The Impact of Occupational Health and Safety Systems on Employees' Performance in Yemen's Oil and Gas Companies. (A Case Study of PetroMasila Company)

Abdulrahman Mohammed Al- Sufyani[1]

Assistant Professor, Department of Tourism and Hotel Management,

Faculty of Administrative Science, Taiz University, Yemen

E-mail: a_alsufyani2009@gmail.com

Marwan A.N.Al-Harrani[2]

Executive MBA,Center for Graduate Studies, Taiz University, Taiz , Yemen

Abstract

This study aimed to assess the extent of implementing occupational health & safety (OH&S) systems in PetroMasila Company, to explore the relationship between OH&S systems and employees' performance, and to identify the impact of OH&S systems on employees' performance in PetroMasila Company. A descriptive analytical survey design was adopted and a primary data were obtained through e questionnaire which was designed and administered to a simple random sampling 228 employees out of total 560 employees. The study showed that the extent of implementing OH&S systems in PetroMasila Company was high. The correlation analysis revealed a strong positive relationship between OH&S systems and employees' performance in PetroMasila Company. The regression analysis indicated that all OH&S systems combined or independent affect the employees' performance.

Keywords: *occupational health & safety policy, top management commitment, training, maintaining a healthy work environment, accident report and investigation , employees' performance, PetroMasila Company.*

1. Introduction

Globally the Oil & gas industry struggles to prevent injurious and fatal

safety incidents. The implementation of occupational health and safety systems in recent decades has led to a successful control of workplace injuries in many companies. It has gained a considerable acceptance worldwide, and a large number of companies, including local companies in Yemen, have applied the requirements of it. However, few studies have examined the impact of OH&S systems on employees' performance in oil & gas industry. In 2018, McKnight conducted a study in US and found that safe worksites not only reduce safety incidents and fatalities but also promote successful, vibrant lives and healthy communities as well. Kim et al (2016) conducted a study in Hong Kong and found that occurrence of occupational damages and diseases has considerably reduced after scientific and technological changes as well as the establishment of occupational health and safety systems. Lebeau et al (2014) conducted a study in Canada and found that occupational accidents represent a social and economic burden for businesses. Thus, OH&S is a field concerned with protecting employees and other people affected by what the organization produces and does. It aims at protecting employees from the hazards and risks arising from their employment or their links with the organization and deals with the prevention of ill-health arising from working conditions (Armstrong, 2006).

Moreover, people are motivated not only by their unique personalities and by how they want to fit into their world but also by their own individual needs. Dr. Maslow identified five needs which are the physiological, safety, social, ego, and self-fulfillment needs. He said that people work to survive and live through financial compensation, to make new friends, to have job security, for a sense of achievement and to feel important in the society, to have a sense of identity, and most especially to have job satisfaction, all employees that have job satisfaction are high performers in their respective workplaces (Maslow, 1943).Job satisfaction, is a feeling of well-being and acceptance of our place in the organization, and it is important to us because it affects many other factors at work.It can have a direct effect on productivity, absenteeism، and turnover (Lussier, 2018).OH&S programs

are most important in changing unsafe behavior and reducing accidents and injuries (Fleming & Lardner, 2002).Hazards present in the work environment can have a significant impact on productivity, safety and health، employee satisfaction, and employee turnover (Salvendy, 2012).

The impact of OH&S systems on employees' performance has been demonstrated in many studies. Kim et al (2016) in their study the role of the safety climate in the successful implementation of safety management systems, found that safety management systems have a positive effect on safety performance. Andersen et al (2019) found in his study that OH&S policy may reduce injuries and fatalities as well as improve compliance with OH&S systems. Wambulwa
(2018) investigated how OH&S systems could be properly observed to improve performance at Nzoia Water Company in Trans-Nzoia County and found that accident reduction enhances organizational growth, survival as well as performance. Gao et al (2019) investigated the mediating role of safety management practices in process safety culture in the Chinese oil industry, four safety management practices were identified in academic research and industrial practice, including organizing responsibilities/procedures, communication and coordination, safety training, and inspection and monitoring, all four safety management practices have positive mediating impact on safety culture.

According to (Tabitha, 2018) and (Putri,Triatmanto & Setiyadi, S. 2017) OH&S systems have a significant impact on employees' performance. (Mohammed, 2018) conducted a study in Malaysia and found a strong correlation relationship between OH&S systems and the level of performance of employees, the availability of occupational safety and health systems have a positive impact on the level of performance of employees and vice versa from the point of view of employees in the company. In 2018 McKnight, conducted a study in a Northwest Ohio construction company in USA and found that top management established a safety-oriented culture by systematically implementing the safety management systems principles and practices in every organizational process, and safety training

ensured that workers have the necessary skills to perform safely.

