the physical retrieval of oil from the water's surface. Other than lack of resources, there was also a lack of coordination among the industry, state, and federal organizations (Harrald et al., 1990).

Beach cleaning and environmental impact. In the case of Exxon Valdez, unfortunately many of the actions that were taken to clean the beaches were themselves likely to have contributed more to the negative impact on the environment. The technology or procedures used during the beach-cleaning in Alaska were unfortunately developed from techniques derived from other industries, and were not well thought out, given the shortness of the time. Very little surface oil was removed with the use of the high temperature, high pressure, hot water applied ten or twenty times, but it had affected the micro-organisms that thrived in the tidal zone. The disruption of their habitat by clean-up crews (who numbered 10,000 individuals and hundreds of boats and planes)

caused a generally negative impact on the bird and marine mammal population in the area (Harrald et al., 1990).

Waste management. The result of the Exxon Valdez incident was that of tens of thousands of tons of oil-soaked material – such as seaweeds and floating logs–needed to be disposed of. Much of the materials were biodegradable; they were put into plastic bags and taken to Arlington, Oregon, where one of only two existing hazardous waste landfills in the US Pacific Northwest may be found. Towards summer's end, the government permitted for some of the material to be incinerated on barges.

From the lessons learned during the Exxon Valdez clean-up, several possible avenues exist to explore in lieu of unnecessarily utilizing the hazardous waste landfills which is a valuable but scarce national resource. The Environmental Protection Agency (EPA) could develop a set of regulations to apply in ocean incineration, a course of action which has been under study for several years but about which little is being done. Federal guidelines on other alternative procedures, as well as scientific inquiry into the effect salt water may have on oily waste and the development of biodegradable bags, would immensely contribute to the crisis response readiness in the case of a large oil spill (Harrald et al., 1990).

Communication of technical information. Fortunately, during the Exxon Valdez the availability of multi-media communications equipment was not a problem, while Exxon, the government agencies involved, and local groups documented the event through videotapes and brochures that were effective in disseminating the message. What is unfortunate is that of all the informational material on the scene, none of them involved

printed instructions on the proper use of the burning agents or dispersants being used in the clean-up operations. Vital technical information which the public should have been made aware of were not disseminated in a way that is would be better understood by non-technical people, as well as other explanatory materials, despite the fact that the perception of the public could greatly influence the key decisions (Harrald et al., 1990).

Risk reduction and response system degradation. During the construction of the pipeline there were response and risk-reduction systems installed, but which had not been implemented or which have suffered degradation through the years. Alyeska, the locale in Alaska where the pipeline is located and where the spill occurred, had through the years reduced its full-time staff dedicated to pollution-response, and which duties were assigned to other workers as part of their collateral responsibilities. The state allowed the re-assignment, provided that the contingency plan of Alyeska is revised accordingly and response drills are increased. Alyeska reneged on these requirements and never established sufficient capability to effectively carry out skimming or storing of skimmed oil. Likewise, the Coast Guard failed to establish a system that can reliably monitor ships while they were in the shipping lanes in Prince William Sound, despite having reduced its VTS watch from two technically competent individuals to only one (Harrald et al., 1990). Figures 5 and 6 show ecological damage of the Exxon spill.

Figure 5. Exxon oil spill site. Copyright 1989 by the Office of Response and Restoration, National Ocean Service, National Oceanic and Atmospheric Administration. Reprinted with permission.

Figure 6. Volunteers cleaning up the oil spill. Copyright 1989 by the Office of Response and Restoration, NOS, NOAA. Reprinted with permission.

Aside from the foregoing points raised by Harrald et al. (1990), Calloway and Keen (1996) likewise scored a critical shortcoming of the Exxon Valdez crisis response effort. The speed of crisis response was found terribly wanting, despite the fact that fast crisis response is the key to minimizing damage and injury and exponentially increasing the chances for a quick recovery. Even its crisis communication system was inexcusably slow in sending out vital information about the incident, making Exxon appear likewise slow and indecisive in addressing the crisis itself. The improved speed and quality of data transmission and information communication caused the public's perceptions of the slow response to a crisis to create a strong negative impression of the firm that affected the perceived credibility of its future pronouncements.

Figure 7 shows the comparative response times of CNN in reporting the Exxon Valdez incident, and that of Exxon in responding to the news being reported about it. The stages of the development of the crisis are specified, and the points during this development at which Exxon and CNN were able to bring out their reports are pointed out. The greater comprehensiveness and speed of the CNN report vis-à-vis that of Exxon created the impression that "The media had just-in-time technology and used it, and the management of Exxon did not" (Calloway & Keen, 1996, p. 21). This was because Exxon management was dependent on the wire services for its information instead of gathering the information first hand through its own resources, then releasing its own timely statements to the wire services (Calloway & Keene, 1996).

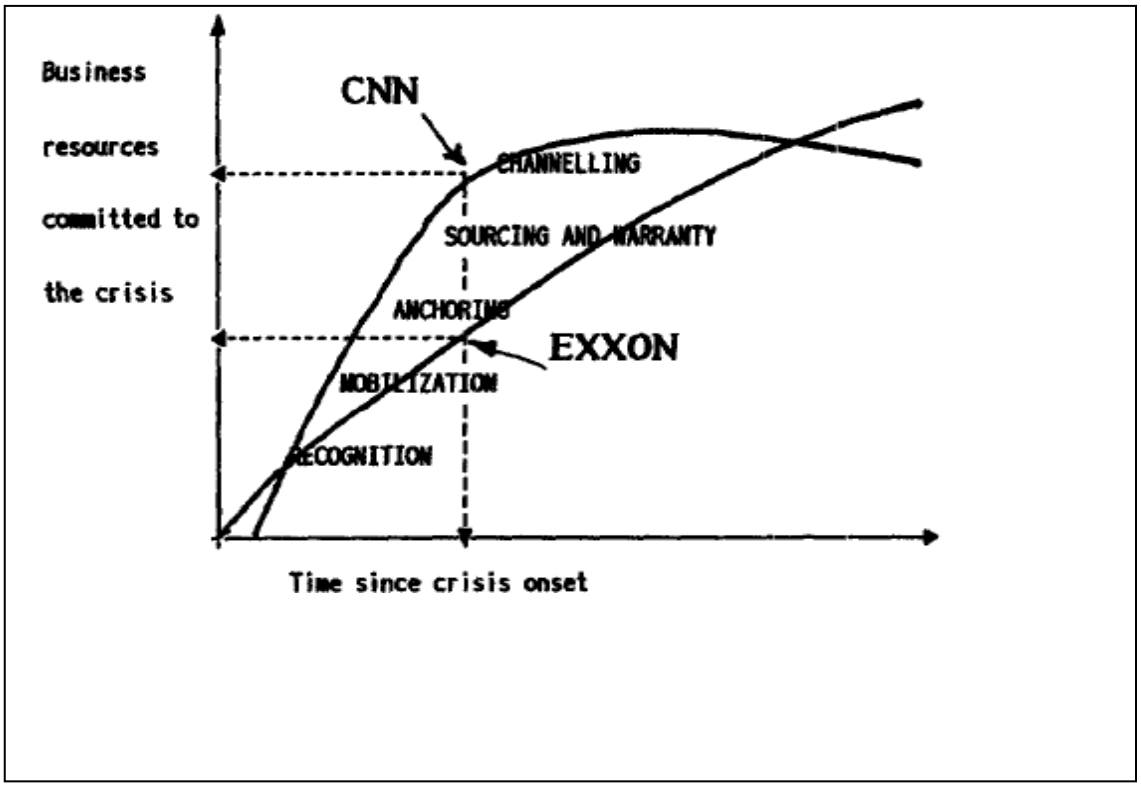

Figure 7. Comparison of Exxon and CNN responses to the Exxon Valdez crisis. From "Organizing for Crisis Response," by L. J. Calloway and P. G. W. Keen, 1996, *Journal of Information Technology, 11*(1), p. 21. Copyright 1996 by L. J. Calloway and P. G. W. Keen. Reprinted with permission.

Lessons learned from the Exxon Valdez oil spill in 1989 led to the passage of unprecedented statutory laws. The Oil Pollution Act of 1990 (OPA 90) was hailed as a landmark legislation that boldly exceeded the scope of earlier laws. The new law increased accountability on the part of the company by raising the maximum strict liability penalty by more than eight times over. For an oil spill the size of that in the Exxon Valdez incident, the penalty was increased from $14 million to $100 million. The spiller liability has been expanded to include the cost of clean-up, damage assessment, loss of resources, and the costs to local governments. In order to set up a $1 billion

liability trust fund for oil spills, a fee is imposed on all oil produced or imported into the US amounting to 5 cents per barrel. The phase-in of double-hull tankers was mandated, and shippers became required to formulate their own spillage contingency plans and to secure the approval of the Coast Guard on these plans. Vessels entering U.S. ports are now required to obtain spill liability insurance, and the use of tanker escort vessels and pre-positioned clean-up equipment was mandated (Kurtz, 2004).

Consistent with the earlier discussion on low probability, high consequence events (Harrald et al., 1990), the passage of the OPA 90 was attributable in part to "the aggressive participation of industry-hostile agencies, interest groups and citizens. Fuelling this was a heightened level of media interest persisting for several years after the spill" (Kurtz, 2004, pp. 211-212).

The long-term interest in the Exxon Valdez incident continues even 20 years after its occurrence. In 2009, the World Wildlife Fund (WWF) released a report detailing the developments since 1989. Entitled *Lessons Not Learned*, the report identified weaknesses leading to the Exxon Valdez oil spill that have not been addressed since the incident. The report noted the enactment of the OPA 90 as a positive development as well as the creation of the Oil Spill Liberty Trust Fund, a contingency fund that covers spill-related costs of various types. Improvements have also been made in the safe navigation of tankers in Prince William Sound (in Alaska, the site of the Exxon Valdez spill). Satellite monitoring has been expanded by the U.S. Coast Guard (USCG), which also required that each tanker leaving the Sound be accompanied by two escort vessels. Criteria have also been established about how safe the weather would be for navigation. Specially trained

marine pilots board tankers to help navigate the ships through the Sound. Spill drills are held annually, and equipment that enhances spill responses is more readily accessible (*Oil Spill Intelligence Report*, 2009).

Despite these measures, which have successfully mitigated oil spill incidents since 1989, the WWF has argued that the Arctic regions might be more vulnerable. This is because the extreme weather conditions and the remoteness of the Arctic tend to create obstacles to a quick response, thereby resulting in a "response gap" that cannot be easily addressed by creating new laws or pursuing technological advances (Cowling, 2011, p. 1). The authors of the *Oil Spill Intelligence Report* (2009) observed that although 20 years have passed, the material conditions that led to the Exxon tragedy (i.e., "the lack of natural light, extreme cold, moving ice floes, high winds and low visibility") continue to hamper spill response capabilities and operations and render them ineffective (Cowling, 2011, p. 1). Lack of safe harbors, infrastructure, and the distance to USCG stations continue to challenge the expedient storage and deployment of oil spill response equipment, provision of lodging and food for rescue teams, and other logistics. Creating further pressure on the situation is the increased activity in oil and gas exploration, which has a tendency to increase tanker traffic, as well as the effects of climate change such as melting of sea ice that creates wider areas of and longer periods in the open water (*Oil Spill Intelligence Report*, 2009).

The WWF therefore urges the adoption of the following measures:

Protection of "No-Go" Zone. "No-Go" zones are areas designated as particularly sensitive and productive ecologically, and which should therefore be off-limits to oil and

gas development activities. The WWF identifies three areas to date, namely Bristol Bay (Alaska) also known as "America's fish basket," parts of the West Kamchatka shelf in Russia, and the Lofoten Islands in Norway.

Declaration of a moratorium on new development. A time-out should be called on new development in the Arctic in order to allow time to close the oil spill response gaps.

Assessment of Spill Response Gaps. The persistence of spill response gaps should be studied and analyzed so that possible solutions may be developed. These studies should be required for incorporation into the feasibility studies for oil operation and contingency planning.

Assessments of Comprehensive Risk. States in the Arctic region that are particularly vulnerable (United States, Canada, Denmark, Finland, Iceland, Norway, Russia, and Sweden) should regularly evaluate the risks of stressors posed by climate change, petroleum development, shipping, and other industrial activities. An Arctic-wide spill response agreement should be adopted wherein the countries commit to share information, technologies and equipment to improve spill response capability.

Community engagement and stakeholder involvement. Activities should be adopted aimed at harnessing the active cooperation and resources of the community in improving spill response. Engaging stakeholders towards this end exponentially increases the chances for successful oil response operations.

Implementation of a Comprehensive Conservation Planning. Permanently protected areas must be determined through the use of spatial planning, after adoption of

the proper criteria based on the biodiversity, health, and functioning of ecosystems in the countries within the Arctic region.

Adoption of internationally binding regulations. A multilaterally agreed-upon set of rules and standards on oil extraction, development, and transportation should be committed to and implemented in the different Arctic countries. Included among the standards are those specifically pertaining to oil spills impacts, and long-term effects on ecosystems, society, and the global community (*Oil Spill Intelligence Report*, 2009).

Today, 20 years after the incident, the long-term effects are still manifesting in aspects not previously anticipated, as researchers continue to find pockets of oil that had been absorbed into the ground. Digging holes in the general area of the spill is likely to turn up small quantities of oil that remain highly toxic. Otters remain to be particularly endangered by the oil pockets because these animals, and other burrowing species, survive by seeking out pits and drawing their nourishment from the soil. This is the likely reason why the otter population has still not recovered, as well as the ducks and a species of herring adversely affected by the ground soil.

Assessment of the Crisis Prevention and Management System: The BP Gulf Oil Spill

On April 20, 2010, British Petroleum's Deep-Water Horizon drilling rig located in the Gulf of Mexico suddenly exploded, killing 11 people and injuring 17 others. The blasted rig released roughly 4.9 million barrels of oil into the Gulf. According to the official U.S. government report, there was no one action or inaction that caused the accident, but "multiple companies, work teams and circumstances were involved over time . . . a complex and interlinked series of mechanical failures, human judgments,

engineering design, operational implementation and team interfaces" ("Who's Blamed," 2010, n.p.). Among the entities cited by the report and their actions that have contributed to the rig failure are reported as follows:

Transocean (the rig's owner) – Transocean's accountability is that of the blowout preventer, a safety valve which was designed to intervene when pressure at the wellhead threatened a build-up. According to the report, six leaks were discovered in the blowout preventer's hydraulic system which caused it to malfunction. The investigation pointed out that there were no indications that the system had been tested at the surface before such was deployed in the well, contrary to Transocean policy ("Who's Blamed," 2010).

Halliburton (cement provider) – One day prior to the rig's explosion, cement was pumped into the drill column of the well to prevent the entry of hydrocarbons from the reservoir. The report found that there existed "weaknesses in the cement design and testing, quality assurance and risk assessment" and opined that had "improved engineering rigor, cement testing, and communication of risk" been better observed by Halliburton, these flaws could have been easily identified and the accident prevented. That being said, despite Halliburton's error, BP staff based in Houston could also have exercised greater diligence and raised awareness of the matter before installation ("Who's Blamed," 2010).

Transocean and BP (the well owner) – The results of a "negative pressure test" conducted to test the mechanical barriers was faultily assessed by Transocean rig crew and BP leaders who were then on the site, who incorrectly gave it a clean bill of health by declaring the test successful and the well secure (Who's Blamed," 2010).

The Transocean rig crew and the "mud loggers" of Halliburton Sperry Sun – The crew members failed to carry out important monitoring of the well for more than seven hours, because they were distracted by "end-of-well activities." The well became "underbalanced" when the crew poured seawater into it instead of heavy-drilling mud, thus enabling gases to pass through the blowout preventer. This influx of gases was not detected for 40 minutes, allowing hydrocarbons to flow quickly through to the surface and mud to flow uncontrollably to the rig platform. These series of events could have been prevented if the blowout preventer had been earlier closed and sealed around the drill pipe; gases would not have entered the pipe (i.e., the riser), and there would have had been any build-up to lead to an explosion (Who's Blamed," 2010).

