

CHAPTER I

INTRODUCTION

1.1 Introduction

This chapter explains overview and background of the study, it describes the problem statements that justifies the development of the research questions and clearly states objectives of the study. Other areas of the study such as the hypothesis, significance of the study as well as scope of the study are also presented. Finally, operational definitions are also provided.

1.2 Background of the Study

Algeria is the leading country in the production of natural gas in Africa and the second largest supplier of oil and gas to Europe outside of its domain (US EIA, CAB, 2016). It began producing crude oil in 1958. According to Sonatrach, about two-thirds of Algerian territory remains under-explored or unexplored. Algeria is believed to have extensive shale oil and natural gas resources, but little progress has been made toward utilizing the resources. Algeria has one of the largest established refineries for natural gas around globe. Sonatrach Petroleum Corporation (SPC BVI) was established in 1989, in accordance with the International Business Companies Ordinance of 1984 to manage the refineries. This oil and gas industry of Algeria is ranked as the twelfth in the world (EIA, 2013) and Sonatrach is the first oil company in the Mediterranean, the fourth world largest exporter of natural gas and the second one for LPG. The oil company role was, essentially, to contribute in the national development of Algeria by generating external payment means, and meet the existing and future hydrocarbons requirements of Algeria. After twenty-eight (28) years of successful and diversified trading and shipping activities, SPC (BVI) established a reliable reputation on regular and continuous access to products from Algeria as

well as from other countries worldwide. The industries as a member of OPEC have an approximately \$90 billion in foreign currency reserves, though the balance has fallen significantly since 2014 because of lower oil and gas prices with an extremely low external debt at about two percent of GDP and labor productivity (Sonatrach Annual Report, 2019). However, Algeria still possesses 20 trillion cubic meters of technically recoverable shale gas and the third-largest quantity of untapped shale gas resources in the world. Sonatrach has signed several cooperation agreements with IOCs to develop unconventional resources, with a focus on shale gas horizontal drilling, but also to assess technical and commercial feasibility.

Skikda oil and gas refinery among other refineries in Algeria; is the largest refineries in Northeast Africa and represented the greater part of Algeria's absolute processing plant limit (EIA, 2019). Skikda is located along Algeria's northern coastline; it processes the Saharan blend, which derives from the Hassi Messaoud oil fields. Upgrades or expansions of facilities at Hassi Massaoud and Biskra have been proposed, but whether they will be completed on time is unclear. Overproduction and under-investment in maintaining the Hassi Messaoud field has resulted in long-term damage to the reservoir, leading to accelerated decline rates which could result in further accident and put employees at risk. Oil and gas industries are perhaps the most hazardous industry with regard to well-being and security of its workers. They are multifaceted and risky because of their active working environment. Moreover, growing global energy demand has resulted to the need for risk assessment models for satisfactory working environment and clear-cut policy development (Dehdasht et al., 2017).

Despite being the largest refineries in Northeast Africa, Sikkda has encountered various risk issues and remains for the most part prone to accident (Ramaswamy & Mosher, 2018). Past studies had examined various accidents that had occurred at Skikda oil refinery from 2003-2016

(Chettouh et al., 2018; Basheer et al., 2019) that had serious consequences on the community at large and created diversify risk perception among its employees. In 2004, Skikda treatment facility confronted most genuine blast when liquefaction plant in Algeria detonated in January, repercussions of Skikda are being felt most of the way all throughout the planet. The Skikda misfortune asserted 27 lives and harmed around 80 individuals, making it the deadliest episode at a LNG office in over 30 years. The impact spread outward, harming encompassing designs and offices including a close by power plant, one of the billets at the Skikda harbor. Somewhere around six representatives died on in a split second in the blast. The shockwave evened out the support, security and regulatory structures close to Unit 40, catching laborers under the trash. A few specialists kicked the bucket in the resulting fire, with some apparently caught by a steel fence that encompassed a fire-immersed region. This has resulted to concerns about the safety of employees at Skikda oil refinery and how it affects their performance.