Global OH &S is the study of worldwide worker injury, illness, and fatality. It is the study of the factors that influence the well-being of workers internationally. It is also the study of the differences in occupational morbidity and mortality rates between countries, why those differences exist, and what can be done to improve working conditions in all nations and geographic regions .Global OH&S is the analysis of complex intersections and interactions between economics, politics, culture, and science. It is more than the typical measurement and reporting of workplace exposures to risks, but an in-depth analysis of why and how the risks and hazards exist, and what social, political, economic, and cultural factors lead to those risks (Fuller, 2019, p 1).

2 - An overview of PetroMasila Company:

Masila Petroleum Exploration and Production Company (PetroMasila) is a leading national Yemeni company working in the exploration and production of oil and gas and related energy projects. It was founded on December 18, 2011 under Cabinet Resolution No. 244 for 2011, to operate Block 14, after expiration of the Production Sharing Agreement (PSA) with the former Canadian operator (Canadian Nexen).

In 2016, PetroMasila was assigned operatorship of three additional blocks, Block 10 (East Shabwa), Block 51 (East Al Hajr) and Block 53 (East Saar) in Hadhramout governorate. In October 2016, upon instruction by H. E. President of Yemen, PetroMasila was assigned by the Cabinet to supervise the construction of a power plant project in Wadi Hadhramout (75MW capacity) which is operated by gas fuel.

The plant entered into service in early 2018. PetroMasila operates Ash-Shihr Terminal on the Arabian Sea, where crude oil produced from its block and other blocks in the region and transported by a 137 km pipeline for storage and export. The terminal contains six storage tanks with a total storage capacity of 3.5 million barrels. The company also produces diesel and associated gas which used

for power generation and operational purposes as well as for supplying electricity to cities and villages in the Wadi Hadhramout region (PetroMasila, 2019).

3 - Problem Statement

The occupational health and safety system is one of the most important factors that affect the performance of employees in companies, either positively through improving performance and feeling comfortable and safe, or negatively through exposure to many injuries and occupational diseases as a result of non-compliance with occupational health and safety rules. And Systems (Muhammad et al., 2017). The benefits of implementing such systems are beneficial to the individual, family, healthcare system, employer, and society in general.

However, there is a lack of local studies in Yemen in general and Yemeni oil and gas companies in particular. To our knowledge, there is no recent study to explore the impact of occupational health and safety systems on employee performance in the Republic of Yemen. Also, the political, economic and social challenges that oil and gas companies face in the Republic of Yemen as a result of the current situation in the country and the dramatic changes brought about by the new world order, impose on these companies to make a change for their administrative and legislative systems, and to provide a healthy work environment free of accidents and occupational diseases for their employees. Moreover OH&S systems in Republic of Yemen as indicated by (ILO, 2009) are very poor both in quality and quantity, there is no national occupational health and safety policy and all relevant activities are not well planned or coordinated, which leads to a waste of resources.

Based on what has been established, it is decided to clarify the extent of the implementation OH&S systems in Yemen's Oil & Gas Companies and their impact on employees' performance, in order to identify the positive aspects and work to strengthen them and identify weaknesses and work to correct them, as well as to know the impact of these practices to improve the employees' performance. Within this framework, the study problem can be formulated with the following question:

What is the impact of OH&S systems on employees' Performance in Yemen's Oil & Gas Companies?

4 - Importance of the Study:

The importance of this study emerges from the fact that such OH&S systems are still new and under development in Yemen, and need to be thoroughly studied in order to figure out whether such practices are worth in investment and to identify any significant impact on employees' performance attributed to the implementation of occupational health and safety systems. In other words the study will explore the concept of OH&S which is currently emerging trend and there is a little knowledge about it.

The study will illustrate the relationship between OH&S systems and employees' performance. It will identify the benefits in implementing OH&S systems that may improve the employees' performance. The study will also serve as a guide to the management of the companies in Yemen to understand the importance of OH&S implementation in improving employees' performance in order to adapt with external changes and reaching to the effectiveness and efficiency. This study will share ideas and information that could help to increase awareness about the importance of implementing OH&S systems.