Gases had accumulated and moved onto other areas of the rig where the risk of explosion was greater, and where heating, ventilation and air-conditioning systems introduced the gas-rich mixture into engine rooms on the Deep-water Horizon. "The surface facilities were overwhelmed with the volumes of fluids and gas, which resulted in the explosions and fire" ("Who's Blamed," 2010).

While investigations are still underway concerning the full extent of the aftermath of the oil spill, the White House Oil Spill Commission (2011) expressed conviction that the cost-cutting measures adopted by BP and its partners Transocean and Halliburton were responsible for the series of events that led to the malfunction of the blowout preventer, escape of gases into the engine rooms, and the eventual explosion of the rig that released millions of gallons of oil into the waters of the Gulf of Mexico. Figure 8 shows the explosion at the BP's Deepwater Horizon oil rig.

'On April 20, 2010, BP's Deepwater Horizon explosion in the Gulf of Mexico killed 11 oil rig workers, injured 17 others and released about 4.9 million barrels of crude oil for three months into the ocean. This disaster devastated the Gulf region's economy, and threatened—and continues to threaten—the health of its residents and the environment' (Ecowatch, 2012).

Figure 8. BP Deepwater Horizon oil rig and spill site. From "BP Covered Up Blow-out Two Years Prior to Deadly Deepwater Horizon Spill," by G. Palast, 2012, p. 1. Copyright 2012 by Greg Palast and EcoWatch.org. Reprinted with permission.

According to a report by the *Telegraph* (2011), the oil commission found that the cause of the explosion of the Deep-Water Horizon rig was not merely accidental, but systemic and negligent on the part of BP and its collaborator companies. Without implying intent on the part of the companies, the commission found that the critical decisions that eventually increased the risk of blowout "clearly saved those companies significant time (and money)" (*The Telegraph*, 2011). This finding seems to lend credence to reports from industry and academia since the early 2000s, which warned of "increasing risk of deep-water blowouts, the fallibility of blowout preventers, and the difficulty of stopping a deep-water spill after it started" since the method for preventing

blowouts did not keep pace with the rate at which deep-water oil wells were being drilled (Bourne, 2010, p. 22).

Several insights have been garnered as a result of the BP oil spill, partly due to its high profile impact and the duration of time it remained unresolved, causing the company and the U.S. government a great deal of embarrassment (*EU Times*, 2012). Russian scientists aboard the Gepard Akula II conducted a survey of the BP oil spill site in the Gulf of Mexico, and warned that the after effects of the oil disaster were "beyond catastrophic" (Schleifstein, 2012, n.p.). A report by *Ecowatch* (Palast, 2012a) stated that two years before the Deep-Water Horizon BP oil disaster of 2010, in September 2008, a near mishap similar in nature and also involving another BP off-shore rig occurred, but that fact was concealed by BP from American regulators and Congress. That rig was located in the Caspian Sea off the coast of Baku, Azerbaijan, and according to rig workers evacuated from that location, had BP duly reported the accident as required by the industry, then the Gulf of Mexico mishap may have been averted and the 11 workers who perished there would still be alive. Insider witnesses indicated that one cause of the blow-outs was the same in both places, that is, the practice of plugging holes with quick-dry cement, a money-saving technique. Witnesses attributed the recurrence of a BP oil spill on the unabated use of this cost-cutting, but dangerous technique. Another common occurrence between the two incidents was the confusion and mayhem that attended the accidents, indicating that BP did not have a crisis management plan to attend such incidents (Palast, 2012a). Had the Caspian Sea oil spill been properly reported and investigated, then a working crisis response procedure would have been established when

the Gulf of Mexico oil spill took place, or more likely prevention and mitigation measures would have been adopted to pre-empt it from taking place..

Recovery from the oil spill. An integral part of crisis management is the adoption of processes and policies designed to mitigate or prevent a repetition of the crisis event. After the height of the BP crisis (the longer-term effects of the event are far from over), studies were conducted by research institutions and foundations to discover the most effective and benign method of oil spill clean-up possible. The U.S. Department of the Interior (DOI) found that about 5% of the BP oil spill was burned up, which is admittedly undesirable from the ecological viewpoint.

Another 8% was chemically dispersed; this involves breaking down the oil into droplets and containing the oil so that it did not outwardly contaminate birds and other species. Eric Hoek, an engineering professor at the University of California argued that, unfortunately, while dispersion "kept those oil-covered birds and turtles off the front pages," the dispersants allowed birds and marine life to ingest the droplets more easily while the basic toxic chemicals in the oil itself remained unchanged (as cited in MacKenzie, 2011, p. 6). This opens the possibility of adverse long-term effects brought about by oil dispersion, which may not be evident for decades into the future.

Probably the most environmentally benign method of oil spill removal is the physical or mechanical removal of the spill. This method employs the use of skimming boats manipulating booms, which act like fences around an oil spill. The booms are positioned around the oil spill and, if the water is extremely calm, then the oil is contained within a limited area and absorbed by the booms. Unfortunately, seldom are the waters

completely still, and even slight undercurrents cause the oil to escape under the boom. For this reason, mechanical oil spill removal accounted for only 3% of the total spill, making it one of the more inefficient means to contain the oil. The result is that few research efforts are directed towards improving mechanical oil containment and removal processes (MacKenzie, 2011).

Long-term environmental repercussions. In the recent foray of the Russian nuclear-powered stealth submarine, Gepard Akula II, along the coastline off the Gulf of Mexico, Russian scientists investigated the likelihood that the damage done by the oil spill to the sea floor was irreparable, and that for the two years since 2010, the US has been applying chemical dispersants on the continuing oil leak. According to the report by the Gepard Akula II, U.S. Naval Forces were observed to be delivering thousands of gallons of the dispersants to the leaking BP wellhead. The dispersants were themselves carried off course by strong currents brought by Hurricane Ernesto, causing the deaths of millions of fish on the shore of Galveston (shown in Figure 9). *EU Times* ("Russia Issues Apocalyptic Warning," 2012) reported that the cover-up was still ongoing because the leak had not yet been stopped. Scientists and commercial shippers have been finding eyeless shrimp, mutant crab, and fish with oozing sores, marine life with deformities most likely caused by the toxic chemicals in the dispersants.

Figure 9. Millions of fish washed up on the shore in Galveston, Texas. From "Russia issues apocalyptic warning for US gulf coast," *EU Times*, August 15, 2012, p. 1. Copyright 2012 by EU Times. Reprinted with permission.

Implications of the BP oil crisis on corporate governance and transparency.

The Caspian Sea and Gulf of Mexico incidents have brought to the fore the existence of collusion among BP and its partners Chevron and Exxon, and the governments of Azerbaijan and the United States, respectively. According to the Russian report and evidence unearthed by *The Guardian* (2012), *EcoWatch* (2012), and *EU Times* (2012), a series of messages sent by cable and email revealed that the three corporations and the U.S. State Department under George Bush were conniving to cover up the continuing oil spill in the Gulf of Mexico and even involved falsifying a report to the Securities and Exchange Commission (Palast, 2012b). The cover-up included an agreement between the

US and BP that the oil leak had been reduced to 5,000 gallons per day, whereas in truth the oil well was still spewing out at least 25,000 gallons per day (*EU Times*, 2012).

Understandably, the exploration and extraction of gas and oil are of great interest to both the private firms that undertake it and to the governments that rely on the fossil fuels extracted. Money and power provide the incentives for possible collusion between these parties in the case of oil or gas leaks. The stakes are high for the companies, (estimated at $40 million to $50 million per day) justifying $75 million in bribes paid to Azeri officials to keep silent about the Caspian Sea disaster. On the other hand, former Secretary of State Condoleezza Rice, who headed the U.S. State Department, had served on Chevron's board of directors. Chevron even named an oil tanker after her, leading to perceptions of lack of transparency in government dealings with the private interests (Palast, 2012b).

New U.S. Regulation in the Wake of the BP Gulf Oil Spill

The new Drilling Safety Rule was promulgated to focus on ensuring well bore integrity and on updating well control safety equipment requirements (*Oil Spill Intelligence Report* [OSIR], 2010). The new directive was issued by the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), which in effect removed any existing categorical exclusions for applying for a permit to drill (APD) involving a blowout preventer or BOP. Among other things, the Drilling Safety Rule now requires that: (a) the casing and cementing program must be appropriate for the well under the expected wellbore pressure; (b) two independent test barriers be installed across each flow path during well completion; (c) the proper installation be ensured, as well as the

sealing and locking of the casing or liner; (d) the BOEMRE district manager should approve of any replacement of a heavier drilling fluid with a lighter fluid before the replacement is made; (e) rig personnel should undergo enhanced deep-water well control training; and (f) American Petroleum Institute (API) Recommended Practice (RP) 65-Part 2 (i.e., isolating potential flow zones during well construction) be mandatorily observed (Terrell, 2011). The Workplace Safety Rule (On Safety and Environmental Management Systems [SEMS]) incorporates 13 elements of API's RP 75 (OSIR, 2010).

Industry response has been lukewarm, mainly because of concerns regarding bureaucratic delays and a de facto moratorium on deep-water drilling. BOEMRE and the U.S. Department of the Interior (DOI) must also provide a clearer framework and more adequate guidance for government approval of exploration and production projects. Cost escalation is imminent in the implementation of the new regulations. Firstly, even after the suspension of drilling is lifted, the de facto moratorium will continue to burden companies operating in the deep-water gulf in lost revenues (OSIR, 2010). Aside from this, the new drilling regulations will add an average of $1.42 million to the cost of a well, which some may argue is insignificant compared to the $6 billion project for two dozen wells. The new permitting process will likely add many days to the project, at a cost of half a million dollars per day for rig rental; the delays could easily accumulate to push a project's actual completion date beyond its expected date by several months to a year. The added costs and lost revenues are sufficient to render a project non-viable and uneconomic (Terrell, 2011).

Not only were the costs substantial in terms of financial losses, but also in terms of employment. As feared, the moratorium on deep-water drilling, exacerbated by the slowdown on drilling permits even after the formal lifting of the moratorium, cost Gulf Coast states more than 6,000 direct jobs (Hillyer, 2011). Louisiana State University put that estimate even higher at 8,100 jobs and a financial loss of $2.1 billion ("U.S. Offshore Oil," 2012). Nationwide, jobs lost may be expected to rise to 12,000 ("U.S. Offshore Oil," 2012). Even more alarming, one year after the implementation of the moratorium, the study undertaken by Quest Offshore Inc. commissioned by the National Ocean Industries Association and the American Petroleum Institute estimated a loss of 60,000 jobs throughout the Gulf region within the period 2008 to 2011, attributable directly to the slowed drilling permit approvals and the moratorium ("U.S. Offshore Oil," 2012). A subsequent API-commissioned study from Quest Offshore suggested that as many as 90,000 jobs had already been lost in 2011 alone. At least 11 offshore oil rigs have already left for more economically feasible options in Brazil, Egypt, and Angola, costing the Gulf Coast an estimated $21.4 billion in lost revenues through 2015 ("U.S. Offshore Oil," 2012).

The problem is not without its possible solutions. A bill has been filed in the legislature imposing a deadline for all new offshore drilling permits, compelling regulators to develop a more efficient process for permitting. The bill, however, will take some time before passing into law ("U.S. Offshore Oil," 2012).

Synthesis of Literature Review

For a business to flourish, its continuity must be assured through the foresight and stewardship of management, particularly in light of the risk that issues and crises may occur that threaten not only the physical integrity of the firm's resources, but more so its moral integrity and competency in the eyes of the public. This task is a challenge to even the most astute managers, because crises have such a low probability of occurrence that they are often overlooked as unlikely, but when they occur they have such devastating consequences that pose a threat to the company's brand, its reputation, and its future business prospects.

This chapter is the result of an exhaustive survey of the existing academic and news articles concerning the theory surrounding crisis management in general and the facts and findings related to the major crisis events in the oil and gas industry, particularly the Exxon Valdez and BP Gulf oil spills. The literature emphasized that as exemplified in the Exxon Valdez crisis, effective and speedy crisis communication can create the difference between a quick and effective recovery leading to public perception of competence, and a slow and painful one that casts the company in the public eye as incompetent and unprepared. The Exxon Valdez oil spill that occurred in Alaska may have been caused by conditions that could not have been prevented; however, the lack of preparedness, inadequacy of the firm's investment in technology, and lack of skill of its personnel led to the exacerbation of a crisis, the effects of which could have been contained had the firm acted quickly and decisively. Conversely, the BP oil spill that took place in the Gulf of Mexico was difficult to contain once the crisis event had occurred.

According to the White House Oil Commission (2011), the events leading to the rig explosion that caused the oil spill was well within the capability of BP and its collaborators to control, had they exercised the will and the necessary diligence to ensure that its regular operations observe standards and processes that ensure the prevention of such incidences.

The literature survey shows that from 1989 to 2010, the duration between the two events, there have been significant improvements in technology and management theory and practices, particularly addressing crises preparation and prevention as well as crisis event mitigation and recovery. Despite the advantages in the present day, the occurrence of the BP oil spill–admittedly much more severe and devastating than the Exxon Valdez, the crisis incident of note until then–leads one to believe that the problem of oil companies in preventing future oil spills is not caused by the lack of resources or means, but the lack of will in the leadership and systemic weaknesses in the organization. The presence and prevalence of these factors shall be investigated in the study, using Jaques (2007) relational model as framework for the inquiry.

CHAPTER 3. METHODOLOGY

Research Design

This research study employed qualitative analysis based upon Jaques's (2007) ICMRM. Primary data was collected through two procedures: semi-structured face-to-face interviews and structured written interviews using open-ended questions. Respondents were operations managers of gas and oil firms in both the upstream and downstream industries. Secondary data was gathered through the databases, documents, reports, and news articles from reputable sources, which are available in the public domain.

The study employed the generic qualitative approach. Generic qualitative studies are among the most common forms of qualitative research, and they draw from established concepts, theories, or models in the area of study. This approach seeks to identify recurring patterns, factors, and categories in order to further enhance the theoretical frame (Caelli, Ray, & Mill, 2003).

The methods used included face-to-face interviews for respondents with whom a meeting could be set, written responses for respondents who were not personally met, and a search of documents, news, and reports pertaining to the respondents' firms, which may be found in the public domain.

Sample

Population

The population that the study drew from includes employees of oil and gas companies, both local and foreign, in both the upstream and downstream oil and gas industries. The population comprised employees of companies involved in each step of the supply chain, including oil and gas exploration, onshore and offshore drilling, recovery and production, refinement and processing, distribution, industrial and retail sales, and recycling and disposal. `

The sample frame. The sample frame consisted of the companies listed in the business directory of Touch Oil and Gas, (accessed at the website http://www.touchoilandgas.com) and possibly other similar databases of associations. Although the researcher attempted to contact many of the data-based companies, only a handful responded positively to a written interview.

The sample was comprised of at least 30 interviewees from the middle and upper management levels of at least 10 of the oil and gas companies. The profile attributes require that the respondents were in the middle to top management of the company, with an employment history for their current firm of 2 years, and experience in the oil and gas industry for 5 years. The category "middle management" refers to managers who do not directly supervise rank employees, but other managers.

Sampling procedures. The sampling procedure was designed to gain access to the widest possible scope of companies in the oil and gas industry. This is because the industry is already oligopolistic in the upstream segment, meaning that only a few

companies could undertake the exploration, recovery, and production of crude oil and natural gas. Although emergency and risk management measures are important throughout the oil and gas industry value chain, the lessons of Exxon and BP is that the upstream sector, where the product is handled in large quantities, is where risk and crisis management systems and procedures are most critical because of the potential damage that a single incident could cause.