In every industry, employees are the most important elements because they are the driving force of the day today running of such industry, most especially, looking at the risk level in operating oil refineries. Thus, it is very important that the Skikda refinery's employees should be well catered for, and the work environment should be satisfactory and conducive to improve employees' performance. Risk perception is a dynamic process that takes place majorly in oil and gas working environment however, the process is therefore, too complicated to be studied (Yang et al., 2016). This gives ground on which this research is carried out in order to contribute more on the risk mitigation, improve work environment satisfaction and employees' performance. Ouddai et al., (2012) revealed that continuous occurrence of several accidents in some of the oil refineries in Algeria has increased the insecurity feeling and decreasing the trust between employees and employers. These mean that changes in safety policy and management

commitment have not yet provided a positive attitude towards safety for all employees. As such a significant difference occurs among employees' perceptions of risk, with the executives' having positive perceptions as they are more involved in safety issues. As indicated by writings, the guidelines, rules and approaches of oil and gas industry in Algeria are adequately not to keep up with the viability of representatives, and the work environments are extraordinary to themselves, different and consistently evolving. The overall connection among boss and representative that was considered in the past has now changed. In such manner, Khan et al. (2010) expressed that fruitful associations accomplish the continuous unique changes occurring inside them and with their workers. Consequently, top administration is currently dependable to make a huge connection between their representatives.

Aven (2016) argued that risk perception among employees provides insights about how different stakeholders perceive the risk and what concerns they have regarding the risk and the potential consequences. Risk in oil and gas industries is enormous and cannot be overlooked when addressing employees' performance and work environment satisfaction in such industry. The perceived risk is the risk that exists either where employees are aware or not and whether they are concerned about it. Success in avoiding accidents will depend on cognition processing related to the situation.

Fire and accidents cause by interruptions in oil production easily led to significant economic losses, and potential hazards to humans and the environment when employees feel unsafe in their circumstances, their performance is affected. The physical and organizational work conditions affect work pressure and tension, as well as risk perceptions. This in turn affects the ability of employees to deal with situations with objective risk (Boughaba et al., 2014). Findings showed that operational and environmental conditions (risk influencing factors) on the

component of safety barriers, safety barrier performance and accidents frequency on risk levels are critical conditions (Bourareche et al., 2020). In major accidents prevention, the interest is often based on the potential hazards of facilities, which is analyzed through evaluating the harm effect distances of major accident scenarios (Chettouh et al., 2018). In order to demonstrate that hazards have been identified and controlled, the influence of safety barriers (SB) on risk control should be taken into consideration (Meriem et al., 2019). Obsolete methods are still used rather than modern means and feedback experience on accidents in developing countries such as Algeria (Chettouh et al., 2018) which shows that investigations that blow up do not call into question the relevance of the risk analysis methods but often highlight technical and/or human failures (Meriem & Bahmed, 2016).

As a result, employees' performance in Skikda oil refinery has been declining in the recent times (CEIC, 2019). Meanwhile, one of the factors that influence the success rate of an industry is the performance of its employees (Dobre, 2013). Employee performance is an action performed by employee in carrying out the work given to him by the company (Koppelman & Bhat, 2006). However, in oil and gas industries especially in Algeria, industries always expect employees to perform better. Having employees who excel will provide an optimal contribution to increase production level among refineries and the natural gas industries improve its performance especially by meeting up the target of the government. However, yet to be clear, if this has motivated employees to improve their performance and reduce the fear of explosion at Skikda refinery? Is their safety training been put in place to cushion the effect of further fire incidents and other incidents? A study has raised concerns that rather than putting measures in place at Skikda refinery, plant supervisors were feeling the squeeze to meet creation targets and were pushing the envelope at Unit 40 (that have represented different mishaps) to make up for

Unit 10, which was not functional. This has resulted to risky activities that could lead to further chaos at Skikda oil refinery. Therefore, to improve employees' performance at Skikda refinery, risk perception and work environment satisfaction need to be addressed.

The working environment comprises the process, system structure, tool or condition within a given work. Those factors that influence how an individual worker perform his duties also include policy, rule work culture, resources, working relation, location, internal as well as external factors. As a result, work environmental risks control and assessment become crucial in resolving environmental pollution measures when economy aims to pursue green environment and sustainable policies (Yang et al., 2016). In addition, work environment satisfaction and employees' perceived level of risk among staff of Skikda oil refineries in Algeria have called for concerns. Previous study stressed the need to pay greater attention in identification and handling work environment satisfaction. When employees have negative perception to their working environment it could lead to the suffering of severe work conditions (Noble, 2009). In previous study, the Algerian Economic and Social Council gave point by point report that help less danger avoidance measures; deficient requirement of guidelines; and critical dangers are presented by petrol offices and workspace setting at Skikda petroleum treatment facility (Dweck & Boutillon, 2004). However, this has resulted to the question that "does work environment satisfaction really have impact on employees' performance at Skikda oil refinery?" Based on the study of Nitisemito (2010), work environment is everything that exists around workers that can influence them in performing the tasks ahead. This will make employees to determine whether work environment settings are satisfactory. Raziq and Maulabakhsha (2015) revealed that in modern settings, industries are encountering various issues due to the diversify nature of the environment. If satisfactory working environment is provided to employees, then it can spur the

