CHAPTER I

INTRODUCTION

1.1 Background of Study

The environment in which most organizations are operating is always changing rapidly. Being failed in adapting and responding the complexity of the new environment then, sooner or later, tends to lead the organizations into a survival problem. It is then becoming increasingly difficult to ignore that the development, implementation and use of an adequate performance measurement and management frameworks in this climate of change are becoming the major challenges confronting organizations and significantly contributing their success (Santos *et al*., 2002). Increased global competition, in its turn, has potentially motivated many managers in business organizations to evaluate their competitive strategies and management practices aiming to improve the performance of an organization in order to obtain its sustainable competitive advantage (Barney, 2007).

Furthermore, increasing awareness of sustainable development phenomenon is forcing a global business environment to find some innovative solutions (Senge *et al.*, 2008). An integrative term, encompassing most of the relevant aspects of the interaction among ecological, economic, and social sustainability, or – in other word- as an integrative way of thinking and acting based on an organic perspective is, as a result, becoming an alternative to be applied (WBI, 2000; Ingebrigsten and Jakobsen, 2006). Understanding how sustainability is becoming a business priority at the management levels is something vital (Senge, *et al.*, 2008). Business organizations, related to this issue, should understand the importance of sustainable development in perspective and practice, and are acting

accordingly. It is also becoming an increasingly prominent focus of international and national policy-making to ease everyday life and comprehend the effects on society, economy, and ecology (Sebhatu and Enquist, 2007). For these goals, various international organizations and individual countries have developed *Sustainable Development Program* as an integral part of sustainability of *Total Quality Management* or TQM (Sebhatu and Enquist, 2007; Ahmad and Schroeder, 2002). To meet these challenges in this global competition and global business environment, the substantial resources in adapting and implementing the strategies called TQM in turn have been clearly invested in many businesses (Demirbag *et al*., 2006).

The above view also underlines the principles of TQM, as a means to improve an organization's performance in order to achieve such benefits as enhanced customer satisfaction, improved quality of goods and services, productivity and profits, and reduced waste and cost among other benefits (Choi and Eboch, 1998; Elmuti and Kathawala, 1994; Evans and Lindsay, 1995; Schuler and Harris, 1991 cited in Sadikoglu, 2004). These principles in fact have been widely utilized by the public organizations in the United States since the end of 1980s (ByeoungGone, 1997). In addition, Terziovksi and Samson (1999) and Demirbag *et al.* (2006) define TQM as a holistic management philosophy that integrate strategy, management practice and organizational outcomes (a quality organization) that continuously improves and sustains performance along with the participation of all employees under a leadership of top management.

TQM originally comes from manufacturing, where statistical quality control (SQC) measures were initially used to reduce product defects. TQM related to the customer focus and the use of traditional quality control techniques outside the production area, however,

has been being applied in service industry, government agencies, private industries, health-care organizations, and education as well (Harris, 1995; Saylor, 1996 cited in Sadikoglu, 2004). Additionally, it recently has evolved as an approach to quality characterized in terms of an integrated, systematic, organization-wide strategy to improve product and service quality (Dean and Evans, 1994; Tenner and DeToro, 1992, Waldman, 1994). TQM originally could be viewed as a paradigm shift (philosophy) in both thinking and organizational culture instead of a program, specific tool or technique (Sashkin and Kiser, 1993 cited in Waldman, 1994).

It is said that the basic purpose of an organization is to reach a desired steady state (Bailey, 1992) commonly referring to long-term organizational effectiveness and survival (Kast and Rosenzweig, 1972). TQM, in its turn, is prescribing an organizational goal of an organization in establishing quality enhancement as a dominant priority (Hackman and Wageman, 1995; Spencer, 1994; Wang, 2004). In line with this, TQM philosophy says that only through quality enhancement, an organization is able to obtain long-term effectiveness and survival (sustainable competitive advantage). Thus, the basic purposes of a TQM organization are to reach organizational effectiveness and to ensure the existence and sustainable development of the organization (Domingo, 1996).

On the other hand, one question, according to Wang (2004), will arise related to the goal of an organization that is "what do long-term organizational effectiveness and survival mean?" In the TQM paradigm, long-term organizational effectiveness and survival mean satisfying customers in which customers themselves can be broadly defined into internal customer and external customer or stakeholder. In other words, the phrase "*satisfying customers*" means satisfying every human being in our society (Evans and Lindsay, 1996).