This study sourced the interview sample by first gathering the potential names and contact addresses of different companies in the upstream, midstream, and downstream sectors in the oil and gas industry. One source of contacts was the abovementioned business directory of Touch Oil and Gas and similar databases. The next step was for the researcher to email as many of these companies as possible (i.e., through the appropriate representative such as public affairs or public liaison), to request the permission for the conduct of the interview among its middle or top managers involved in operations. The letter explained the purpose of the interview, assured the company that the responses, identities of the company and the respondents shall remain confidential, and that should they wish, they may be supplied a copy of the result of the study for them to ascertain the researcher's compliance with the conditions promised. The letter of request included a copy of the questions that the researcher wanted the respondents to answer, and indicated that the study would need no more than three respondents per company, and would accept even just one if only one respondent would be available.

Sample size. The researcher aimed for a sample size of no more than 30 individual respondents, representing at least 10 different firms. The reason for placing a

maximum limit on interviewees at 30 was that the researcher gauged that 30 would be the maximum that could be handled while still gathering sufficient information from the interviewees. The reason for placing a lower limit of 10 companies is to ensure that as many firms as possible are sampled, and that, to the extent possible, the different levels or sectors of the industry are represented.

Setting

Given the purpose of the study to assess whether crisis management programs are sufficiently in place in oil and gas companies in order to ensure their survival, the most viable source of information is the management of these firms. Sampling from different companies in different sectors of the industry provided cross-corroboration of the conditions that will emerge from the industry-wide interviews.

The strength of the research design is that it provides a sufficient procedural guide as to how data shall be sourced and qualitatively analyzed, and how primary data and secondary data complement each other and are integrated in the analysis phase. The research design also enabled sufficient flexibility and adaptability to the potentially evolving context of crisis management in the industry. This served the inductive method of research quite appropriately because the method is not rigid nor constricted to a single criterion, as most quantitative empirical studies are, and therefore allows for a richer analysis of the subject of study.

Instrumentation/Measures

The principal means of gathering information in this study was by face-to-face or written interviews via Survey Monkey online. The interview questions are composed of

the following open questions to which the respondents' qualitative answers were invited. The questionnaire is shown in the Appendix.

Although the questionnaire was based on this study, the questionnaire is not entirely original as the questionnaire assumes Jaques's (2007) model. The questions employed concepts that were given as broad a construction as possible so that the respondent could provide answers that related to his/her own corporate environment.

Data Collection

Managers were expected to be normally busy and to prefer to answer the interview in written form, so the researcher made this the principle means by which to conduct the data gathering. When the respondent preferred to answer in a personal interview and it was within the capability of the researcher, then a face-to-face interview was arranged. When the firm or respondents allowed, the researcher set-up questions via Survey Monkey online. When the company preferred, the questions were emailed to the respondents through the company, which then sent back the responses.

For the face-to-face interviews, the researcher contacted the respondent manager personally and inquired about the time and place at which they could meet that would be convenient to the interviewee. At least one day before the scheduled interview, the researcher ensured that a copy of the set of questions was sent to the interviewee; in order for him/her to prepare his/her answers and possibly any data that supported the responses he/she planned to give. The researcher arrived at the venue before the appointed time, and, if the venue was public, arranged the place and seating arrangement for maximum

comfort. If the venue was in the interviewee's office, then the researcher waited in the outer office until invited to enter.

The researcher prepared an extra copy of the questions to give to the interviewee in case the latter was not prepared with his or hers. The interviewee proceeded through each question, and if clarification or elaboration was needed, then the researcher followed through with support questions. The researcher observed the protocol for ethical considerations. At the end of the interview, the researcher extended his thanks to the interviewee before taking his leave.

Data Analysis

Figure 10 describes in flowchart form the iterative process of qualitative data analysis for this study. Triangulation was achieved by resorting to primary data gathered through interviews and secondary data gathered through document search and case study materials in the public domain. The criterion for determining the end of the data gathering process is whether or not the substance of the qualitative data gathered sufficiently describes the essential elements of the crisis management system generally implemented in the oil and gas industry. The process also provides for the possibility of clarifying interviews if the written answers were vague or ambiguous.

Validity and Reliability

The questionnaire was pre-tested on a set of 5 managers in the oil and gas industries. The researcher solicited their comments so as to eliminate any ambiguity and to enhance the validity of the interview questions. Clarifying interviews, which the researcher conducted as necessary, enhance reliability. Credibility of the responses is

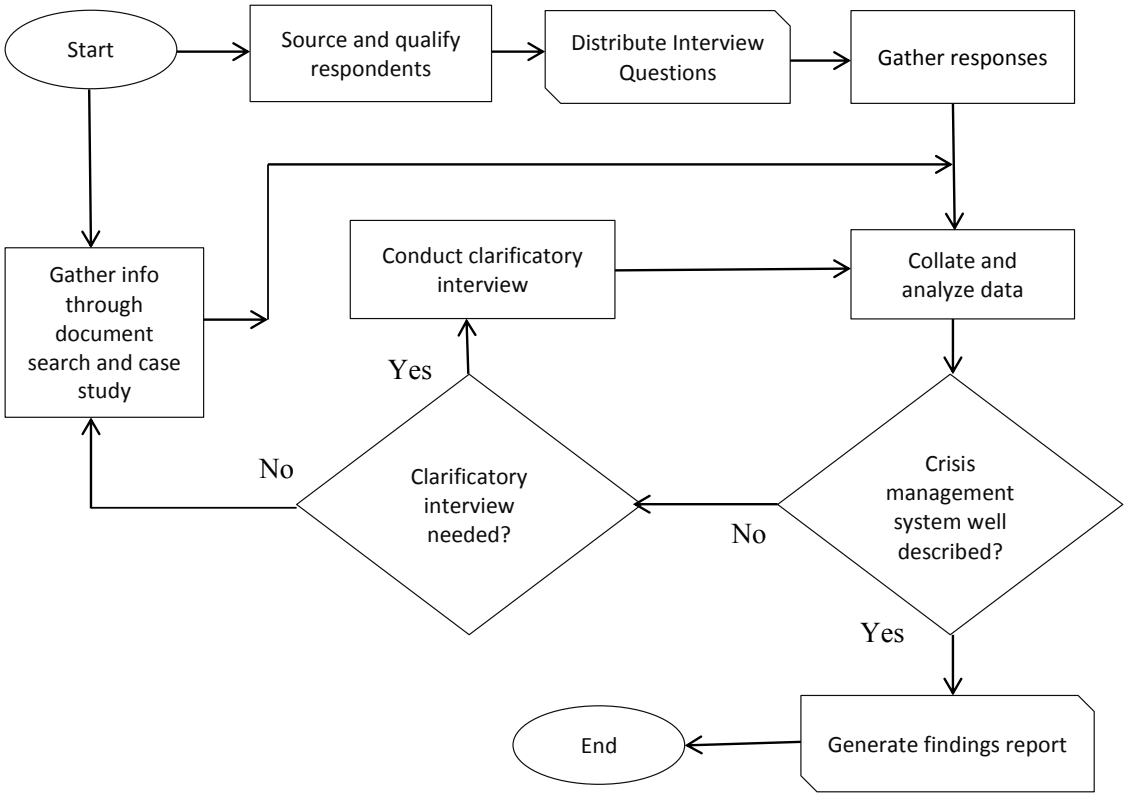

Figure 10. Process flowchart for data collection.

aided by the assurance of confidentiality, so that respondents could freely provide their answers without fear of judgment or adverse repercussion.

Ethical Considerations

From the start of the data gathering process and from the start of the interview process, the researcher assured all respondents that he personally guaranteed the confidentiality concerning both the identity and response of each individual as well as the identity of the company. Also, where more than 30 respondents are obtained, the stratified random sampling method was used to reduce the responses to 30, so that intentional tailoring of final data to bring out predetermined results shall be avoided. The

researcher was committed to abide by honesty and integrity in reporting the results of the data, and to ensure that the data was sourced as described and not fabricated.

The interviews that the researcher conducted dealt with impersonal information pertaining to the company represented by the individual interviewee. The respondent interviewee was not asked to reveal any information that the firm would not otherwise wish to be revealed, such as items regarding the company's industrial or strategic business secrets. The respondent was asked his or her professional opinion in certain respects, particularly with the assessment of the adequacy of the company's practices as far as crisis response is concerned. All questions were available online by Survey Monkey website. The administrative official agreed to the interview, so the researcher should not be in any position to influence unduly any responses that are contrary to ethical standards.

Before turning on the audio or video recorder brought for the interview, the researcher asked the interviewee's permission to record the interview; if the latter declined, then there was only note-taking and no recording. Throughout the interview, the researcher extended the utmost respect to the interviewee, and when the latter preferred to pass on the question, the researcher respected that decision and moved to the next question. The researcher avoided any form of coercion or intimidation, and respected the interviewee's requests to keep certain items off the record, if any were made.

CHAPTER 4. RESULTS

In this chapter, the analysis of the data gathered and the discussion leading to the findings are presented according to the methodology described in chapter 3. The groups according to which the respondents were distinguished are described, as well as the reason for grouping them according to the chosen criteria. Thereafter, the qualitative responses given by the participants were provided and scrutinized both thematically and textually. The findings for the three groups were compared against each other according to the paradigm by Jacques (2007). Questions B to E are guided by the four quadrants of the framework, Question A required the participants to describe the meaning of crisis management in their companies, and Question F is an open question that affords an opportunity for the participants to raise any issue of their choice on the topic of crisis management. Subject matter that is raised by the respondents themselves will provide a clue to crisis management in these companies that were of importance but were not covered in the preceding questions.

Oil Companies Differentiated According to Business

The original population of this research included the oil and gas industries, but responses garnered from the gas industry were too few to provide reliable information or a meaningful comparison, and so were discarded. Thirty individuals who occupied managerial positions in the oil industry participated. The oil industry in this case is described as covering firms from the upstream to the downstream businesses.

Respondents were divided into three groups depending upon the location of their firm along the stream of oil businesses.

This segment of the oil industry includes the "exploration, acquisition, drilling, development, and production of oil and gas" (Wright & Gallun, 2008, p. 2). The upstream exploration and production activities are characterized by: a high level of risk; a long duration before any return on investment is realized; an absence of significant correlation between the size of expenditures and the value of the resulting reserves; a high degree of regulation; complex tax regulations; and unique cost-sharing agreements (Wright & Gallun, 2008). Midstream activities involve pipeline transportation and/or storage of crude oil, natural gas, and/or refined petroleum products in general, whereas downstream operations include refining and marketing (Wright & Gallun, 2008). Upstream oil companies are also involved in the midstream and downstream oil businesses (because a number of the exploration and extraction businesses also have their own pipelines for the transportation of their products), sometimes all the way to the refineries. This makes clear-cut classification of firms difficult.

The criteria by which the firms are categorized as upstream, midstream, and downstream are according to the reporting standards of the accounting profession, because specific tax laws pertain exclusively to the upstream oil sector. No specific accounting standards apply to the midstream and downstream segments, however, and the distinctions for these two remain largely discretionary. Traditionally midstream activities were not even distinguished as a separate formal category and were described

as activities that are neither entirely upstream nor downstream, or those that have elements between the two (*Oil & Gas Modelling 101,* 2012).

For the purpose of this research, the midstream industry shall encompass oil refinery processes, as distinguished from upstream (oil exploration and extraction) and downstream (retail and distribution). The reason is that in the course of the data gathering, respondents from retail dealerships, which are usually small companies, create a substantial demarcation between their activities, which are essentially marketing, and the activities at the oil refinery, which pertain to chemical processing and fossil fuel manufacturing. Substantial implications exist for the firm's capital outlays, the skills and competencies of its personnel, and the structure of the organization. Implications are particularly different for risk management and allocations for emergency response, because of the different natures of a purely marketing operation and one that involved chemical processes.

In those cases in which the respondent is affiliated to a firm that crosses segments (i.e., oil extraction and refining, or refining and distribution), this research classified the firm according to the higher level in the industry sector in which its activities might be categorized. The reason for this is that a firm will adopt the risk management strategy that is compatible with its larger-scale activities as well as those activities that have the more stringent demands for crisis response. Upper-stream activities have a greater scale and complexity than lower-scale activities. They demand higher capital outlay and require longer-term turnaround, and the outcomes are not as assured—all of which contribute to

the higher risks of doing business—for which risk management and crisis response measures are more significantly mandated to protect the business.

Responses to the Interview Questionnaire

The following are the responses of the interview participants, who were separated according to their segment of the industry (upstream, midstream, and downstream). These responses were analyzed according to the four quadrants of Jaques's (2007) framework, and an integrating discussion characterized the nature of crisis management for each category. Emphasis shall be supplied in each answer, in the form of italicized fonts, upon which discussions shall focus.

Crisis management awareness. *Question A: What does the term "crisis management" signify in your company?*

Table 4 summarizes how the content of the answers from the respondents may be characterized: strong significance, moderate significance, or weak significance.

Table 4

Significance of Crisis Management

Significance of Crisis Management	Strong	Moderate	Weak	Total
Downstream	7.1%	35.7%	57.1%	100.0%
Midstream	80.0%	20.0%	0.0%	100.0%
Upstream	83.3%	16.7%	0.0%	100.0%
Total	46.7%	26.7%	26.7%	100.0%

This first question was intended to bring to fore the meaning and importance with which crisis management is regarded in the conduct of the organization's overall

operations. The question is intentionally framed with a loose context to allow the respondents free reign in framing a definition of *crisis management*.

Upstream (oil exploration and extraction). The respondents who are affiliated with companies in the upstream sector are Respondents 2, 3, 4, 9, 17, 22, and 30. Answers to the first question by these respondents may be grouped into three groups. The first group is composed of Respondents 2, 3, and 9, as follows (emphasis supplied).

Resp. 2 Crisis management for us is very broad, so my company prefers to use the words "*emergency response" management*. It excludes crises referring to financial crises, or political crises, because those kinds of risks affect everybody and would not normally affect our operations. Besides, the top management takes care of these through policies. We specifically address the *technical crises, such as damage to the platform due to earthquakes, oil spills, or fire breakouts.*

Resp. 3 It means *responding to emergencies and accidents.*

Resp. 9 Crisis management is a crucial element in the operation of any business that deals with the manufacture of combustible fossil fuels. We are into oil exploration and extraction, and we *observe strict safety standards to prevent or mitigate possible crises situations*.

These answers give rather shallow or perfunctory significance to the concept of crisis management, because they fail to define the meaning of 'crisis' and take it for granted that companies and other parties involved will automatically recognize crises when they are encountered. These answers are pro forma and do not add to the further understanding of crisis implications.

The second group, Respondents 4, 17, and 30, indicated a more profound understanding of crises.

Resp. 4 I am a member of a large multinational engaged in oil exploration, refinement, and distribution worldwide. For us, crisis management in our company is the

comprehensive and systematic assessment and response to sudden and potentially damaging natural and man-made events.

Resp. 17 Crisis management is a *specialized type of management* which enables a firm to *address sudden and unexpected events that have dire consequences* for the firm, its stakeholders, and society in general.

Resp. 30 *Recognition of an incident, verification, and response according to specific guideline (planned) protocols*.

Note that they do not refer to the terms *accidents* or *crisis*, but instead understand that the incident, however it may present itself, is of an unexpected nature, and therefore management needs to first recognize it for its possible adverse consequences, and then systematically address it. The incident is the focus of the effort, and its immediate resolution the desired objective. Reference is made to guidelines and protocols as standards to be complied with.

Respondent 22 provided the most profound understanding of crisis management, viewing the very preparedness for crisis response as a strategic advantage by which the firm may maintain industry leadership. The crisis situation is not the objective of the crisis management, but the constant state of preparedness.