emergence of a sense of satisfaction in the employee and can ultimately give a positive influence on employee performance. However, if the working conditions are bad this may negatively affect employees' performance. In fact, satisfactory working environment and comfortable workspace will make employees to work more enthusiastically and focus on finishing their jobs on time. This view is upheld by past examination that utilized quantitative procedure on 210 representatives and uncovered that positive relationship exists between workplace and employees' work fulfillment (Raziq, & Maulabakhsha, 2015). This is also evident in prior study that companies that have good working environment will provide motivation for employees to improve performance (Moekijat, 2012).

As the government is looking for ways to increase gas output, lots of concerns have been raised on the pressure being put on Skikda oil refinery employees to meet up with increase in demand, amidst of risk perception involve. Although, Sonatrach has seen high working expense, most especially, due to the unending psychological assault particularly the one that happened in January 2013 on Tiguentourine (in Amenas) that put laborers lives in peril in Saharan areas and presented a more noteworthy component of hazard evaluation in the oil and gas treatment facilities in Algeria and workplace well-being among others. These have contributed to the reasons why this study is being carried out. Notwithstanding, it plans to analyze the effect of risk perception and work environment satisfaction on employees' performance at Skikda oil refinery in Algeria and establish possible solution to improve oil and gas work environment and employees' performance at Skikda oil refinery of Algeria.

1.3 Problem Statement

A study revealed that economic importance of oil and gas refineries and absence of data on related work about issues on refineries in Algeria has created a room for more research on

risk perception and work environment satisfaction (Chettouh et al., 2018). Meanwhile findings showed that fire outbreak use to be the most frequent accident at Skikda oil refinery with serious consequences on the community (Ramaswamy & Mosher, 2018). In 2019, Algerian energy experts said the explosions and fire outbreak at GLIZ was the worst incident since 2004 accident in Skikda's LNG complex, the explosion flattened a large part of the gas plant, which claim the lives of 30 and injured 70 employees. The accident also cost Algeria \$300 million in lost export revenue in addition to about \$1 billion that will be needed to rebuild the facility.

The history of major accidents has demonstrated the diversity of risks that companies face and the need to consider "safety" in the design and operation of high-risk refineries (Basheer et al., 2019). The Skikda LNG accident was the worst petrochemical plant fire in Algeria. Findings showed that petroleum storage and process units have large storage depots and tanks while the chemical manufacturing industries have relatively smaller storage spaces. Among process industries, facilities handling petrochemicals are sites of high hazard incidence and the consequences of storage or process failures in these facilities can adversely impact not only the concerned industry and its surroundings but the socio-economic environment of the region as well (Yacine et al., 2019).

These have put employees at the site at various risk perception and mediate work environment satisfaction. Previous publications addressed accidents at specific facilities (Chettouh et al., 2018); learning from past accidents and a sustainability metric for petroleum refinery projects (Haugen et al., 2018). However, up till date, there are still limited studies that have empirically measured the effect of risk perceptions and work environment satisfaction among employees of Skikda oil refinery. The previous studies are rather narrative and suggestive rather than empirical.

Various studies have studied risk perceptions in relation to human factors (Benmecheta & Belkhir, 2016; Chettouh et al., 2016; Zhang et al., 2019) while less attentions have been placed on employee, and most studies are rather narrative than empirical in nature. The most recent study on Skikda oil and gas refinery (Bendib et al., 2020) only used Bowtie method of risk assessment rather than carrying out empirical analysis. Another, recent study on oil and gas refinery by Kabir et al. (2019) measured workplace environment through correlation analysis in Saudi Arabia, while to the best of my knowledge work environment satisfaction and risk perception have not been measured in relation to employees' performance. However, none of the study has measured these variables together. This is one of the uniqueness of this study.