In addition, the purposes of TQM organizations should include the employees' personal fulfillment (satisfying internal customers) and the organizational contribution to the society (satisfying external customers) (Miller, 1992). In the same way, a set of operating performance measurements that incorporates satisfying internal as well as external customers is needed to measure organizational performance and improvements (Tatikonda and Tatikonda, 1996; Vokurka and Fliedner, 1995).

Sadikoglu (2004) stated that there are insufficient and mixed empirical results of the relationship between TQM implementation and performance with respect to both issues of conceptual and contextual factors in an organization related to TQM implementation. Sadikoglu (2004) and Montes *et al.* (2003) found the conceptual factors that implementation of TQM effectively improved financial performance (Hendricks and Singhal, 2001), operational performance (Shah and Ward, 2003), customer satisfaction and plant performance (Choi and Eboch, 1998), market share and productivity while reducing cost, employee turnover, employee complaints (Schuler and Harris, 1991), perceptions of quality-of-work life, employee productivity, quality products (Elmuti and Kathawala, 1994), and various performance levels (Kaynak, 2003). TQM implementation in short needs top management leadership, visibility, and sustained commitment over a long-term process.

Nevertheless, some companies, in fact, do not gain any advantages from TQM implementation (Sadikoglu, 2004 and Montes *et al.,* 2003). For instance, Yeung and Chan (1998) found several case studies in which manufacturing companies with a quality management system in Hong Kong did not gain any operational efficiency and financial benefits. McCabe and Wilkinson (1998) furthermore explained the failure of TQM

implementation from a case study in a medium sized bank. Some authors (Bohan, 1998; Masters, 1996; Smith *et al.*, 1994; Whelen and Rahim, 1994) similarly gave the reasons for the failure and the barrier of TQM implementation such as improper understanding of TQM, the lack of top management support and the inflexibility of the corporate culture.

While some researchers within the area of TQM implementation seem to express the idea that an adaptation to the conceptual factors of an organization is a necessary mechanism in affecting company performance. They also view that the adaptation of the conceptual factors is not similar with what is meant by contextual factors. Some, additionally, involve a narrow definition that the company size and industry type do (or do not) significantly affect acceptance of the successful TQM implementation (Hendricks and Singhal, 2001; Shah and Ward, 2003; Sadikoglu, 2004). In a traditionally managed organization, quality is often viewed as the sole responsibility of the quality department or the quality manager—the problem of isolation (Goetsch, 2005). The weaknesses of this approach could be the evidence when organizations involved were beginning losing market share to foreign competition in the 1970s and 1980s. For others, the notion of contextual factors goes beyond the narrowly restricted size of the company and industry type to include a larger development of TQM dynamics model at a strategy formulation level, the layers of management, and the integration among change initiative programs (Ahire and Ravichandaran, 2001; Leonard and McAdam, 2003). TQM then solved the problem of isolation by making quality for every person's job and casting the quality manager in the role of facilitator and catalyst (Goetsch, 2005).

Successful TQM implementation should consider the other contemporary management practices such as learning organization through *operational excellence practice, world-*

class organization (i.e. world-class company practice), and *performance management* (i.e. company performance) as an integrated network (connection) management practices (Luthans *et al.*, 1995). TQM researchers, in their attempt to develop a comprehensive TQM implementation model, have sought out the contextual factors that affect TQM effectiveness (Montes *et al*., 2003). Gilbert (1992) and Raffio (1992) cited in Montes *et al.* (2003) argue that is when a TQM program is implemented properly, the company productivity and/or profitability will improve then.

So it can be concluded that this improvement is a result of the TQM implementation program. Nonetheless, the improvement noticed essentially could have originated as a result of other events concurrent in time along with the intervention. It means that a relationship between the improvement process and the organizational results could have been obscured by some exogenous shocks—contextual factors of TQM implementation such as environmental or market factors (Montes *et al*., 2003). As a result, a concern must be deeply given to the conceptual and contextual factors and attempts are also needed to realize that TQM implementation should not be operated separately from other change initiative programs (contextual factors)—it actually could be integrated instead. This study in turn is also designed to investigate the rationale of linkage among ten research constructs (including two contextual factors)—six critical factors of quality management practices, world-class company practice, operational excellence practice, company non-financial performance, and company financial performance.