Resp. 22 In our company we are 100% into crisis management, and view it as part of our strategic advantage. By being *ready to meet even those situations one does not plan for*, one can *emerge ahead of the competition*. In our company, we believe that *one does not need to plan for each possible kind of crisis*, but could still develop the potential to respond to whatever happens.

In this case, the company is constantly prepared and therefore constantly on the look-out for the occurrence of the crisis event whether or not such is foreseen. This is crucial for an oil exploration and extraction company, for which the chances are great

that an impending situation would assume the dimensions of a large-scale disaster, similar to that of the BP gulf oil spill.

The definitions given by the respondents show that among upstream companies, crisis management are far from uniform or are at least perceived to be of varying significance, despite the fact that the upstream oil sector is the most strictly regulated among the three sectors (Wright & Gallun, 2008).

Midstream (oil refinery). Among the respondents from midstream companies, there appear to be four groups. The answer of Respondent 8 is in a category of its own because it views crisis management as the company's ability to respond to only two types of events: fire and the release of pollutants.

Resp. 8 Our company operates a small refinery, supplying a primarily rural area, so our possible crises situations are relatively contained. Our crisis preparedness centers on *fire prevention and the elimination of pollutants* to preserve the environment.

The second group is composed of Respondents 1, 5, 11, 14, and 21. Their answers indicated their awareness of crisis situations as unforeseeable, nebulous, and cannot be prevented, but nevertheless requiring a response. These themes are evident in the italicized texts.

Resp. 1 In my company, crisis management means *responding to critical situations that, though foreseeable, cannot be entirely prevented, that develop quickly, and if not quickly responded to can do much damage to the company, the community, and the people working and living there.*

Resp. 5 Crisis management means the *anticipation of critical situations* that may suddenly develop, and *preparing to meet them*.

Resp. 11 In our company crisis management *signifies preparing to respond to unknown future occurrences* which, if we practice proper *safety and prevention* measures, will not occur at all.

Resp. 14 We are an SME dealing in the midstream oil industry. Crisis management for us would not mean much beyond the proper storage of products to prevent fire.

Resp. 21 Crisis management means *being prepared for anything that happens in the future*.

What sets aside these answers as a group is that they are affirmative but vague, implying that persons in a position of responsibility are certain that they must respond to crises, but are not certain exactly how to do it beyond stating the general principle.

The third group includes Respondents 15, 20, 23, and 28.

Resp. 15 Crisis management is one of the priority concerns of the company, to which we *give similar importance as our principal operations*. One crisis event is capable of *compromising our entire business*, therefore it is company policy to *prevent or mitigate crises to the most practical extent* allowable.

Resp. 20 By crisis management, we mean *responsible management*. The company is in *the best position to know if it poses a danger to the community in the event of natural calamities*, so it is responsible for preparing to prevent or reduce the bad effects of these hazards.

Resp. 23 Crisis management is *the systematic response* to the occurrence of disasters so that the *effect to the organization and its stakeholders* is minimized.

Resp. 28 Crisis management is the *responsible preparation* to meet *unforeseen sudden* events, in order to *minimize negative effects* and return the company and its personnel to pre-crisis working conditions at the soonest possible time.

The group manifests awareness not only of the nature of crises as sudden or uncertain, but more so the harm crises events may create in the practical sense. The principal aim is not solely the objective to curtail the event, but the need to avert the harm to the organization, its business, its stakeholders and the community.

Also in a class of its own is the answer by Respondent 29.

Resp. 29 Crisis management means (a) identification of sources of risk, (b) scenario building around these sources of risk, (c) monitoring of the company‘s

situation for early detection, (d) response to the crisis when it occurs, and (e) investigating post-crisis to try to prevent similar future occurrences.

This response is detailed, specific, and shows that the organization employed the scenario-building approach, a particularly effective method of crisis management that emphasizes the organization's crisis readiness for all crises events rather than second-guessing the likely occurrences of certain events (Daft, Kendrick, & Vershinina, 2010; Daft & Marcic, 2012).

Downstream (retail and distribution). The remainder of the respondents, and the largest group in the sample, belong to retail (B2C) and distribution (B2B). These businesses are mostly small dealerships that run refilling stations on franchise or license from the large refinery and distribution firm. Even a cursory inspection of the responses show that they mostly portray organizations that may pay lip service to crisis management, or adopt crisis management programs for formal compliance with local regulations but without actual application in substance.

Resp. 6 My company is a locally based petroleum retail company, so our concerns for crisis management involve the transportation, storage, and retail distribution. *As long as we can do these safely, then crisis management needs are met.*

Resp. 7 We have a *crisis management plan but in name only*, because the government required it in order to issue a permit to conduct business.

Resp. 10 It means *expecting the unexpected, and putting money where your mouth is*.

Resp. 12 "Crisis management" means *being ready to meet contingencies*.

Resp. 13 *Being on top* of a crisis.

Resp. 16 For the company I work with, *crisis management is a relatively new introduction to our system,* the reason being *we had not taken it seriously* before due to cost-cutting and believing there won't be a need for it. However, after the neighbors barricaded our gates last year, we had a change of heart.

Resp. 18 For this company, crisis management is an important part of a company's operations, but *it necessitates special requirements and competencies which are not accessible through the regular channels of the organization*. Crisis management must help the firm cope with *situations that by nature cannot be anticipated.*

Resp. 19 Crisis management is *too big a term for our company*; we use contingency planning

Resp. 24 Before the government imposed regulations requiring "crisis management" what we had was *'emergency procedures'* which *addressed the occurrence of fires, floods, earthquakes*, etc. Emergency procedures ended with the end of the calamity. Today, crisis management is understood to mean preparedness and post-event analysis, but we still have a long way to go.

Resp. 25 Crisis management refers to the *protocols the company adopts during times of adversity*, referring to *unforeseen or unpreventable natural or manmade occurrences*. It also refers to *negative publicity that unexpectedly hits the company.*

Resp. 26 It means being *always prepared for contingencies*.

Resp. 27 *Any sudden development* that is *unexpected* and that *may have unfavorable results* for the company.

For some, such as Respondent 10's and Respondent 13's answers, crisis management is understood in terms of clichés, but with no indication that they are being applied in any concrete manner. Frequent references are made to "contingencies" and "emergencies" in lieu of "crisis" management, because the respondents observed that *crisis management* was too expansive or grandiose for their small business. Respondents 16, 18, and 24 conveyed the impression that these companies have the intention to seriously adopt crisis management but have not yet had the opportunity due to lack of time or resources. Respondent 25 provided the only answer that conveys some substantial appreciation of crisis management, but only marginally so, because the respondent had

provided a categorical definition that did not indicate or assert whether or not the company actually adopts this viewpoint.

Crisis preparedness. Crisis preparedness is located in the first quadrant of the relational model developed by Jaques (2007). It includes the presence of planning processes, systems and manuals, and the provision of training and simulations as part of pre-crisis management. These details are contained in Question B; the responses to this question are evaluated according to groups of respondents (See Table 5).

Question B: Does your company engage in crisis preparedness activities? What planning processes are done? Does your company engage in training simulations? Does your company have a systems manual as part of your crisis preparedness protocol?

Table 5

Crisis Preparedness

Crisis Preparedness	Strong	Moderate	Weak	Total
Downstream	14.3%	21.4%	64.3%	100.0%
Midstream	80.0%	20.0%	0.0%	100.0%
Upstream	83.3%	16.7%	0.0%	100.0%
Total	50.0%	20.0%	30.0%	100.0%

Upstream (oil exploration and extraction).

Resp. 2 We have crisis preparedness training, but *not everybody are involved*, only the technical operations personnel. We don't have a crisis readiness manual, but we have *a set of guidelines* posted in the work area.

Resp. 3 Yes. We have *emergency planning yearly*. We have *training for first aid, firefighting, earthquakes, and tsunami*. No manuals.

Resp. 4 Certainly we are much prepared. *All our office and operations personnel* have a secondary function and are *organized to work in crisis groups*. We have a group that monitors news and alerts, another that addresses government and community liaison, while others do the actual response, whether it is for oil spill, fire, earthquake, terrorism, and so forth.

Resp. 9 Our company tries to maintain the highest level of crisis preparedness appropriate to businesses in the upstream oil industry. We have *a crisis committee in the management level*, with a counterpart structure in the various operational units, so policy is supported by practical guidelines and monitoring. *Training is definitely included for all personnel*, not just those in operations but also administrative, because crises can occur at their locations. We had a *systems manual that is updated yearly* based also on employee feedback and the revised safety standards of the industry.

Resp. 17 We are prepared for crises, starting from the top where crisis strategies are worked out, all the way to the bottom where skills training and education are being implemented. All crisis management events and programs are documented.

Resp. 22 Our top preparation is staff training. Awareness of likely scenarios and imbibing the skills possible enables people to respond faster and more competently to developing crises. *Mental readiness* is itself the best preparation. We do have *training simulations* such as flood, fires and earthquakes. They are in our *contingency response manual*, which is fully illustrated.

Resp. 30 Yes the company does. *Short term planning processes as well as long term processes* are developed on paper, reviewed, and sanctioned by the company once they are thoroughly reviewed for content and understood. *Training simulations* are developed and practiced. A *"Procedural" Manual* is put in place after reviewing and signing off by managers (Line and High Level) within the company.

No clear groupings exist among the upstream companies, but in general all companies have some form of crisis preparation. Respondents 2 and 3 have no manuals, but they do have guidelines. Respondent 2 mentioned that the company's crisis training is reserved for technical personnel; all the other companies had crisis response training programs for all their personnel, including office staff. Aside from Respondents 2 and 3, all the other respondents stated that their firms have crisis manuals that are updated at least yearly. All the companies have some measure of planning, some more systematically than others. Respondent 30 explained that they have short-term and long-term crisis plans, duly reviewed and approved by the management hierarchy and which becomes operative once the signatures of top management are duly affixed. Companies performing upstream oil activities make the effort to ensure their company's crisis preparedness.

Midstream (oil refinery).

Resp. 1 We have a crisis preparedness program. There is a *master plan* that organizes personnel into response groups responsible for particular areas or departments. *Every year, we meet to discuss and upgrade these plans*, and when new regulations or practices come out we discuss them too in special meetings. We have *training workshops*, such as fire response readiness where periodic trainings are given - about once in two months, scheduling rotating personnel who will undergo the training. There are also special training seminars we go to either here or in other countries to get to know the latest in safety protocols and emergency responses for different types of emergencies. We do have a *systems and crisis response manual* a copy of which is supplied to all units, and which personnel are expected to study and remember.

Resp. 5 Yes, *our company has crisis preparedness*. We have had seminars on these and there is a task force that has been assembled to plan and conduct training. We also have scenario building and construct strategies for these scenarios.

Resp. 8 We try to guard against fires and explosions, so we monitor our gauges and valves to ensure that heat is properly dissipated, and that the build-up of noxious and combustible fumes is avoided.

Resp. 11 Our crisis prevention activities consist *of proper health, safety and environment conservation practices and monitoring*. We plan for this from the top level of the organization down to the front line by proposing "what if" scenarios and then identifying what is still lacking in our systems to respond to them. Our training is assisted by outside experts such as the fire department officials concerning firefighting, and we do have a manual for our crisis procedures.

Resp. 14 *Not really, except fire prevention*. We plan for inventory and delivery in our regular business, so we try to ensure safety in these activities. We don't have much training beyond *fire prevention and a little first aid*.

Resp. 15 Yes, because crisis management is built into our regular business plans. It is coupled with safety monitoring and standards compliance. We train for special skills, most important of which is for natural disasters (earthquakes, fires, tsunamis, inundations), and also to address man-made emergencies (political upheavals, terrorism, industrial accidents).

Resp. 20 Yes, because we are a responsible company. Every year in summer we *work with external agencies in conducting seminars and skills workshops among our personnel.* The highlight is always the two-day firefighting drill when we form teams and simulate the breakout of fire in their work areas. Yes, manuals too. We include crisis strategy updating when we do our annual strategic planning.

Resp. 21 We don't do it as a separate activity, but *build in safety and conservation in all our regular activities*.

Resp. 23 My company prepares for disasters and accidents which are likely to happen or which have happened in the past and may likely recur. We *plan by looking at happenings in the past, either involving the company or involving other companies similar to ours, and learning from them*. We acquire the needed equipment and equip the staff with the needed training. I don't know if you'd call it a manual, but what we have is an emergency handbook which each employee is supplied with.

Resp. 28 Our company has an organized and well-managed crisis response system. There is an *over-all crisis management strategy which is fine-tuned annually and monitored by a crisis assessment team every quarter*. We have training for all our personnel in the form of *firefighting techniques and CPR*

workshops. Our managers undertake seminars and training for crisis readiness and leadership. We do have a manual.

Resp. 29 Very much, as I mentioned *we follow the scenario building approach* where we brainstorm on as many crisis situation as possible, and we plan and train for them. We just don't prepare for the most likely events because types of crises may be entirely unexpected, and we want to prepare for those as well.

As with the upstream companies, the firms in the midstream sector have training, planning, and a manual or a handbook that functions as a manual. At least two methods have been described in the planning stage: historical, for which incidents from the past for the same company and/or other similar companies are the basis for forecasting; and scenario building, which is forward-looking, constructs possible future situations and plans on this basis. Companies have different levels of planning and training, differentiating the managerial and decision-making level from the quick response or technical level. Quarterly and annual planning horizons are common. Generally, however, all the companies have training on basic firefighting and earthquake response, as well as first aid and CPR.

Downstream (distribution and retail).

Resp. 6 We have crisis preparedness which *emphasizes more on crisis prevention*. We maintain cleanliness to ensure no flammables are close to the product, and *conduct twice-daily walkthrough inspections*. We also *train personnel* to observe these things, and to know *first aid and what to do in case of fire and spills*, our two most likely crises.

Resp. 7 Only to meet regulatory requirements, but *people need real training*.

Resp. 10 We *try to identify the most probable crises*, and plan for them from highest to least probability. The *planning of logistics and training are scheduled according to these probabilities*. We are still in the process of assembling a manual.

Resp. 12 Yes, but it is *difficult to be fully prepared for crises* since we are not sure if any will be forthcoming. It is *ridiculous and costly to devote too much resources* to prepare for all types of crises, and forget the main business of the company which is to sell petroleum to the motoring public.

Resp. 13 Yes, but I am not sure how effective they will be since we *haven't had a big crisis yet.*

Resp. 16 Previously not. Then a rival of the political candidate the company had ties with won in the last election, and made it a point to get back at the company. Citing questionable reports of safety violations, he called for the company's shutdown. We contested, but because laws are loosely enforced here, he *got the neighbors to barricade the company's gates due to alleged pollution* of the community. Personnel trapped inside were barely able to escape by the backdoor exit to the river, on a barge.

Resp. 18 The company tries to be prepared for crises. We have *affiliated with industry-based associations on coming up with standards* for these and eagerly await the latest findings from OGP's Standard Committee. It is still a work-in-process, but while awaiting the results of more structured developments we aim to continue *skills training and strategic planning.*

Resp. 19 No, we have *contingency planning*, for when things happen which are not part of the regular plans.

Resp. 24 We try for crisis preparedness but I think if a major crisis struck, we would not be prepared to act - all we have are *plans on paper*. No training simulations although there were *a few drills and an afternoon workshop of fire response techniques*.

Resp. 25 Of course, companies always include some measures to respond to emergencies either due to natural or manmade disasters of even PR problems. Our company *plans for contingencies*, but not in too great detail because these are never certain. No, we have *no manual, but we do have guidelines*.

Resp. 26 Yes we try to prepare. We have a yearly planning for regular operations where we also talk about *contingencies*. We have no training or manual.