5 - Objectives of the Study:

The objectives of the study can be summarized in the following:

1. To determine the extent of implementation OH&S systems in PetroMasial Company.
    1. To identify the relationship between OH&S systems (together) and employees' performance in PetroMasial Company.
    2. To identify the relationship between each dimension of OH&S systems (occupation health and safety policy - top management commitment - occupation health and safety training - maintaining a healthy work environment - accidents report and investigation) and employees' performance in PetroMasial Company.

3. To explore the impact of OH&S systems (together) on employees' performance in PetroMasial Company.
4. To explore the impact of each dimension of OH&S systems (occupation health and safety policy - top management commitment - occupation health and safety training - maintaining a healthy work environment - accidents report and investigation) on employees' performance in PetroMasial Company..

6 - Hypotheses of the Study :

6.1 The first Main Hypothesis:

H1: There is a statistical significant relationship between OH&S systems (together) and employees' performance.

This hypothesis includes the following sub- hypotheses:

H1.a. There is a statistical significant relationship between occupation health and safety policy and employees' performance.

H1.b. There is a statistical significant relationship between top management Commitment and employees' performance.

H1.c. There is a statistical significant relationship between occupation health and safety training and employees' performance.

H1.d. There is a statistical significant relationship between maintaining a healthy work environment and employees' performance.

H1.e. There is a statistical significant relationship between accidents report and investigation and employees' performance.

6.2 The Second Main Hypothesis:

H1.2. There is a statistical significant impact for OH&S systems (together) on the employees' performance.

This hypothesis includes the following sub- hypotheses:

H1.2. a. There is a statistical significant impact for OH&S Policy on the employees' performance.

H1.2. b. There is a statistical significant impact for top management Commitment on the employees' performance.

H1.2. c. There is a statistical significant impact for OH&S training on the employees' performance.

H1.2. d. There is a statistical significant impact for maintaining a healthy Work Environment on the employees' performance.

H1.2. e. There is a statistical significant impact for accidents report and Investigation on the employees' performance.

7 - Materials and Methods

7 .1 Study Design

The study adopted a descriptive analytical survey design. It was based on a simple random sampling. The data were analyzed through SPSS V.24 using a descriptive statistical tools namely frequencies, percentages, means, standard deviations and related weights to determine the extent of implementing OH&S systems while inferential statistical analysis tools such as correlation and regression were used to determine and explain the relationship and the impact of OH&S systems with employees' performance

The researcher used a structured e- questionnaire to obtain primary data. The questionnaire was divided into three sections: The first section contains questions that intended to obtain general demographic data, the second section contains questions that were used to measure the independent variable , OH&S systems ,based on five independent variables (OH&S Policy, Top Management Commitment, OH&S Training, Maintaining a Healthy Work Environment, and Accident Report and Investigation),while the third section contains questions that were used to measure the dependent variable which is employees' performance.

7.2 Population and Sample

The target population for the collection of data for the study is the employees of PetroMasila Company in Yemen as a case study. They are 560 employees. The researcher adopted simple random sampling techniques.

The sample size of this study was determined with reference to the formula of Thompson (2012.p59):

$$n = \frac{Np\,(1-p)}{(N-1)(\,d^2/z^2\,) + p\,(1-p)}$$

Where

n= the Sample Size

N = the population size (The population size of PetroMasila = 560 employees)

Z = Z value (e.g. 1.96 for 95% confidence level)

d = margin of error (0.05)

p = probability (0.50)

$$n = \frac{560 \times 0.50\,(1-0.50\,)}{(560-1)(\,0.05^2/1.96^2\,) + 0.50\,(1-0.50)}$$

$$n = \frac{560 \times 0.25}{559(0.0025/3.8416)\; + 0.25}$$

$$n = \frac{140}{0.6137}$$ = 228 Employees

7.3 Validity and Reliability of the Study Tool

The e questionnaire was designed by the researcher then it was reviewed and modified by the advisor of the study then the questionnaire applied to six professors from Taiz University in order to assess whether or not the questionnaire measures what it is supposed to measure. The researcher put their suggestions and notices into consideration and modified the questionnaire into its final draft .The researcher conducted pretesting of the draft questionnaire as an exploratory study which was made of a sample of 30 employees from PetroMasila Company. The data of the 30 respondents were filled into SPSS.V.24 and analyzed to determine the reliability and internal consistency of the study tool.