In fact, TQM is described as a total system approach (Sitkin *et al.*, 1994) in which one of its major principles is the appreciation of systems (Leonard and McAdam, 2003). Therefore, a collaboration of TQM with other theories and practices as a total system is able to assist in

developing TQM dynamics models (Vancouver, 1996; Leonard and McAdam, 2003). Here, the study by the researcher is designed to develop a comprehensive model of TQM implementation by empirically examining and focusing on the structural relations of critical factors among quality management practices, contextual factors related to TQM implementation (world-class company practice, operational excellence practice), and company performance (financial and non financial) based on management's perception in oil and gas industry in Indonesia. By testing the model the researcher suggests that structural relations among *critical factors of quality management practices* (or QMP), *world-class company practice* (WCC), *operational excellence practice* (OE), and *company non-financial performance* (CNFP) may lead to superior *company financial performanc*e (CFP) using *structural equation modeling* (SEM).

1.2 Problem Statement

Despite some attempts are paid on the applicability of TQM practices and advanced business technologies as well as their impact on organizational performance, so far there have been little systematic empirical evidences regarding the extent of TQM implementation and its effect on performance of oil and gas industry in developing countries, as occurred in Indonesia.

In October 2001, Indonesia's oil and gas industry experienced several significant reforms with the passage of the new Oil and Gas Law No. 22/2001. The new law forced state-owned oil and gas company Pertamina to relinquish its role in granting new oil and gas development licenses and limited the company's monopoly in upstream and downstream activities. Pertamina's regulatory and administrative functions were transferred to the new regulatory bodies, the Executive Body (BP MIGAS) that took over State Owned

Company's upstream functions and the Regulatory Body (BPH MIGAS) that supervised downstream operations. Pertamina was formed into the limited liability company PT Pertamina (Persero) by presidential decree in 2003, although it remains a state-owned entity. Pertamina has been laying the groundwork for full privatization to take place at some point in the future (Indonesia Oil and Gas Information, 2004).

For having been being a leader in implementing a progressive quality management system in Indonesia, the oil and gas industry then purposively is selected for this study. It has also been being an engine of economic growth (Hakim, 1996). The oil and gas businesses work in concert to provide the energy (oil and gas) that drives human progress. Oil and gas industry in Indonesia uses a quality management system to maximize the mature fields and discover the new reservoirs; and also to provide the world's escalating demand for natural gas (Chevron Indonesia, 2007).

Oil and gas industry principally plays a very crucial role to the economy in Indonesia from the economic growth perspective, as it, in particular, is expected to be a key driver in economic revival following the recent crisis (1997-2007) accounting for close to 6% of national *Gross Domestic Product* (GDP) (MEMR, 2006). The decades of declining investment in exploration and extraction has lead Indonesia to import oil in recent years due to the country's falling crude oil production (*The Associated Press,* 28 May 2008). As a result the Government of Indonesia has set up a team to review the membership of Indonesia in OPEC with a final decision to withdraw Indonesia's membership from OPEC at the OPEC meeting in September 10, 2008 in Vienna, Austria. (Unidjaja, the Jakarta Post: August 2, 2005). Previously, the 32nd *Indonesian Petroleum Association* (IPA) Convention and Exhibition held from 27 until 29 May 2008 in Jakarta - with its one of the most critical

recommendations due to the current increasing of the world oil price and the decreasing the oil petroleum lifting in Indonesia – had advised the Government of Indonesia (GOI) – in consideration - to egress from the member of OPEC in 2008.

As a result, the period of 2008-2023 – as the period where IPA encouraged oil and gas producers to gradually increase the oil petroleum lifting in Indonesia – is becoming the critical time to enhance the production of petroleum in Indonesia. It is also important to realize that the period of 2001-2008 is a critical transition period for oil and gas industry in Indonesia following passage of a new oil and gas law (Law number 22/2001) in October 2001 to replace the 1960 Oil and Gas Law and Law for State Owned Corporation 8/1971. This new law requires the upstream and downstream sectors to deregulate within five years (2001-2006).