Resp. 27 The company managers meet for budget planning every fourth quarter, and talk about *contingency budgeting* at that time. *No special training or manuals*, I'm afraid, *except the fire response workshop* given by the fire department.

An analysis of the answers of the interview participants from the downstream companies reveals very few differences that can be discerned concerning the presence of

planning, training, and manuals, and the depth to which they are undertaken. All the respondents answered that they had no manual and that guidelines issued by management have become their basis for expected crisis response. Hardly any training takes place except pertaining to fire fighting and addressing some minor concerns such as oil spills or fumes, earthquakes, and floods. None of these have been dispensed in a thorough manner, however, since practically all respondents mentioned that the training they had received was inadequate and unsystematic, and provided more as an afterthought. As for crisis planning, in no case has this progressed beyond contingency provision. The main reason given is that the firms (majority of which are small filling station, dealers, and haulers) could not spare the extra funds needed in full preparation for possible events that may not even take place. As Respondent 12 appropriately expressed, "It is ridiculous and costly to devote too many resources to prepare for all types of crises, and forget the main business of the company which is to sell petroleum to the motoring public." The small retailer is into the business of survival and squeezing out a profit, since as dealers they only have a very narrow profit margin when the prices of suppliers go up.

The two more interesting responses are those of Respondents 16 and 18. R16 mentioned that their companies did not take crisis management seriously until they became the target of political controversy. Mob action conducted by people at the instigation of their business rivals caused them to take security and crises more seriously. R18, on the other hand, appears to be taking serious steps towards a more integrated approach to crisis management, with the help of industry partners in developing industry-wide standards for crisis control. These responses are interesting to this research because

they point to differences in the manner management regard crises. R16 represents the downstream companies, which are less forward-looking than upstream companies, and only address crises contingently rather than systematically.

Crisis prevention. Question C pertains to the second quadrant of Jaques's (2007) issue and crisis management relational model. Crisis prevention logically falls within the pre-crisis management phase, and involves early warning scanning, issue and risk management, and emergency response capability. This is one step closer to the actual crisis response after crisis preparedness. Results of the respondents' answers follow.

Question C: Does your company engage in crisis prevention measures? Does your firm engage in early warning scanning, and if so, what indicators are systematically scanned or monitored? What issue and risk management systems are in place? Has the company allocated for a system of emergency response in case an event takes place?

Table 6

Crisis Prevention Measures

Crisis Prevention	Strong	Moderate	Weak	Total
Downstream	14.3%	28.6%	57.1%	100.0%
Midstream	80.0%	20.0%	0.0%	100.0%
Upstream	83.3%	16.7%	0.0%	100.0%
Total	50.0%	23.3%	26.7%	100.0%

Upstream (oil exploration and extraction).

Resp. 2 We don't have early warning scanning although we have *preventive maintenance and spot inspections*. There is a *checklist* we follow on a daily basis to make sure that safety measures are being observed. The *guidelines* posted are our crisis response. It deals mostly with *fire, earthquake, and oil spills*. We also have a *first aid advisory*.

Resp. 3 *No early warning scanning that I know of*, but we monitor the *news and weather reports.*

Resp. 4 Yes we have *a systematic early warning scanning system*, and a *forecasting group* which builds possible scenarios and convenes middle managers in assessing the logistical and procedural necessities. If an event takes place, the *scenario forecasted for that event will immediately come into play* with the standard operating procedures worked out during planning.

Resp. 9 We are steeped in crisis prevention, because that is really what a company can do in the absence of a crisis. *When a crisis develops that should have been prevented, then you have failed in the first step of crisis management*. There are things that cannot be predicted, though, but which we still prepare for such as natural disasters. We have an *emergency protocol for each possible hazard* we set up for through *scenario building*, backed up with the proper training and team development.

Resp. 17 We have crisis prevention measures, but there is the constant question of whether or not they are good enough, so *we keep analyzing them for improvements.* We try to identify *leading indicators* for different types of crises to serve as early warning signals. We have risk management conducted by our strategic crisis team in *consultation with an outside expert company*.

Resp. 22 Crisis prevention is of greater importance to this company than crisis mitigation. While we don't have an "early scanning" program, we have its equivalent, that is, *a hazard and risk assessment procedure*. This essentially lists guidelines which units are expected to periodically undertake, on anywhere from a *twice-daily to a weekly basis*. This way, we hope to *develop awareness of the earliest stages* of a developing crisis event and take steps to minimize its bad effects.

Resp. 30 Absolutely - they do engage in crisis prevention measures. Early warning detection plans have been established with more than adequate training (continuous) is in place and monitored. *Houston Monitoring Center* is one for well control in our industry. *Bow Ties are used in risk assessment* and a multitude of *peer review and shop meetings are held* to add value and obtain

"buy in" from responsible parties. Further, a *legal review* is undertaken to ensure that the guidelines follow all company and governmental requirements. Yes, a system of emergency response is in place should an event take place.

Answers from respondents in the upstream sector are quite thorough and detailed, conveying the impression that not only are the crisis prevention measures well designed and implemented, but that all managerial personnel are well aware of them and are included in their adoption as active participants. Most of the respondents are emphatic about the adequacy and even excellence of their crisis prevention measures. Respondents 2 and 3 were hesitant in their affirmation of the presence of early warning scanning procedures in their companies, but they do admit to some activities which perform these functions, such as regular monitoring of the news and the conduct of preventive maintenance and spot inspections, which are essentially "scanning"–external scanning in the matter of news monitoring, and internal scanning in the conduct of maintenance and inspection routines. Respondent 22 similarly disavows any knowledge of early warning scanning system in their company, but admits that they do have *a hazard and risk assessment procedure* which essentially performs the job of an early scanning system.

Respondents 4 and 9 mention that they engage in scenario building to enhance the logistical and psychological preparedness of the company in meeting the crisis scenarios earlier rehearsed. Respondent 17 also mentioned their development of leading indicators which are helpful in acting as early warning signposts for the likelihood of impending crises.

Midstream (oil refinery).

Resp. 1 As for crisis prevention measures, we are somewhat deficient. Everything is good on paper, but *crisis preparedness is a state of mind personnel just don't*

ordinarily maintain here. I *think we could take a state of crisis readiness only so far*. Environmental scanning, yes we do, and in particular with other oil companies in our associations, and with government agencies. The risk management systems in place are (a) fire response (b) oil spillage prevention and containment, (c) sludge containment and disposal (d) land, water, and air pollution control; and (e) overall coordination, including logistics, PR, government agency, community, and communications strategizing.

Resp. 5 Our contingency plans include five areas: operational safety, environmental conservation, workplace health and safety, climate change risk and emission control, and emergency preparedness.

Resp. 8 We avoid fires and explosions, and release of unwanted emissions and water/land pollutants. We make sure we have sufficient firefighting equipment handy. We also engage in some training in this aspect.

Resp. 11 Our early warning scanning consists of constant monitoring of our facilities particularly those where processes or materials may be the source of hazards and accidents. We also do environmental scanning to verify if conditions in the ecosystem are compromised by our activities. Our leadership also looks to the social, political and economic situation if possible crises are likely, especially with the threat of terrorism. We do have emergency response systems planned out for each of these risks.

Resp. 14 No, not much, just the risk of fire.

Resp. 15 Same as proceeding. Indicators in-house include monitoring of operating indicators. We operate within tolerance levels and conduct shut-down procedures when tolerance is exceeded.

Resp. 20 Yes we engage in crisis prevention measures, among which are periodic reports monitoring our offshore rigs and land-based storage tanks. Our facilities are installed with automatic alarm systems in case readings fall or rise above the acceptable maximum and minimum readings, whether these be flow, temperature, pressure, etc. That takes care of the technical aspect. However, the social and political environment and the probable risks developing in these areas are best identified by top management and their repercussions discussed with lower level managers.

Resp. 21 We guard against fire and spillage. We operate a depot that supplies local oil companies.

Resp. 23 We have crisis prevention procedures and methods. The first thing the company did is make an audit of our crisis response capabilities, during which

our safety officer coordinated with an *industrial risk assessor*. Places were identified where hazards existed and firefighting equipment were lacking. Our storage tanks, feeder pipelines, electrical power installations, and instrumentation and control panels were evaluated. Whatever was lacking was augmented. Our organization was also restructured to allow for a crisis response reporting system.

Resp. 28 The company prevents crisis by requiring managers to conduct *daily or weekly (depending upon the nature of the department) walkthroughs* of their areas and accomplishment of a checklist system. There is also a *surprise inspection conducted by the head of the crisis response team*, based on which a formal compliance report is made and distributed to personnel and given to top management.

Resp. 29 We constantly *monitor temperatures and pressures* and ensure that valves which should automatically open and shut to diffuse psi build-ups would do so as designed. Volumes of A/G (i.e., above ground) storage tanks as well as U/G (underground) tanks in the stations are insulated against leaking and impurities. Our greatest concerns are sparks and heat waves which may trigger conflagrations, and earthquakes that may damage storage tanks and collisions of product-transporting vessels, both instances that may trigger oil spills.

Respondent 1 mentioned an important observation that has crucial implications but which is often overlooked: that "crisis preparedness is a state of mind personnel just don't ordinarily maintain." Although no other respondent mentioned this concern, the opinion is probably more prevalent industry-wide. Despite this observation, the same respondent paradoxically proceeded to describe a thoroughly comprehensive risk management system. Midstream respondents averred that there exist substantial crisis prevention measures particularly against natural calamities, but also in the matter of waste disposal (Respondent 1's mention of sludge) and pollution control. Companies in this sector also mentioned the development of leading indicators, particularly in physical measures such as temperature and pressure readings that may act as precursor to the development of a crisis. Resort is made to the use of external risk assessors, which is

helpful in ascertaining that standards are objectively met. Midstream companies appear to have sufficient crisis prevention systems and measures in early warning scanning and emergency response. Unclear whether the same is true of their issue and risk management activities, although at least two respondents have mentioned that the company also considers the social and economic milieu in which the firm operates. Identification of social issues in the interest of pre-empting the same in a crisis is evidence that issue and risk management exists in several of the midstream companies.

Downstream (retail and distribution).

Resp. 6 Retail distribution companies don't really require a very far-flung early warning scanning, but we do keep an *eye on developments within our immediate communities*. There are business establishments and residential structures near our filling stations, so we are careful to feel the pulse of the community about our presence.

Resp. 7 I am disappointed with my employer in this regard. He has not seriously *established a crisis control system in our firm because it costs money.*

Resp. 10 Yes we have crisis prevention measures. We try to go by the *standards of our competitors.*

Resp. 12 We do, by observing *the general guidelines for safety and environmental integrity*. In retail distribution *there is little need for early warning scanning*; constant monitoring in the stations and common sense usually are sufficient. Our emergency response is *usually for firefighting readiness*.

Resp. 13 The usual, but most problems are usually addressed *by regular monitoring and operations at the product dispensing section*.

Resp. 16 Now that we have resumed normal operations, we are aware that the court has reinforced our rights, the company realized it must *establish ties with the community* and the local leadership, and must *establish measure to ensure the same crisis does not happen again.*

Resp. 18 We have adopted measures but are trying to fine-tune them because *much is still to be desired*. We have to balance this, however, with the *available funding because the business can only survive if it is viable*. Can you imagine

if we had *the most technologically advanced crisis system, but the greatest crisis we faced was bankruptcy* which finally did us in? I think that would be a major irony.

Resp. 19 We make sure *contingency measures and allowances* are in place.

Resp. 24 Yes to crisis prevention, not adequately yet but the effort is there. The only issue I hear is *costs - if it is worth spending so much on crises which might not happen*, the chances that they would happen, and the potential costs if they happen.

Resp. 25 We engage in crisis prevention measures *depending upon the likelihood of their occurrence.* When the probability is low for a particular event, such as floods in the case of installations that are located in high elevations that never experience floods, *then we don't too much there because its wastes money.*

Resp. 26 We try to *reasonably prepare for emergencies*, but we cannot prepare for all possible emergencies because we don't have a budget for it.

Resp. 27 There is an *external risk consultant* who visits the company on a yearly basis and gives the higher management his assessment. Sometimes this results in a memo to lower level managers from the top managers. *We just follow the memo.*

The responses from the participants representing the downstream industry reflect a common concern for the cost of crisis prevention when little certainty exists that such measures are not going to occur after all (Respondents 7, 18, 24, 25, 26), whereas others feel that elaborate crisis prevention systems are not needed because the retail business is a matter of community monitoring (Respondents 6, 12, 13, 16) or keeping abreast with the measures adopted by the competition (Respondent 10). The crisis event of concern was again the possibility of the outbreak of fire, and in the case of Respondent 16, the singular danger of a social uprising due to a political controversy with a rival firm.

Crisis event management. The question on the actual occurrence of the crisis situation is the beginning of the crisis (as against the pre-crisis) management phase, and

is located in the third quadrant of the relational model. Crisis event management includes the recognition of the crisis in its earliest phase, the activation of the crisis response system, and the management of the crisis event itself. What most people would conceive of as crisis management is actually only the crisis event management because the crisis event management is the most visible of all the stages of the whole crisis management process. The results of the responses to Question D follow and are tabulated in Table 7.

Question D: When a crisis event occurs, how does your company expect to recognize it at the soonest possible time? Once a crisis is recognized, what systems are in place to activate a response? What organization, personnel, equipment, and procedures are in place to manage the crisis in its duration?

Table 7

Crisis Event Management

Crisis Event Management	Strong	Moderate	Weak	Total
Downstream	21.4%	35.7%	42.9%	100.0%
Midstream	80.0%	20.0%	0.0%	100.0%
Upstream	83.3%	16.7%	0.0%	100.0%
Total	53.3%	26.7%	20.0%	100.0%

Upstream (oil exploration and extraction).

Resp. 2 There are *emergency alarms situated throughout the plant,* such as the ones for fire. Our duties as managers are *to constantly inspect our work areas to make sure hazards do not exist*. If an event happens, we try to *contain it in our area* - for instance, if there is a fire we are equipped with fire extinguishers

nearby. Then we *notify our superiors as soon as possible*. It is admin that calls the fire department or emergency services.

Resp. 3 We have our *information networks, in case there is a code*. We have two codes, *yellow (low alert) and red (high alert)* for possible crises; so far we had a code red during the tsunami of 2006, but our rigs were not affected.

Resp. 4 We constantly *monitor events and keep close tabs on the government's warning systems,* particularly for storms and hurricanes, and even *political systems because of the threat of terrorism.* The *scenario building* we do during planning is very helpful because we identify beforehand *the leading indicators which might signal the development of a particular crisis situation*.

Resp. 9 We have set up what we think to be *fail-safe systems*, with cross-checking between operational departments to make sure the SOPs are met. We also *engage consultants to visit twice a month and do an ocular and troubleshoot* perceived inefficiencies in our crisis response protocols and teams. We try as much as possible to comply with the guidelines set out by *the Standards Committee* of the International Association of *Oil and Gas Producers (OGP).* While these are not mandatory but advisory, we find it consistent with our company's values to hew closely to *world-class performance*.

Resp. 17 We are working on a *system of early detection and prompt reporting* that bypasses the structured channels of communication and goes directly to the top. Obviously, *not all concerns are addressable at the top; some may be sufficiently addressed by middle management*, so we are working on those criteria. *Each level is required to have a designated crisis captain and support team* from among regular personnel.

Resp. 22 *Our engineers and technicians are tasked with securing operations, public relations will be handling the media,* our *CSR group will liaison with the community, and legal with government and persons compromised* by the event as far as the firm is liable. There is a *central crisis team* which coordinates the entire process to ensure that all aspects of crisis management are attended to.