Table (1). Cronbach's Alpha and the validity for the entire questionnaire

Field	NO. of Items	Reliability	Validity
OH&S Policy	6	0.880	0.93
Top management Commitment	6	0.895	0.94
OH&S Training	7	0.935	0.96
Maintaining A Healthy Work Environment	7	0.854	0.92
Accidents Report and Investigation	7	0.895	0.94
Performance	11	0.924	0.96
Total	44	0.976	0.98

The above table shows that the values of Cronbach's Alpha are in the range from 0.854 and 0.976 which are considered high. The total value Cronbach's Alpha is 97% which confirms an excellent reliability and internal consistency of the study tool. Thus, the questionnaire is valid, reliable, consistent and ready for distribution for the study sample.

8 - Results and Discussion

8.1. Test of Normality:

Prior to statistical data analysis, normality test was conducted to determine whether a data set was modeled for normal distribution or not. This test is mandatory prior to hypotheses testing. George &Mallery, (2019.) stated that the values of kurtosis and skewness in between (-1, 1) are considered excellent for most psychometric purpose, but values between (-2, 2) in many cases also acceptable. Thus, If the kurtosis and skewness values occurred between (-1, 1) or (-2, 2) data set is normally distributed, if not, it is not normally distributed.

Table 2 Test of Normality

Field	**Skewness**	**Kurtosis**
OH&S Policy	-0.813	1.513
Top Management Commitment	-0.464	0.863

OH&S Training	-0.034	-0.231
Marinating a healthy work Environment	0.027	-0.593
Accidents report and Investigation	-0.402	0.371
OH&S Systems	0.026	-0.398
Employees' Performance	-0.066	-0.108
Total	**0.068**	**-0.283**

From table (2), the statistic values of skewness are in between (-1, 1).similarly, the statistic values of kurtosis are in between (-1, 1) except the field OH&S policy which is in between (-2, 2). This results indicated that data set is normally distributed and consequently linear regression test should be used to test hypotheses.

8.2. Descriptive analysis of the sample characteristics:

The Characteristics of the respondents are categorized by their gender, age, qualification, job title and years of experience. An analysis of frequencies were undertaken in order to explore the characteristics as illustrated below:

8.2.1 Gender

The respondents were asked to indicate their gender by ticking the appropriate column they belonged. The purpose was to find out the number of males and females employees who actually participated in the study**.**

Table 3 Gender

Gender	Frequency	Percent
Male	219	99.5
Female	1	0.5
Total	**220**	**100.0**

Table (3) Shows that majority of the respondents, representing 99.5% were males, whereas 0.05% were female from the total number of the sample. These results clearly shows that there are more male employees at PETROMASIAL Company than female employees due to the nature of work in oil &gas industry.

8.2.2 Age:

Table 4 Age

Age	Frequency	Percent
Less than 18 Years	0	0
Between 18 and 30 Years	10	4.5
Between 31- 40 Years	119	54.1
Between 41-50 Years	82	37.3
More than 51 Years	9	4.1
Total	**220**	**100.0**

Table No. (4) Shows that 4.5 % of the respondents were within age spread of 18-30 years, 54% were between 31 -40 years ,37% were between 41-50 years while 4.1% of the respondents were more than 51 years .Hence majority of respondents are in late 30s. This age bracket is regarded as the active period of human life since high sense of maturity is required for such production activities.

8.2.3 Qualification:

Table 5 Qualification

Qualification	Frequency	Percent
Secondary School	1	0.5
Diploma	30	13.6
Bachelor Degree	139	63.2
Master Degree	42	19.1
Doctorate	8	3.6
Total	**220**	**100.0**

Table No. (5) Shows that 0.5% of the respondents hold "secondary school", 13.6%" hold Diploma degree ,63.2% hold Bachelor's degree ,19.1% hold a master

degree and 3.6 % of the respondents hold doctorate degrees. This indicates to the employers' interest in employing educated employees in order to be able to perform their work with the set standards and the requirements of the job.

8.2.4 Job Title:

Table 6 Job Title

Job Title	Frequency	Percent
Manager	25	11.4
Supervisor	83	37.7
Technician	49	22.3
Engineer	37	16.8
Labor	8	3.6
Others	18	8.2
Total	**220**	**100.0**

Table No. (6) Shows that 11.4% of the respondents were managers, 37.7% were supervisors, 22.3% were technician, 16.8% were engineers ,3.6% were labors and 8.2% of the respondents were from other positions. This implies that the majority of respondents are authoritative to provide reliable data regarding OH&S Systems in the company.