As the success of oil and gas industry has a direct impact on the national economy—especially to enhance the petroleum production in the period of 2008-2018; and the consequences of the realization of new oil and gas law number 22/2001, this study presents new data and empirical insights into the structural relation among QMPs, WCC, OE, and company performance (CFP and CNFP) in oil and gas companies operating in Indonesia. In some instances, companies have launched several quality management initiatives with great enthusiasms to achieve performance improvements that tend to be short-lived. They, for that reason, fail to carry on the sustainable improvement and development efforts and also cannot remain competitive in oil and gas industry over long periods of time (Ahmad and Schroeder, 2002).

The problem of the study is that there is no a clear comprehensive framework presently to show the relations among QMPs, contextual factors (WCC and OE), and company performance (CFP and CNFP). This comprehensive relationship is generally quite limited in literature and most precedent studies have primarily focused on the association between specific dimensions of critical factors of TQM and company performance (Demirbag *et al*., 2006; Feng *et al*., 2006; Kaynak, 2003).

In this study, the researcher attempts to understand an interaction between QMPs and CFP through the mediating of WCC, OE, and CNFP. The primary purposes of this study are to offer new empirical evidence on the form and strength of the relations among QMPs, WCC, OE, and company performance (CFP and CNFP) in oil and gas business units that have adopted TQM. Theoretical support for the constructs used in this investigation primarily comes from the TQM discipline.

The rest of Chapter I is organized as follows. The next section provides six research questions and purposes of the study. The research methods are presented in the section of the description of research methodology. Following this, the significance of the study is presented followed by the scope of the study. The organization of the thesis is becoming the last section of this chapter.

1.3 Research Questions and Purposes

The focus of this study is on a set of stuctural relations among variables for the whole model of the study to be examined. To assess how structural relations for the whole model of the study (a comprehensive TQM implementation model) actually is practiced in oil and gas industry in Indonesia, six types of research questions are addressed with SEM.

1. What are the critical factors of quality management practices that would facilitate TQM implementation model in oil and gas industry in Indonesia?
2. What are the most significant influence of the critical factors of quality management practices to the world-class company practice?
3. What are the most significant influence of the critical factors of quality management practices to the operational excellence practice?
4. How do world-class company practice and company non financial performance mediate the impact of critical factors of quality management practices on company financial performance?
5. How do operational excellence practice and company non financial performance mediate the impact of critical factors of quality management practices on company financial performance?
6. What is the influence of company non financial performance on the company financial performance?

From the research questions the following objectives were formulated:

1. To analyze the critical factors of quality management practices that would facilitate TQM implementation;
2. To determine the most significant influence of the critical factors of quality management practices to the world-class company practice;
3. To determine the most significant influence of the critical factors of quality management practices to the operational excellence practice;
4. To reveal world-class company practice and company non financial performance mediate the impact of critical factors of quality management practices on company financial performance;

5. To reveal operational excellence practice and company non financial performance mediate the impact of critical factors of quality management practices on company financial performance;
6. To determine the influence of company non financial performance on the company financial performance.

1.4 Description of Research Methodology

The surveys are conducted at several selected oil and gas companies whose types of oil and contractor companies are specifically chosen from the *Directorate General of Oil and Gas of Republic of Indonesia*. The primary objectives of these surveys are to develop a structural relations model including the interrelationships among the research constructs; and to analyze the relations among the research constructs (QMPs, WCC, OE, CNFP, and CFP) which are both substantively meaningful and statistically well-fitting.

A sample of 140 *Strategic Business Units* (SBU) within 49 oil and gas contractor companies participated in this study. The surveys were conducted for nine months and couriered by the researcher for analysis through traditional postal questionnaire surveys, and internet or e-mailed questionnaire/web surveys to distribute and to complete the questionnaires directly at a single point in time (a cross sectional study). A multiple informant sampling (a stratified random sampling) unit was used to ensure a balanced view of the relationships between the research constructs, and to collect data from the most informed respondents on different levels of management (top level, middle level, and low level management).

Data were coded and entered into the computer using SPSS. The SPSS and AMOS are utilized to analyze the data. For quantitative analysis of data, general descriptive and advance statistics including *factor analysis*, and SEM are conducted.