Resp. 30 In the event of *well control, certain parameters are being monitored offsite* to recognize early detection. Once these parameters are met, *notifications to parties* directly involved begin to take place for the site and managers of the site (Well Team Lead). The *monitoring center* is manned 24/7 for monitoring well control. Specific written plans agreed by both the rig manager (WTL) and Houston manager (CTL) are in place. Approximately (in addition to the offshore staff) 8-10 people man the center 24/7. Support includes *Wells Monitoring Specialist, Well site leaders, IT Support, and software specialist* in the area of data transmission from rig to shore. The center steps back and

supports management crisis as directed once an event has been opened. The goal of the HMC is *early detection and warning*.

At the outset, what is immediately evident from the answers of upstream managers is the intricacy of their companies' early detection and warning system that enables it to recognize a developing crisis at the soonest possible time, even before the crisis develops in magnitude. Compliance with international standards is priority (Respondent 9), and the formation of special teams to deal with specific duties and responsibilities is commonly resorted to (Respondents 17, 22, and 30). Specialized codes and parameters that enable the firm to expeditiously monitor the development of a crisis event and to apprize the crisis management team of its progress (Respondents 2 and 3). Government advisories and external consultants also play vital roles in the companies' emergency detection and response system (Respondents 4 and 9). Other than fire and natural calamities, mentioned for the first time is that the facilities of oil explorations companies may be prone to terrorist attack (Respondent 4).

Midstream (oil refinery).

Resp. 1 The systems are those described in the preceding number. As for the expediency of response, we have been pretty quick to respond to potential emergencies in the past, particularly those due to natural calamities, earthquake specially. Strong earthquakes have the potential of *weakening the foundations of our above-ground storage tanks in the plant*, *as well as the underground storage units and dispensing pumps in the retail stations*. Floods have a likelihood of contaminating the products in the underground tanks, and leaks are likely to seep into the subsoil or make its way to the nearby river. We try to conduct *preventive maintenance and periodic scanning of the integrity of our structures,* and to ensure that the *proper vents are in place to prevent the build-up of noxious or flammable gases*.

Resp. 5 The *company trains teams for crisis readiness even when no crisis situation is indicated.* A range of possible (even if improbable) scenarios are planned for which include *product spills, explosions and fires, natural disasters and*

security breaches. During these drills, company officials, local partners, the local government, and industry representatives collaborate.

Resp. 8 So far no crisis has occurred. We *coordinate regularly with the local government and community officials* to ensure safety and crisis readiness.

Resp. 11 When something out of the ordinary happens; we have a *task force which assesses the possible repercussions*. Recognizing even the possibility (not yet the actuality) of a crisis triggers crisis readiness plans in the pertinent units of the organization. Our *crisis structure, which cuts across operational departments,* comes into play to cut across bureaucratic lines and enables faster communication and coordination. There are *automatic shut-down procedures for critical units*.

Resp. 14 We aren't a very big operation without any processing of our own done, so don't have special systems for that. We just *maintain cleanliness and safety*.

Resp. 15 *Constant technical monitoring* and *awareness of social issues and trends*. Our crisis teams are built into the same operational hierarchy because crisis management is an integral part of our operations.

Resp. 20 *By setting up the warning indicators, the company has established an advance warning system*. This is supported by a *set of guidelines and procedures* which automatically come into play, such as *shutting down portions of the procedure* and mobilizing personnel to assume specific duties. *These steps are designed to mitigate possible deterioration of the crisis even before the actual root cause of the crisis is discovered.*

Resp. 21 We have had no accidents so far, so we try to maintain status quo.

Resp. 23 We haven't yet tested it but I think *our protocols are going to be effective in discovering crises early in their development*. A lot has to do with *ocular inspection particularly of crucial points considered at a higher risk.* Our *organization was also restructured* to allow for a *crisis response reporting* system.

Resp. 28 Our company's crisis response procedure has a monitoring system that specifies a reporting hierarchy that ensures important information reaches the top quickly and all those crucial to the response effort. It is important that the exact nature of the crisis is communicated to all who shall feedback information to top management for support and direction, and that the first responders should be knowledgeable, prepared and equipped.

Resp. 29 There is no guarantee, but I think the *monitoring process put in place will be sufficient to identify a slow-developing crisis event in less than an hour after*

> *the first discernible signs, and a quickly developing one within five minutes.* When it is recognized, a *reporting system that simultaneously short-cuts through the hierarchy to alert key crisis decision makers* (chiefs of technical services and engineering primarily, legal, personnel, media and community relations, CEO) immediately goes into effect. Our crisis action team also alerts outside partners such as the fire department, hospital, community leaders, depending upon the nature of the crisis. The company is equipped with sufficient firefighting equipment, our biggest risk, and we have protocols in place for earthquakes and other scenarios arrived at during planning.

Midstream companies, with few exceptions, likewise address crisis management with grave concern. Once crisis is detected, special procedures that work parallel to the regular operating procedures come into play (Respondents 11, 15, 20, and 23). Product handling processes go into shutdown to secure the critical areas and reduce the chances of further damage (Respondents 11 and 20). Speed of communication internally within the company and externally with government services and community leaders is essential (Respondents 1, 20, 23 and 29). Not all midstream participants indicate that they have developed advance response systems, however; some have not yet seen the need for it for lack of having experienced any crisis of sufficient magnitude to warrant dedicating a crisis response team or more elaborate crisis response procedures (Respondents 8, 14, and 21).

Downstream (retail and distribution).

Resp. 6 Like I said, our crises situations are much downplayed, and we do look out for hurricane warnings, possible product spills, and the possible release of gas emissions and pollutants into the environment. The station manager, assistant manager who takes the night shift, and station attendants have been briefed on likely emergencies.

Resp. 7 No crisis event so far, but we had a near accident when *a car loading gasoline caught some static electricity and a small fire broke out*. It caused some darkening of the canopy. Good thing we were able to put it out.

Resp. 10 We have a safety officer who identifies hazards and potential threats. To deal with the crises, managers mobilize their people to secure their respective areas. We follow the safety procedures of the industry.

Resp. 12 We rely upon the vigilance and foresight of our station and area managers to identify possible problems in the particular station and area they serve. They are ready with firefighting procedures and equipment, and are also on the lookout for possible leaks and spills of the product.

Resp. 13 For a while we had a bit of a problem with *a delivery lorry that did not know it was leaking product*, so yes, early recognition is a problem for us.

Resp. 16 Difficult question, but in our case we should have recognized the symptoms early. But I *believe the experience has been eye-opening for us so we know now how to take the pulse of the social and political situation*. As for disasters, we are trying to get that working also.

Resp. 18 We rely on the *standards developed by industry to inform us the danger signs of possible crises*, in so far as those crisis events are concerned that influence the entire industry. Then we set our own targets and margins for our company, beyond which we are alerted that concerns are possibly developing. For us to try second-guessing too far at this point is however too costly, so we proceed cautiously as needed.

Resp. 19 We practice hands on management, so we are aware at the top when things are about to go awry. Part of *the advantages of flat organizations* is that communication and decision making are fast and *specialized procedures for reporting and coordination are not necessary*. The company owner is almost always within the premises and monitoring operation.

Resp. 24 Our company has a reporting system and alarms that may be set off by the unit leader in the area the emergency breaks out.

Resp. 25 We try to train our managers in different installations and plants to be vigilant concerning risk assessments in their areas and to immediately alert upper management at the likely onset of those that can be foreseen. For those that just take place without foreseeable warning, we ask for an alert ASAP.

Resp. 26 We work with the weather bureau, the police and firemen, and keep communication lines open also with the local news service. We have an emergency response team composed of managers and supervisors.

Resp. 27 I think the risk manager makes the forecast at the beginning of the year and gives our top managers the things to look out for. We don‘t have a special system, but we do have a *fire brigade* in our plants. These are just the same

personnel there who are identified for quick response, and they attend workshops with the fire department.

As in their answers to the preceding questions, participants for the downstream industry show remarkable similarity – and lack of systematic crisis organization – in the case of the crisis event management itself. The majority of the respondents indicated that they had not had a full-blown crisis except during the time of natural calamities that practically affect everybody, such as hurricanes, floods, and other inclement weather. Respondent 13 mentioned a delivery lorry that leaked some product, causing a small oil spill, and Respondent 7 mentioned the break out of a small fire that had to do with static electricity that ignited the fumes as product was being loaded into a car. In both cases, the crisis was quickly contained in minutes, although in the case of the fire, people in the adjacent buildings were briefly thrown into a panic. In the case of the minor oil spill, the company was fined by the local government for the oversight. Respondent 16 recalled its crisis when such was the focus of concerted public effort, and underscored the importance of monitoring social and political situations as well as the weather and technical procedures.

Respondent 19 pointed out an important observation that provides an advantage to the small retail company and eludes the large multinational firms. Because several franchise refilling stations are either small or medium scale, their organizations are flat and operations are simple. Ease of monitoring and communication is present and the presence of the company owner (or a close and trusted surrogate) in the immediate premises enables speedy decision-making during the time of a crisis. The quality of

decision-making may be speculated to be greatly enhanced, because the quality of assessment is always better when the decision-maker actually witnesses the crisis event.

Post-crisis management. Post-crisis management is contained in the fourth quadrant of the relational model. Despite its label, this stage still forms part of the crisis management aspect because it encompasses the restoration and rehabilitation activities that are necessarily undertaken after a crisis has actually taken place. Post-crisis management includes recovery and business resumption; post-crisis issue impacts; and evaluation and modification of the system where these are warranted, in order to reduce the chances that the crisis or its effects will recur (See Table 8).

Question E: After the crisis situation has been addressed, what measures are in place to assess the damage and other impacts as a result of the event? What processes would the company systematically undertake to ensure recovery and business resumption? How would the company evaluate and modify current systems to ensure that the crisis event does not happen again?

Table 8

Post-Crisis Management

Post-Crisis Management	Strong	Moderate	Weak	Total
Downstream	21.4%	21.4%	57.1%	100.0%
Midstream	80.05	20.0%	0.0%	100.0%
Upstream	83.3%	16.7%	0.0%	100.0%
Total	53.3%	20.0%	26.7%	100.0%

Upstream (oil exploration and extraction).

Resp. 2 So far we have not experienced any events yet, but I believe we will be able to contain a crisis if we have to. It is possible that because of effective safety and prevention measures we are able to avoid any crisis. But we have *a crisis management group with a general recovery plan,* but *without an event it is difficult to gauge how effective recovery will be.*

Resp. 3 We will have *a crisis assessment after an event, to inventory the physical damage.* Top management will determine changes after that.

Resp. 4 We also have *post-crises scenarios*, such as *possible negative implications on the company's reputation similar to what happened to BP* as a result of their oil spill. We are also prepared to put into action the processes developed per scenario.

Resp. 9 Even before the crisis is over; our management strategists already have *a game plan for business continuity.* Our reputation is our most valuable asset, and we have learned much from the BP fiasco. BP's reputation was sullied by its *misread of popular sentiment*, aside from damaging a lot of businesses. We feel that a *policy of transparency and open coordination* with the community, aside from the maintenance of strict standards of performance, is our greatest asset in ensuring uninterrupted business after the crisis is resolved.

Resp. 17 Part of the crisis response procedures we are setting up is devoted to *event recapitulation - that is, conducting a post-crisis audit and assessment to identify first and foremost what damages have been, and what may subsequently be done to recoup what has been lost.* Most importantly, our strategy is to look beyond that, to *what may be improved* so that our company not only continues its business but comes out better equipped for strategic competition.

Resp. 22 The crisis team is also tasked with the *after-crisis assessment*. Reports from the other groups performing the component functions are directed to the crisis team, and the review is done with a *winding-up conference*, so the team can arrive at an integrated post-crisis course of action. The principal aim is to restore the firm towards normal operations, and also to restore its good relations with the regulators, the community, and the consumers.

Resp. 30 This is a continuing process. Investigation as to how or why the event occurred are on-going with lessons learned shared amongst the entire group to prevent reoccurrence. In the situation where (for instance - total power outage occurs at our Westlake Campus), we are setup for immediate monitoring via a computer site anywhere. Sounds simple, but this has been tested and proved to

> be viable for our operation. As I said earlier, if one looked at a monitoring plan from first beginning with the monitoring center and looked at one today, he would see a change in the way they are written. A continuous learning process is happening - even as I respond to this survey. Plans for future work are being developed and the many processes (peer reviews, DWOPS, research of previous work, incorporating new company and government requirements) is an on-going process to prevent an event from happening. For crisis management this is a continuing process.

Compared to their earlier answers to the preceding questions, a surprising lack of detail exists in the responses of the interview participants in the upstream group for this particular question. The common narrative is that the company shall assess the damage with a post-mortem of how and why the crisis occurred. This may be done by a confluence of procedures such as a post-crisis audit (Respondent 17), an after-crisis assessment and a winding up process (Respondents 3 and 22), peer reviews (Respondent 30), and other data gather and analyses which collectively provide an overall picture of the crisis event. At least two companies mentioned having learned lessons from the BP gulf oil spill (Respondents 4 and 9), particularly concerning those practices that mired the company's reputation. Among important lessons learned is that the interest of business continuity is best served by a policy of transparency and open coordination with the community (Respondent 9). Respondent 2 mentioned that the failure to have experienced a full-blown crisis is a drawback in a company's ability to test its crisis response mettle, but the absence of any disaster or crisis event should not be a reason for slacking in crisis preparedness, because a firm may learn vicariously from other companies' experience.

Midstream (oil refinery).

Resp. 1 *Once we had a fire in the plant* which, thanks to our *training in fire-fighting and the equipment installed nearby* was quickly resolved without negative

consequences. So we feel that the best remedy is always *readiness and prevention where possible*, and when an event occurs, to have the proper skill and equipment available. I believe that each crisis event is capable of teaching us a lesson where we lacked in foresight, planning and execution. After the event, *the crisis leadership meets together with operational personnel to discuss possible improvements*. This way we are sure that if it does happen again, the dangerous effects would be contained and minimal.

Resp. 5 The company takes a *"disciplined approach" to emergency preparedness*, always *with the perspective of business continuity* after the crisis has passed. The company assumes an *integrated approach* that combines the technical with the business and corporate social responsibility aspects.

Resp. 8 Our *technical personnel attend to the technical preparations*, while *management deals with the business and public relations* part.

Resp. 11 Post-crisis procedures are also in place, wherein managers assess the damages to their organizational units and workplaces if any. We *communicate and coordinate everything with the central crisis team who reports directly to the president*. A designated *company spokesman releases information to the media, and the team coordinates with the community*. *Our business strategy development officer* and his staff are prepared with contingency plans aimed at business continuity.

Resp. 14 As long as we are able to *re-establish our supply chain*, we won't have much of a need for higher-level crisis management methods.

Resp. 15 So far there have been no large untoward incidents which threatened business continuity, due largely to our crisis awareness and vigilance, but we have planned for it, emphasizing on *coherent company communication, damage control, and taking strategic advantage of any adverse event*.

Resp. 20 We have already set the foundations of post-crisis business continuity by adopting *a policy of transparency and public accountability*. There should be no problem explaining to the general public after the crisis that *the company had done everything possible to prevent such a crisis, and will continue to exercise measures to mitigate subsequent effects and speed up recovery* so both the community and the company may be restored to their pre-crisis status.

Resp. 21 We will *explain to our clients what happened and what we will do to prevent it* from happening again.

Resp. 23 I think the most important thing is to *mitigate the crisis while it is developing and worry about the face-lifting after the danger has passed*. Yes, much of the after-crisis activity will have to include *recovering damaged reputation as much as it has to do with restoring the damaged property*. People are going to be affected, and if the crisis event was not justified (if it was the company's fault) or if the company was seen to be ineffective in responding to it, then the company is going to lose a lot of following in the market.