8.2.5 Years of experience:

Table 7 Years of experience

Years of experience	Frequency	Percent
Less than 5 Years	4	1.8
5-10 Years	89	40.5
11-15 Years	95	43.2
16-20 Years	18	8.2
More than 20 Years	14	6.4
Total	**220**	**100.**

Table No. (7) shows that 1.8% of the respondents had less than five years work experience, 40.5 % had 5-10 years, 43.2% had 11-15 years ,8.2% had 16-20 years and 6.4 % had more than 20 years. Hence, majority of the respondents had

11-15years' work experience. It is a good sign that respondents would be experienced employees on the job.

8.3 The Extent of Implementation OH&S systems

The below table shows that the extent of implementing OH&S systems at PetroMasila Company.

Table (8) The Extent of Implementation OH&S Systems

Independent Variables	Mean	Std. Deviation	Related weight	Level of Agreement	Rank
OH&S Policy	4.24	0.498	84.83	Very high	2
Top Management Commitment	4.10	0.554	81.97	High	4
OH&S Training	4.10	0.518	81.93	High	5
Maintaining a Healthy work Environment	4.19	0.470	83.76	High	3
Accidents Reports and Investigation	4.31	0.461	86.14	Very high	1
Total OH&S Systems	4.18	0.433	83.74	High	

The study revealed that the extent of implementing OH&S systems at PetroMasila Company was high (83.74) as revealed by mean response of (4.18) with standard deviation equals to (0.433), these findings are consistent with (Greepherson, 2013) and (Maryjoan & Ezekiel, 2016) and inconsistent with (Katsuro et al, 2010) who found a bad OH&S practices in food factories which decrease employees' performance leading to the decline of productivity.

The study revealed that the implementing extent of OH&S policy in PetroMasila Company was very high as revealed by mean response of (4.24) with standard deviation equals to (0.498) and related weight 84.83%. OH&S policy is seen to have been implemented adequately and there is an awareness for the importance of OH&S policy as well as job description, roles and responsibilities of the employees are outlined in OH&S policy and well defined. Moreover, there is a good communication between management and employees. These findings are

consistent with (Gbadago et al,2017) study which found that OH&S policy has been implemented in the hospital and with the study of (Esi,2012) which showed that majority of the respondents representing 91.7% intimated that the company has OH&S policy while 10 representing 8.3% postulated that company hasn't OH&S policy. The findings also match the findings of (Tabitha, 2018). The findings are inconsistent with (Keshawn & Nielsen, 2016) who showed that the weakness of implementation risk assessment is related to an inadequate policy and framework of the risk assessment.

The study showed that the top management of PetroMasila Company demonstrates a high commitment towards OH&S systems as revealed by mean response of (4.10) with standard deviation equals to (0.554) and related weight 81.97%. The study revealed that top management gave priority to OH&S systems and responded to employees' suggestion regarding OH&S issues and reward them. There is an effective management in the company as managers concern about the protection of the employees from workplace hazards and they allocate all the necessary resources to support OH&S system. The findings imply that there is a strong commitment from top management which is a critical factor for effective OH&S system with support from employees in reporting any violation of health and safety acts or unsafe conditions in the workplace.it further implies that management leadership was the most strongly associated with lower accidents and injury rates, as (ILO, 2005) stated that, occupational accidents and ill-health are avoidable or reduced with a positive commitment from both managers and employees. This finding is consistent with (Autenieth, 2015) who showed that management leadership was the most strongly associated with lower accidents and injury rates. The finding is inconsistent with (Patrick et al, 2017) who found that management didn't implement OH&S systems as they are financially constrained, and inconsistent with (Khaleel, 2008) who showed that there is a lack of attention to OH&S Programs by the administrative supreme hospital, as well as inconsistent with (Keshawn & Nielsen, 2016) who showed that there is a gap in the

understanding and practice of the risk assessment tool between top management and operation.

The study showed that the extent of implementing OH&S training in the PetroMasila Company was high as shown by the mean responses of (4.10) with standard deviation equals to (0.518) and related weight of 81.93 %. These findings imply that PetroMasila Company has an appropriate OH&S training programs to all its staff and new employees. This finding is consistent with (Autenieth, 2015) who found that the company has an appropriate safety program, and inconsistent with (Olouch, 2015) who found that the Level of implementing OH&S Training was moderate as the company partially conducted OH&S training, and also inconsistent with (Greepherson, 2013) and (Abdullah, 2010) who found that there is a lack of safety training in the public hospitals.