As such, the inquiry remains whether the view of the workplace straightforwardly or by implication sway employees' performance, and eventually bring about submitted employees to accomplishing organization efficiency. Mediating role of risk perception between work environment satisfaction and employee's performance relationship is still largely unexplored. Therefore, considering the significance and fundamental impact of satisfactory working environment and perception of risk on the performance outcome of individual employees at Skikda oil refineries in Algeria, this study is aimed at examining the impact of risk perception and work environment satisfaction on employees' performance in Skikda oil refineries of Algeria.

1.4 Research Questions

1. What is the effect of employees' risk perception on their performance among staff of Skikda oil refinery in Algeria?
2. To what extent does work environment satisfaction have an effect on employees' performance among staff of Skikda oil refinery in Algeria?
3. Does employees' risk perception have an effect on work environment satisfaction among staff of Skikda oil refinery in Algeria?
4. To what extent does the risk perception mediate the relationship between work environment satisfaction and the employees' performance of Skikda oil refinery?

1.5 Objectives of the Study

1. To determine the effect of employees' risk perception on their performance among staff of Skikda oil refinery in Algeria.
2. To evaluate whether work environment satisfaction have an effect on employees' performance among staff of Skikda oil refinery in Algeria
3. To examine the effect of employees' risk perception on work environment satisfaction among staff of Skikda oil refinery in Algeria.
4. To assess the mediating effect of risk perception on the relationship between work environment satisfaction and employees' performance among staff of Skikda oil refineries in Algeria.

1.6 Significance of the Study

1.6.1 Practical Importance

The results of this research presented findings for the management of Skikda oil refinery and oil and gas industry in general to comprehend the effects of work environment and risk perceptions on the employees' performances and whether risk perception mediates the relationship between work environment satisfaction and employees' performance in oil and gas industries in the country.

The research findings could be used to enhance the functioning states of representatives and survey the general vision and missions of the whole oil and gas ventures. It is, likewise, detectable that the discoveries of this research will empower the oil treatment facilities just as it will help other oil and gas industry to realize how to resolve issues concerning the representatives and its workspace and evaluate the impacts of the newly introduced health, safety and environmental management systems frame work recently put in place to safeguard and ensure accident- free work environment.

It fills in as a kind of perspective material for future investigations around here. Likewise, the outcomes will illuminate factors influencing representative's exhibition taking everything into account. The work is relied upon to give information and measures to work on the workspace of representatives for better execution in the oil and gas organizations explicitly at the petroleum treatment facilities that share comparable conditions with those in Algeria.

1.6.2 Theoretical Importance

This study is also critical from theoretical points of view. It contributes to literature by enhancing the understanding of the employees on work environment satisfaction, risk perception and employee's performance among staff of Skikda oil refineries in Algeria. Such understanding gives a fast and supportive framework for considering the delegate value in some significance especially in Algeria. Despite the obligation to composing, the examination expects that the findings of this assessment may be amazing during action of points of view and technique and will be particularly significant in making recommendations to regulators, scholastics, and various examinations.

The study contributes to the body of knowledge through the investigations of the relationship between work environment satisfactions and employee performance, by using risk perception (mediating variable) as a new contribution. In sum, this study attempts to fill this gap and comprehensively contribute to the issue of employees' performance in the Algerian environment.

1.7 Scope of Study

Algeria has five active refineries as at 2018 with a total capacity of approximately 618,000 barrels per day (b/d) (BMI Research, 2017) and Skikda condensates, and accounted for more than half of Algeria's total refineries capacity. The two other largest Algerian refineries are in Algiers and Arzew and the other two inland refineries are Hassi Messaoud and Adrar which are connected to local oil fields and supply oil products to nearby areas. Skikda processing plant is established in Northeastern Algeria on the Mediterranean Gulf of Stora, home to around 152,000 inhabitants. Skikda modern zone is one of the Algeria's most significant mechanical

destinations utilizing almost 12000 individuals. The zone covers a 3100-section of land region and incorporates seven significant modern buildings including 6-unit gas liquefaction plant and offices delivering naphtha, ethylene, polymers, cleansers and pipeline terminal and getting harbor. The undertakings of these treatment facilities are directed by Algeria's public oil organizations, the Sonatrach.

In other words, Sonatrach was a state-owned company with responsibility for all oil activity in Algeria. This responsibility grew during the 1960s and 1970s with the nationalization of many of the country's foreign-held oil assets, though the adoption in July 1981 of a rather less cumbersome title -Enterprise Nationale Oil Refineries- coincided with a reduction in the company's direct control over these assets. Oil refineries has continued to be responsible for the central features of the Algerian oil and gas industry, but it effectively spun off certain of its operational areas to a number of subsidiaries, with government retaining overall coordination for their activities.