Resp. 28 First, the company shall ensure that whatever crisis had developed had truly been over; in the case of earthquakes, for instance, it is possible for a tsunami to follow in some sites. Second, assessments shall be undertaken to determine the full extent of the damage, and scenarios created about possible repercussions. Finally, the difficult job of restoration and rehabilitation shall be undertaken. This includes *PR releases with the media about the firm's status*.

Resp. 29 The crisis response team coordinates with the regular corporate management structure for addressing the long-term repercussions of the crisis. There will be damage assessment and post-crisis planning towards restoration. The strategy is to look at this restoration as an *opportunity to improve current systems* to prevent or at least minimize the possibility of the same situation happening again.

Post-crisis management appears to have broader variations for the midstream sector. Some take a rather simplistic view of recovery, by specifying that the technical personal attend to technical recovery while business attends to business recovery (Respondent 8), or that the post-crisis management need only to attend to supply chain restoration for business to continue as usual (Respondent 14). On the other hand, some take a more complex 'disciplined' and integrated approach towards improvement in a post-crisis environment (Respondent 5) and coordination with a central crisis team (Respondent 11). As with the upstream sector, the importance of candor, transparency, and accountability to the public cannot be discounted if the firm is to once again recover its pre-crisis reputation and restore market confidence (Respondents 11, 20, 21, and 28), although dealing with public perception may be denigrated as mere face-lifting by some

companies (Respondent 23). Experience is a source of further systemic improvement (Respondent 1). Crisis response efforts should be forward-looking with an aim towards strategic improvements (Respondents 15 and 29), and in the long-term these lessons and insights shall be assumed by the regular corporate management hierarchy (Respondent 29) to build into the organizational structure and processes.

Downstream (retail and distribution).

Resp. 6 The station personnel have been trained by the local fire-fighting units, so if a fire breaks out they *know not only how to respond, but to follow through* to make sure the fire is out. Earthquake procedures have also been drilled into them. Management, for its part, makes it a point to be ready to face the media and the community, exercising transparency in explaining the cause of the accident.

Resp. 7 The company had to have the customer's car repaired so the issue will not become too publicized.

Resp. 10 We intend to conduct a *safety audit* after a crisis, and where there are failures we intend to modify the system.

Resp. 12 The station and area managers follow a *reporting SOP* which should bring the event quickly to the attention of upper management. Our *legal department assesses the possible liabilities of the company* to any who were affected, and will advise top management on the best action. The president's staff will take care of PR and news media, while technical staff will respond to government regulators who might be visiting to inquire as to the cause of the accident.

Resp. 13 *Plug up the leak and resume operations*. We sell oil and lubricants to other businesses.

Resp. 16 Nothing yet but we see the importance of these systems now. We are still planning for it.

Resp. 18 The main concern of crisis management *is to tide the company over as best as possible so that business could again be resumed* after it is all over. Of course, we plan for business continuity. Without this in mind, there is no sense to crisis management at all.

Resp. 19 The *owner of the company is also in charge of strategy and contingency*. When we respond to accidents and calamities, there is always a back-up plan to bounce back.

Resp. 24 We have a *safety officer* who, together with the insurance inspector, will be touring the affected site. We also have *an oversight committee* to look into the repercussions of the business aspect, particularly *how sales may be affected by any bad publicity*. Of course, the company will try to adopt preventive measures depending on the type of emergency that developed

Resp. 25 Assuming the crisis has been averted, and then we *evaluate what we had done right*. If the crisis has created damage, we also assess what we could do better if there is a next time, or how to make sure there is no next time. We have a system of reporting beginning from first line managers, and we conduct meetings among the various levels of managers.

Resp. 26 We have an *emergency or contingency fund for clean-up, repairs and equipment replacements*. We are also covered by insurance. The company hires assessors to evaluate the damages in the crisis. I think management will take care of the rest.

Resp. 27 Not sure if there are any post-crises protocols, but of course there will be an assessment and inventory of the damages and replacements. We also have insurance for almost anything.

All respondents interviewed expressed the desire to establish business continuity in a post-crisis environment, but proposed to do it in different ways. Respondents 7 and 13 take the pragmatic approach that directly resolving the immediate cause of the crisis situation will be sufficient in resuming business as usual, but then their courses of action pertain to specific and limited *actual* crisis situations. All other respondents take cognizance of the need to evaluate actual physical damages that may be remedied by some form of repair and restoration, but more complicated is the assessment of damage to the company's reputation particularly if the company is at fault. Restoration of public image may be accomplished by dealing with the public with transparency (Respondent 6) and promptly settling whatever legal liabilities may be rightfully attributed to the

company (Respondent 12). A safety audit should also be conducted, particularly since the downstream sector comes in close contact with the public who may be compromised by a failure of safety measures (Respondent 10).

Most respondents, in this and the other groups, were keen on conducting a post-crisis assessment to determine what had gone wrong. Respondent 25 took also the opposite track and emphasized that a post-crisis assessment should also analyze what the company had done *right*. Knowing what had worked well is as important as knowing what had not, so that the company may enhance those factors that contributed to the success of the crisis operations.

Open question. Open-ended questions were used throughout the interview. The inclusion of this unspecified open-ended question (which invites the respondents to provide any feedback at all) at the end of the interview was intended to sound off the respondents and allow them to open up subjects of interest which they associate with the practices of crisis management in their companies. The rationale behind the inclusion of this question is to provide an opportunity for the respondents to raise those issues which they feel are important in the matter of crisis management and response which the questions may have missed, or which better qualify their answers to the questions, and which could provide added depth to the data. The use of open-ended questions allows for the inclusion of as much detailed information as the participants are willing to contribute, and it also enables the researcher to follow up with successive probing questions (Turner, 2010). By the inclusion of this question, the participants were able to fully express the ideas behind their responses. The last question did not elicit many responses, but this was

to be expected if the respondents felt that the other questions in the interview were sufficiently thorough and their answers adequately expressed their views.

Question F: Feel free to add any comment or suggestion on this topic.

Upstream (oil exploration and extraction).

Resp. 4 Oil and gas companies are of critical service to the community and nation. Managers owe it to the company's stakeholders - employees, customers, community, suppliers, and of course shareholders, to plan for crises events that are not only likely but are as far as possible foreseeable.

Resp. 9 Oil exploration and extraction are high-risk projects businesswise because of the uncertainty of exploration outcomes. Business being as tenuous as it is, crisis management is one strategic means of trying to ensure that the business remains viable.

Respondent 4 made a salient point in stressing management's responsibility to prepare for crises, a matter which appears to have been given serious consideration by the upstream oil companies. As the analysis proceeds down to the lower industry streams, however, the matter of crisis management seems to be given increasingly less attention and emphasis particularly in downstream industries. Respondent 9 provides the explanation to this observation. Upstream oil businesses indeed entail a risk much greater than that assumed by lower-stream businesses, because of this sector's speculative nature, high cost, and long gestation period.

Midstream (oil refinery).

Resp. 15 Crisis management should not be viewed as a separate undertaking; it must be built into the regular business of the company.

This observation by Respondent 15 is ideally applicable not only to the midstream oil companies, but to all firms that do business in oil and gas. As earlier observed by Respondent 1 in his/her answer to Question C (Crisis Prevention), "Crisis preparedness is a state of mind personnel just don't ordinarily maintain." Personnel in the course of the ordinary conduct of their regular duties cannot be expected to maintain a crisis mentality, because this would suspend the utilization of their long-term analytical and functional perspectives Crisis thinking is essentially short-term and provisional, thus to adopt this mentality in developmental planning, which is long-term and circumspect, is counterproductive and strategically misaligned. What may be done, however, is to build in the early-alert indicators and parameters described by several of the respondents in their discussion of crisis recognition and response. Also, while crisis management may not be realistically built into regular operations, effective risk management, which has a broader scope, is compatible with the mainstream management perspective and would significantly reduce the incidences of crisis events.

Downstream (retail and distribution).

Resp. 16 A crisis happens unexpectedly, so it is mind-blowing to think about what to expect when one sets up crisis management systems, but it is a work in progress for our company.

Resp. 19 Not all "innovations" in management are new. Perceptive and insightful businessmen have been dealing with crises for years, but did not call it "crisis management."

A general observation throughout the data analysis process is the tendency of respondents from downstream companies to either marginalize the importance of crisis management or ignore its adoption as a formal undertaking in order to conserve resources

for the main objective of the business, the delivery of the vital good or service. Respondent 16 airs a concern of a majority of downstreamers; that is, that beyond a certain point it becomes futile to create crisis scenarios which puts to waste the time and resources devoted to it. Respondent 19 in effect called the new crisis management a reinvention and an unnecessary one at that, because while crisis management functions had not been institutionalized in majority of downstream companies, this does not mean that they are not applied. The fact that retail and SME oil businesses are mostly run hands-on by their owners makes them intrinsically crisis-responsive in a way that can be realized only through a formal system in larger organizations. Small business owners have a handle on their businesses, and are programmed for crisis resiliency that translates to their companies.

Chapter Summary

The foregoing sections provided the results garnered from the respondents through the interview guide based on Jaques's (2007) issue and crisis relational model. When taken as a whole, the opinions appeared largely divergent and incoherent. But when categorized according to the nature of their business and their location along the production stream–that is, according to whether they belong to the upstream, midstream, or downstream oil sector–then similarities and differences in attitude towards the various aspects of crisis management may be observed along these lines.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Summary

This dissertation sought to determine whether systematic crisis management programs or policies are in place for the oil and gas companies, and how the current situation may be improved. The methodology employed was qualitative, primarily through interviewing 30 managers of at least 10 companies in the oil and gas industry, whether in exploration and production (upstream), refining and transportation (midstream), or the retail and wholesale distribution of petroleum products (downstream). A series of six open-ended questions elicited qualitative answers from the participants from which in-depth analysis had drawn salient findings towards characterizing crisis management systems in the oil and gas industry.

Discussion

This dissertation relied upon qualitative data in order to support an in-depth analysis of the implementation of crisis management in corporations. The results of the interview were analyzed for their content, their tenor, and even for terms that formed codes signifying concepts that linked or contrasted the contexts in which the participants regarded their company's crisis management. The study assumes that the perception of the participants about their companies reflects the truth of the company's attitude toward crisis management, and therefore is made the basis of this discussion.

Evident in the answers to Question A is that the upstream, midstream, and downstream companies differed in their awareness and treatment of crisis management.

In the upstream business, companies understand crisis management in its broadest application, including the standard safety measures and proceeding towards its use as a tool for competitive strategy. The use of crisis management is vital not only in assuring the company's survival, but more so its defense of its competitive position in the industry. The results for upstream respondents in chapter 4 for Question A shows that there had been some answers that exhibited shallow or perfunctory significance. These appear to be in the minority, however, whereas the greater number of responses for the remaining questions is substantial and profound. They exhibited greater detail, and supported more the impression that the large companies that undertake exploration and production are both compelled by law and motivated by self-preservation to systematically implement a full-scale crisis management program.

At the other end of the industry stream, the downstream companies (i.e., those companies whose business deals solely with retail sales and B2B distribution of processed petroleum products) have nowhere near the level of crisis management that upstream companies implement. The extent of their crisis management as per their own qualification is that of contingency planning and response, where contingencies are fire, earthquake, flood, oil spills and leaks, political demonstrations turned mob action by residents in the community, and in one instance, a dispensing error in pumping the wrong product into the customer's tank. Downstream companies are most concerned with the cost of crisis planning and preparation because as the pump price of fuel becomes more severely constrained by the rising cost of suppliers, then retailers grow increasingly defensive of their narrow profit margin. Spending for crisis preparedness in anticipation

of a crisis even that may not happen will only work to further erode what little profit is earned by retailers and distributors.

Midstream companies tend to lean towards the adoption of serious crisis management programs; however, they are also concerned about the cost of doing so. Despite the willingness to engage in crisis management, midstream respondents conceive of crisis management in terms of the immediate relief it could afford the company on the occasion of such crisis events, which is a practical concept. Their concept does not encompass the strategic state of readiness of the firm–essentially an aspect of organizational development–rather than just being ready to fight fires. The crisis approach among midstream companies is short-term technical and procedural, rather than long-term strategic and developmental. This is not to say that midstream crisis management is as superficial as that practiced in downstream companies, because the significance attributed by midstream companies to the merits of crisis management is far more profound and thorough than that exhibited by downstream firms.

Concerning crisis preparedness, companies in the upstream industries generally take this aspect of crisis management seriously, although to varying degrees. Surprisingly, not all the upstream companies polled had crisis management manuals, although they all had some equivalent thereof in the form of a handbook or guidelines. There also was a lack of training for non-technical personnel in one company; but that being said all other companies had manuals, training, and crisis planning which was done to an advanced degree. There was no doubt in the minds of their personnel that given a particular crisis situations, they had no doubt about how they should conduct themselves.

The same appears to ring true for midstream companies, which appeared to rely as much on historical events as on its forecast of possible crises to guide them in the planning, training, and formulation of guidelines and manuals. Scenario building is an important technique employed by midstream companies. The downstream companies appear to significantly deviate from the two, comparatively lacking in preparedness in all aspects– in availability of manuals, training, and planning. Crisis preparedness activities appear to be of little significance to downstream companies, and a cost burden to the company.

Crisis prevention, the next stage of pre-crisis management, included early scanning practices from the monitoring of the news to the setting of indicators and parameters and the conduct of hazard and risk assessments. All three segments of the industry have adopted crisis prevention measures at the level they deem more relevant to their type of business. Upstream companies were emphatic about the urgency of crisis prevention, to an extent regarding this stage as the point where crisis event management (i.e., the course of action taken when the crisis event has become an actuality) is anchored. Again, in this aspect the midstream companies share the attitude of upstream industries towards crisis prevention, which essentially is a state of mind and being which enables the individuals to respond to sudden crisis events effectively and systematically. Downstream industries, on the other hand, appear to adopt the semblance of crisis prevention without completely imbibing the crisis mentality that enables true crisis preparation. The cost of complete crisis prevention again prevents its complete adoption by downstream companies.

Crisis event management begins when a crisis event is recognized. Upstream companies are thoroughly equipped in terms of logistics, training, and institutional support, while midstream companies aim for the same level of competence. Downstream companies appear to deal with a different type of crises events altogether, which may be the motivation for a different method of responding to crisis events. Generally, the scale of crises for downstream companies (involving minor community unrest, fire breakouts and weather disturbances) is much smaller than that involving midstream and more so upstream companies. The scale of likely crises is larger for upstream companies because of the scope and magnitude of their activities and the repercussions of the risks involved (e.g., oil spills). Crisis event management for downstream companies is more in the nature of contingency management.

In post-crisis management upstream companies excel in having a more thorough damage assessment and recovery plan, including the evaluation of physical and functional rehabilitation. The aim of upstream companies is the restoration of business continuity, which necessarily includes the reinstatement of the company's reputation which the crisis event may have damaged. The same is true for midstream companies, although the latter may employ fewer and less complex procedures than those used by upstream companies. For both upstream and midstream companies, transparency and public accountability are crucial to restoring a good public image. Downstream companies, on the other hand, hardly have a post-crisis protocol. While all are desirous of resuming business continuity, downstream companies assume a more direct and pragmatic approach, resolving the crisis event itself and settling legal liabilities that arise

there from. From experience, however, little else is needed beyond that where operations merely involve retail sales and distribution.

Comparison of Findings to the Literature Reviewed

The findings point to a fundamental divergence of viewpoint between the upstream companies and the downstream companies in their view of the nature of crises, with midstream companies varying depending on their scale of operations and the degree to which they are proximate to either upstream or downstream. The upstream industry views the likelihood of crises to be frequent and likely, and covering a broad range of issues, from the technical to the public-relations issues. Crises are viewed as phenomena that unfold through time, and allow for anticipative and systematic response. This perspective is consistent with Hart et al. (2001) and Hargis and Watt (2010), who stressed crises occurrences as developments rather than events. This contrast with the perspective of downstream companies which deal with crises are seen as events essentially removed from any gradual development, which take place as accidents and which therefore could not be predicted. The latter viewpoint is consistent with findings of Tănase (2012), who observed that a good number of smaller and medium companies adopt the event approach in their stance about crisis management.