1.5 Significance of the Study

With regard to the significance of this study, several suggestions can be proposed as follows:

First, this study has attempted to develop a comprehensive TQM implementation model for oil and gas industry in Indonesia by concentrating on the assessment of overall impact of QMPs on CFP through WCC, OE, and CNFP. Various contemporary management concepts, what is more, derived from a field survey and extensive literature reviews are employed in this study.

Second, this study is focusing on an empirical investigation of using quantitative research approach in three levels of management. There are several studies attempting to investigate the impact of quality management practices on the organizational performance. However, they do not include all three levels of management.

Third, the extensive TQM implementation model can be considered as a contribution to TQM literature. The contribution of the present investigation is the analysis of a large sample of strategic business units (140 SBUs within 49 oil and gas companies) and multiple informant sampling respondents (1,332 managers—top, middle, low levels of managers) from the similar industry (a single industry—oil and gas). By concentrating on a single industry (oil and gas), it is expected that SEM specification of the TQM

implementation for oil and gas industry in Indonesia could be more complete and specific in that the unique characteristics of the oil and gas industry can be built-in.

Fourth, the most important contribution of this study is to provide an overall framework for the development of a measurement instrument of TQM implementation model in oil and gas industry.

1.6 The Scope of The Study

This scope of the study focuses on the implementation of TQM in oil and gas industry in Indonesia. This study attempts to give a comprehensive contribution about the knowledge of TQM and examines the relations among QMPs, WCC, OE, CNFP, and CFP simultaneously. In addition, as seen in the proposed relations model, complex relations can be examined. Since the phenomena of the study are complex and multidimensional, SEM considerably is the appropriate analysis that allows complete and simultaneous tests of all relations for the whole model of the study (Ullman, 2006).

1.7 Contribution of the Study

This study develops a comprehensive implementation of TQM by examining the relations among QMPs, WCC, OE, CNFP, and CFP in the oil and gas industry in Indonesia. Contributions from this study will be from three sources.

Firstly, previous literature primarily focuses on the relationships between specific dimensions of QMPs and CFP with little consideration given to the contextual factors such as WCC, OE, and CNFP. *Secondly*, this study observes how critical factors of QMPs affect the CFP through the mediating variables of WCC, OE, and CNFP. *Thirdly*, this study has

contributed to the knowledge of TQM by identifying the constructs associated with a comprehensive TQM implementation model, developing scales for measuring these constructs, and emprically validating the scales. More important, the ability of SEM techniques to assess the relations comprehensively of the TQM impelementation model has provided a transition from exploratory to confirmatory analysis (Bollen, 1989 cited in Curkovic et al., 2000).

1.8 Organization of Thesis

The outline of the thesis is organized as follows.

Chapter I provides an **introduction** to the issues (conceptual and contextual) in which the research is concerned – the development of TQM implementation model and a brief overview of comprehensive quality management system by describing TQM paradigm both in the private and in the public organizations. Other quality oriented issues, the objectives of this study, description of research methodology, significance of the study, scope of the study, and the contribution of the study are also discussed.

Chapter II is dealing with **literature reviews** relevant to TQM, the contextual factors of World-Class Performance in Operations (WCC, OE), and Company Performance (CFP, and CNFP**)**. A discussion of a major comprehensive TQM implementation model for oil and gas industry in Indonesia is provided in this section

Chapter III describes and explains a **research methodology**. Questionnaire mail survey, e-mail survey and interview to the top level, middle level and low level managers at the SBU level in the oil and gas companies are becoming the bases of this explanatory study.

The key research questions, the research design and hypotheses development, the research procedure, sampling method, research instrumentation, and statistical method are reviewed and elaborated. In the last part of the chapter, the researcher provides a description of structural relations analysis (SEM and decomposition of effect in path analysis).

Chapter IV presents **the results** of the study, complete with data analysis. Data analysis for this study involves three major steps, namely *the data reduction process*; *quantitative data analyses* (the structural relations and mediation analyses) using SEM.

Chapter V contains the interpretation of the results (**discussion)**. The research findings are also discussed by comparing and constructing with those previous studies presented in the literature review.

Chapter VI presents **the conclusion** with an overall summary of the study as well as table of significance findings, implications and reflections for further research. A promising comprehensive TQM implementation model for oil and gas industry in Indonesia at last is provided and explained.