The study believed that using Skikda refinery would give an overview of the other refineries because it is the oldest and one of the tops refineries in Africa. As the oldest refinery, Skikda refinery has encountered various challenges in the past which had put employees at risk. In addition, one of the most pronounced limitations of the current study is that the study relied on quantitative data (Questionnaire survey) for its analyses and as such qualitative information that would have been obtained through in-depth interview might not have been captured. Qualitative and mixed mode may be carried by future researcher. The extent and scope of data collected was limited to items identified in the questionnaire. However, due to time and financial constraints, this study was carried out on employees of Skikda oil refinery in Algeria under SONATRAC and did not involve other employees of other refinery in which future research could investigate.

1.8 Operational Definitions

1.8.1 Employee Performance

Employee performance can be defined as behaviors or actions that are relevant to the goals of the organization (Bos-Nehles et al., 2013). Al-Kahtani, (2013) defined employee performance as a concept of multidimensional that shows the way of a person complete the task, which focused on efficiency, the use of skills, initiatives and the resources used.

1.8.2 Task performance

Task performance can be defined as the proficiency (i.e., competency) with which one performs central job tasks (Mahon & Curtin, 2013). Daryoush et al. (2013) defined task performance as the ability to meet expectations and demonstrate competency and expertise.

1.8.3 Adaptive Performance

Adaptive performance in the work environment refers to adjusting to and understanding change in the workplace (Pulakos et al., 2000). Jundt et al. (2014) defined Adaptive performance as task-performance-directed behaviors individuals enact in response to or anticipation of changes relevant to job-related tasks.

1.8.4 Contextual performance

Daryoush et al. (2013) defined contextual performance as interpersonal citizenship performance (behavior benefiting individual organization members, such as cooperation, encouraging the colleagues); job conscientiousness (looking for challenging assignment), and

organizational citizenship performance (courtesy). Relevant execution can be characterized as individual practices that help the hierarchical, social and mental climate wherein the specialized center should work (Campion, 2015).

1.8.5 Work Environment

Work environment is defined as a work setting in which rules, processes, and systems are intended to enable workers to accomplish corporate goals while also achieving personal satisfaction (Kieft et al., 2014). Working environment is described by Raziq and Maulabakhsha (2015) as employee safety, job security, and excellent relationships with coworkers, and acknowledgment for good performance, incentive to do well, and involvement in the firm's decision-making process.

1.8.6 Work Environment Satisfaction

The term work environment satisfaction refers to the attitude and feelings people have about their work (Aziri, 2011). Sageer et al. (2013) defined work environment satisfaction as the phrase used to characterize whether workers are happy, satisfied, and getting what they want and need at work. Workplace happiness, according to Raziq and Maulabakhsha (2015), is a critical component for employee motivation and encouragement to improve performance.

1.8.7 Risk Perception

Karau and Williams (2019) defined risk perceptions as an individual's perceived susceptibility to a threat. According to Paek and Hove (2017), "risk perception refers to people's subjective judgments about the likelihood of negative occurrences such as injury, illness, disease,

and death”. Ferrer and Klein (2015) defined risk perception as a subjective judgment about the characteristics and/or severity of a certain risk. Aven and Renn (2010) described risk perceptions “as expected losses or potential adverse consequences caused by environmental contamination”.

1.8.8 Human Resource Management

According to Armstrong (2016), human resource management (HRM) is “a strategic, integrated and coherent approach to the employment, development and well-being of the people working in organizations”. Human resource management is “the process through which management builds the workforce and tries to create the human performances that the organization needs” (Boxall & Purcell, 2016).

1.9 Chapter Summary

This chapter presented general introduction of the study and discusses Algeria as a major crude oil and natural gas producer in Africa, as well as member of the Organization of the Petroleum Exporting Countries (OPEC) since 1969, about ten years after it began producing crude oil. Natural gas and oil account for almost all of Algeria’s total primary energy consumption which is largely produced by Skikda oil refinery; the largest oil refinery in Northeast Africa, though it encountered various risk issues and remains prone to frequent fire accident. The problem statement that necessitates the study was discussed. The research questions and objectives as well as the significant of the study are also discussed. Other aspect such as the scope of the study and conceptual definitions are also provided.