The likely explanation for the divergence of approaches appears to have much to do with the scale and complexity of the nature of the business. Downstream operations are comparatively small and the scope of operations is narrow, many being primarily retail, easily subject to oversight, dealing in a homogeneous range of products, and serving a (geographically) limited market. The likely crises they are therefore likely to

encounter are limited, mostly concentrated solely on natural disasters and the possibility of fire for which they are suitably prepared. On the other hand, upstream companies are necessarily large and undertake complex operations, are exposed to extraordinary risks, and have a high public profile, which subjects them to the likelihood of significant loss of reputation that profoundly affects business (Coombs, 2007).

Downstream industries are also more likely to neglect the symptoms of crises, and would be slow to acknowledge its existence or imminence (Dubrovski, 2009). Downstream industries also tend to find fault and pass the blame for a crisis, but this is a tendency that is shared by midstream and upstream companies, particularly to the press and when facing inquiries and public criticism (Boin et al., 2010). Another observation across the board is concern for the continuity of business, which is of paramount concern to management and should be achieved at all costs and within a short period of time (Osborne, 2005).

Distinguishing crisis from issue is not a problem for downstream industries, for which safety is the only issue. Since the retail and distribution business is very much straightforward, no broad issues exist that they directly address. This is the reverse for the large upstream exploration companies, which are seen as giants in the economy and therefore prone to issues of greenhouse gas emission and fossil fuel pollution as well as the danger of oil spills and environmental degradation. For these companies, crises encompass the adverse issues (Kurtz, 2004). Upstream companies will address issues, in the same way as it does crises, with the imperative of business continuity in mind. For

that reason, they frame their corporate communication with great care to steer the impact upon the public in favor of the company (Balmer & Gray, 2003; Weber et al., 2011).

Relevant Implications

The findings show that crisis management is systematically and thoroughly undertaken by companies in the oil and gas exploration and production (or upstream) sector, as well as the business firm involved in oil refinery and transportation (or midstream) businesses. The same interest and motivation is not present, however, in companies that are involved principally in retail and distribution (downstream). The implication appears to attach to the type and scale of business that the company is involved in. Companies which are involved in exploration and production are large-scale, involving high risk and high capital outlay, and are heavily regulated by the government. Crisis management takes paramount importance because the speculative nature invites the occurrence of crisis events, and the repercussions of not adequately anticipating and mitigating these events could lead to huge financial losses. Companies which are involved in midstream activities, including refinery and transportation, also require a scale of investment and risk exposure of considerable size and magnitude, and failure to protect against adverse situations could likewise mean significant losses. For these two types of companies, therefore, the investments in crisis management capabilities are well worth the time and effort. On the other hand, retail dealerships and distribution which in many cases are small operations and are run by single proprietors are not particularly motivated to adopt comprehensive crisis management methods because they are too costly, and because the need for them is not acutely felt.

Recommendation

Crisis management as specified in Jaques (2007) relationship model and adopted to the oil and gas sector is particularly appropriate for the purposes of the upstream and midstream oil and gas sectors, but does not meet the needs of those companies operating primarily in the downstream industry. In setting standards for this particular sector, the complexity of activities which is apropos to the larger scale upstream and midstream companies should be modified to allow for less costly, less complicated techniques and processes. Training to be provided need not dwell on the highly conceptual and deal more on the practical. Specific crisis situations can be focused on firefighting, natural disasters, community partnership, and possible technical errors in the conduct of retail filling station activities that have repercussions on the public. A custom standard of risk and crisis management for retail oil and gas stations could be more effective and better serve those purposes for which crisis management is being adopted in the first place. These standards and protocols could be agreed upon by retail operators at the local levels, and applied on a provisional basis until they be deemed suited for adoption when needed.

Future Research

This research was constrained, like all studies, and the focus was limited, allowing for doubts to arise in peripheral areas. Two key assumptions were foundational to the study: (a) that the respondents are competent with respect to their position and knowledge to answer the protocol questions effectively and comprehensively; and (b) that the respondents would answer the questions honestly.

The study relied on a perceptual approach and therefore is anchored on the opinions and perceptions of its respondents, making the foregoing assumptions indispensable. The respondents, though they were considered to be knowledgeable and competent, offered opinions that may have be prone to change in tandem with the changing context of industry parameters. Therefore, the following recommendations are offered.

1. Conduct a study of management's attitudes towards crisis preparedness and management in the industry, given environmental and perceptual framework changes.

2. Conduct a study using the operational data of companies that have undertaken crises procedures. Absolutely no accurate standard for crisis preparation exists that would guarantee that no crises will take place; the only way for crisis preparedness standards to be evaluated is to assess firms which have gone through the full cycle of Jaques's (2007) paradigm. Researchers might use a positivistic approach to analyze existing factual and measurable data, to better understand crises preparation.

3. Conduct a study of international regulations. The politico-legal oversight of oil and gas companies may arguably be an imperative in light of the crises of the Exxon Valdez and the BP gulf oil spill. From news accounts, multinational activity in the upstream oil and gas industry is not fully and comprehensively addressed by present measures to prevent and appropriately respond to such occurrences, let alone to penalize the guilty parties when they do take place.

REFERENCES

Abdullah, A. A., Rahman, H. A., & Awang, M. S. (2011). Identification of the major project management issues in oil and gas industry in Malaysia. *International Journal of Business & Social Science*, *2*(11), 182–194.

Balmer, J. M. T., & Gray, E. R. (2003). Corporate brands: What are they? What of them? *European Journal of Marketing*, *37*(7/8), 972–997.

Boin, A., Hart, P., & McConnell, A. (2009). Towards a theory of crisis exploitation: Political and policy impacts of framing contests and blame games. *Journal of European Public Policy*, *16* (1), 81–106.

Boin, A., Hart, P., McConnell, A., & Preston, T. (2010). Leadership style, crisis response and blame management: The case of Hurricane Katrina. *Public Administration, 88*(3), 706–723.

Bourne, J. K. (2010). Is Another Deepwater Disaster Inevitable? *National Geographic Magazine.* Accessed from http://ngm.nationalgeographic.com/print/2010/10/gulf-oil-spill/bourne-text

Careless workers blamed for explosion. (1989, June 6). *Observer-Reporter.* Accessed from http://news.google.com/newspapers

Carter, W. N. (1991). *Disaster management: A disaster manager's handbook.* Asian Development Bank.

Casale, J. (2010, May). BP spill response tars reputation. *Business Insurance*, *44*(22), 0001-0002.

Center for Disaster Control and Prevention (CDCP). (n.d.) Crisis communication plan. Retrieved from http://www.orau.gov/cdcynergy/erc/CERC%20Course%20Materials/Instructor%20PPT%20Slides/Crisis%20Communication%20Plan.pdf

CEOs feel pay, risk-taking key shareholder worries: Survey. (11 July 2010). *The Times of India: International Business.* Accessed from http://articles.timesofindia.indiatimes.com/2010-07-11/international-business/28298042_1_ceos-transparency-risk-taking

Chase, W. H. (1984). *Issue Management – Origins of the Future*. Stamford, CT: Issue Action Publications.

Coombs, W. T. (2007). *Ongoing crisis communication: Planning, managing, and responding.* Thousand Oaks, CA: Sage Publications.

Cowling, J. (2011, August 31). Arctic oil exploration: Potential riches and problems. *BBC News Business.* Retrieved from http://www.bbc.co.uk/news/business-14728856

Daft, R. L., & Marcic, D. (2011). *Understanding Management*. Mason, OH: South-Western Cengage Learning.

Disaster Dubrovski, D. (2009) Management mistakes as causes of corporate crises: Managerial implications for countries in transition. *Total Quality Management & Business Excellence, 20*(1), 39–59.

Ellingwood, K. (2010. December 20). 27 die in oil pipeline explosion in Mexico. *Los Angeles Times.* Retrieved from http://articles.latimes.com/2010/dec/20/world/la-fg-1220-mexico-oil-explosion-20101220

Exxon Valdez: WWF releases report. (2009, March 26). *Oil Spill Intelligence Report, 32*(14), 2–3.

Fink, S. (1986) *Crisis Management: Planning for the Inevitable*. New York: American Management Association.

Gonzales-Herrero, A., & Smith, S. (2008). Crisis communications management on the web: How Internet-based technologies are changing the way public relations professionals handle business crises, *Journal of Contingencies & Crisis Management, 16*(3), 143–153.

Gumbs, K., & Qian, X. (2012). Board oversight of risk management and crisis preparedness. *Insights: The Corporate & Securities Law Advisor, 26*, (3) 21–30.

Gupta, R. (2011). Corporate communication: A strategic tool for crisis management. *Journal of Economic Development, Management, IT, Finance & Marketing, 3*(2), 55–67.

Hargis, M., & Watt, J. (2010). Organizational perception management: A framework to overcome crisis events. *Organization Development Journal, 28*(1), 73–87.

Harrald, J. R., Marcus, H. S., & Wallace, W. A. (1990). The EXXON Valdez: An assessment of crisis prevention and management systems. *Interfaces*, 20(5), 14–30.

Hart, P., Heyse, L., & Boin, A. (2001). New trends in crisis management practice and crisis management research: Setting the agenda. *Journal of Contingencies and Crisis Management, 9*, 181–188.

Heath, R. L. (2002) Issues Management: Its past, present and future. *Journal of Public Affairs 2*(4), 209–214.

Hillyer, Q. (2010) Not triangulation but regulation. *American Spectator*, *43*(10), 22–25.

Hoff, L. (2001). *People in Crisis: Clinical and Public Health Perspective*. San Francisco, CA: Jossey-Bass Publishers.

Hopkins, P. (2008). The skills crisis in the pipeline sector of the oil and gas business. *Journal of Pipeline Engineering*, 7(3), 149–172.

Internet World Stats (2011). Retrieved from http://www.internetworldstats.com/stats.htm

Jaques, T. (2007). Issue management and crisis management: An integrated, non-linear, related construct. *Public Relations Review, 33*(2), 147–157.

Jaques, T. (2009). Issue management as a post-crisis discipline: Identifying and responding to issue impacts beyond the crisis. *Journal of Public Affairs, 9*(1), 35–44.

Kamal, Q. A. (2012). Energy crisis management. *New Horizons, 11*(1), 26.

Kenya fire: Nairobi blaze kills at least 75. (2011). *BBC News*. Retrieved from www.bbc.co.uk/news/world-africa-14879401

Laws, E., Prideaux, B., & Chon, K. (2007). *Crisis Management in Tourism.* London: CAB International.

MacKenzie, D. (2011, October 29). Operation clean-up. *New Scientist*, *212*(2836), n.p.

McDaniel, C. D., & Gates, R. H. (1998). *Marketing research essentials,* (2nd ed.). Cincinnati, OH: International Thomson Publishing.

Morse, G. (2004). What's the plan? *Harvard Business Review*, *82* (6) 21–22.

Muffet-Willett, S., & Kruse, S. (2009). Crisis leadership: Past research and future directions. *Journal of Business Continuity & Emergency Planning, 3*(3), 248–258.

Oil and Gas Infrastructure. (2012). *Japan Oil & Gas Report*, *Q2*(2), 28–33.

Oil and Gas Risk/Reward Ratings Methodology. (2012). *France Oil & Gas Report*, *Q2*(2), 58–61.

Omolara, A. C., & Olayide, O. O. (2011) Global economic and financial recovery in the oil and gas sector. *Journal of Emerging Trends in Economics & Management Sciences*, *2*(5), 450–453.

Osborne, S. P. (2008). *Nonprofit Organizations in Europe: Prospects and Challenges*. New York, NY: Routledge.

Palast, G. (2012a). BP covered up blow-out two years prior to deadly Deepwater Horizon spill. *EcoWatch.* 19 April 2012. Retrieved from http://ecowatch.org/2012/bpcoverup/

Palast, G. (2012b). Part 2: BP covered up blow-out prior to Deepwater Horizon. *EcoWatch.* 20 April 2012. Retrieved from http://ecowatch.org/2012/part-2-bp-covered-up-blow-out-prior-to-deepwater-horizon-2/

Paterson, J. (2011). The significance of regulatory orientation in occupational health and safety offshore. *Boston College Environmental Affairs Law Review*, *38* (2), 369–389.

Pauchant, C. T., & Mitroff, I. I. (1998). Crisis prone versus crisis avoiding organizations. *Industrial Crisis Quarterly*, 49.

Pearson, C. M., & Clair, J. A. (1998). Reframing Crisis Management. *Academy of Management Review, 32*(1) 59–76.

Probe ordered after Nigeria blast. (2006). *BBC News*. Retrieved from http://news.bbc.co.uk/2/hi/africa/4768159.stm

PTTEP and Indonesian fishermen await answers. (2011, June 6). *Oil Spill Intelligence Report*, *34*(26), 1–3.

Russia issues apocalyptic warning for US gulf coast. (2012. August 15). *EU Times Online.* Retrieved from http://www.eutimes.net/2012/08/russia-issues-apocalyptic-warning-for-us-gulf-coast/

Salazar stresses safety first in new regulations. (2010). *Oil Spill Intelligence Report*, 33(42), 1.

Schleifstein, M. (2012, October 3). Coast Guard investigating oil sheen at BP Deepwater Horizon. *Times-Picayune*. Retrieved from http://enenews.com/oil-reported-at-bps-macondo-well-could-be-fissures-or-cracks-in-sea-floor-noaa-in-coverup

Smith, R. (2007) Exxon Valdez oil spill. Retrieved from http://faculty.buffalostate.edu/smithrd/PR/Exxon.htm

Susi, R. (2002). The Exxon Crisis, 1989. *Effective Crisis Management*. Retrieved from http://iml.jou.ufl.edu/projects/fall02/susi/exxon.htm

Tănase, D. (2012). Procedural and systematic crisis approach and crisis management. *Theoretical & Applied Economics, 19*(5), 177–184.

Terrell, H. (2011). Special focus: Well control and safety–Improving drilling safety in deep water. *World Oil Online*. *232*(1). Retrieved from http://www.worldoil.com/Improving-drilling-safety-in-deep-water-January-2011.html

Thamotheram, R., & Le Floc'h, M. (2012). "The BP Crisis as a 'Preventable Surprise': Lessons for institutional investors." *Rotman International Journal of Pension Management*, *5*(1), 68–76.

U.S. offshore oil & gas potential limited only by regulators. (2012). *Electric Light & Power*, *90*(2), 4–5.

Who's blamed by BP for the Deepwater Horizon oil spill? (2010, September 8). *BBC News US & Canada.* Retrieved from www.bbc.co.uk/news/world-us-canada-11230757.

APPENDIX. QUESTIONNAIRE

Questions are based on Jaques's (2007) model

1. What does the term "crisis management" signify in your company?
2. Does your company engage in crisis preparedness activities? What planning processes are done? Does your company engage in training simulations? Does your company have a systems manual as part of your crisis preparedness protocol?
3. Does your company engage in crisis prevention measures? Does your firm engage in early warning scanning, and if so, what indicators are systematically scanned or monitored? What issue and risk management systems are in place? Has the company allocated for a system of emergency response in case an event takes place?
4. When a crisis event occurs, how does your company expect to recognize it at the soonest possible time? Once a crisis is recognized, what systems are in place to activate a response? What organisation, personnel, equipment, and procedures are in place to manage the crisis in its duration?
5. After the crisis situation has been addressed, what measures are in place to assess the damage and other impacts as a result of the event? What processes would the company systematically undertake to ensure recovery and business resumption? How would the company evaluate and modify current systems to ensure that the crisis event does not happen again?