The study showed that the extent of maintaining a healthy work environment in the company was high as revealed by the mean responses of (4.19) with standard deviation equals to (0.570) and relative weight of 83.76 %. This implies that PetroMasila Company is maintaining a safe and healthy working environment in order to eliminate hazards and reduce risks involved in the workplace which is one of the most objectives of OH&S systems. This reflected by applying PTW system in the working area and providing all the necessary preventive means as well as conducting periodic inspections to all tools and equipment. This finding is consistent with the recommendation of (ILO, 2016) and (Stephen & Timothy, 2017) who said that the purpose of OH&S systems is to create a safe working environment to protect employees from workplace accidents or adverse events.

The study revealed that the extent of implementing accident report and investigation system in the company was very high as revealed by the mean responses of (4.31) with standard deviation equals to (0.461) and related weight of 86.14%. This implies that accidents can be avoided or reduced through implementing an effective OH&S system in the workplace. The results reflect that the PetroMasila Company has established an accident reporting system and

accident investigation to control the risks. There is an indication that mitigation measures were put in place to avoid reoccurrence of the accidents. This finding is inconsistent with (Katsuro et al, 2010) and with (Maryjoan, &Ezekiel 2016) who found that accidents are not reported or recorded, they are not known to the management. The findings also indicate that there is a medical preparedness and response team to deal with accidents and injuries in the workplace.

8 – 4 Hypotheses Testing Results:

In order to analyze the main hypotheses and the sub-hypotheses, Pearson correlation and a simple linear regression analysis were performed based on five independents factors of OH&S Systems and employees' performance as the dependent factor.

8.4.1 The Result of the First Main Hypothesis Test :

In order to analyze this hypothesis, Pearson correlation coefficient has been applied and the results are presented in the below table:

Table 9 Correlation between OH&S Systems and employees' performance

Independent variable	Dependent variable	Correlation	Sig.	Result
OH&S Systems	Employees' performance	0.777**	0.000	Positive
** Correlation is significant at the 0.01 level.				

The above table shows a presence of a strong positive correlation **(R= 0.77**) between OH&S Systems and employees' performance and it is statistically significant at 0.001 level (P-value <0.001).

Hence ,the analysis indicates that higher implementation of OH&S Systems has higher employees' performance which means that OH&S Systems play a significant role in enhancing and improving employees' performance. Therefore, the first main hypothesis of the study is accepted which stated that: there is a statistical significant relationship between OH&S Systems and employees' performance.

8.4.2 The result of the Sub- Hypotheses test emanating from the first main hypothesis:

In order to analyze the sub hypotheses, Pearson correlation was performed between the factors of OH&S Systems and employees' performance. The results are presented below table:

Table 10 Correlation between the dimensions of OH&S Systems and employees' performance

		OH&S Systems				
		OH&S Policy	Top management Commitment	OH&S Training	Maintaining a healthy work Env.	Accident Report and Investigation
Employees' performance	R	0.622**	0.655**	0.693**	0.721**	0.681**
	Sig.	0.000	0.000	0.000	0.000	0.000
	Result	Positive	Positive	Positive	Positive	Positive
	Rank	5	4	2	1	3
	** Correlation is significant at the 0.01 level.					

Table NO. (4.15) shows:

1. A presence of a medium positive correlation**(R=0.62)** between OH&S Policy and employees' performance, which is statistically significant at 0.001 level (P-value<0.001).Hence, the study supported the **H1 a** "There is a statistical significant relationship between OH&S Policies and employees' performance. It means that the implementation of OH&S policy improves the employees' performance.
2. A presence of a medium positive correlation**(R=0.65**) between top management commitment and employees' performance which is statistically significant at 0.001 level (P-value<0.001). Hence, the study supported the **H1 b** "There is a statistical significant relationship between top management commitment and employees' performance. It means that the commitment of top management to OH&S Systems improves the employees' performance.
3. A presence of a medium positive correlation**(R=0.69)** between OH&S training and employees' performance which are statistically significant at 0.001 level (P-value<0.001). Hence, the study supported the **H1.c** -There is a statistical significant relationship between employees' OH&S training and employees' performance .It

means that the implementation of OH&S training improves the employees' performance

4. A presence of a strong positive correlation**(R=0.72)** between maintaining a healthy work environment and employees' performance which is statistically significant at 0.001 level (P-value<0.001). Hence, the study supported the. **H1 d** -There is a statistical significant relationship between maintaining a Physical working environment and employees' performance. It means that maintaining a healthy work environment improves the employees' performance.
5. A presence of a medium positive correlation**(R=0.68)** between accident report and investigation and employees' performance which is statistically significant at 0.001 level (P-value<0.001). Hence, the study supported the **H1 e** -There is a statistical significant relationship between accidents report and investigation, and employees' performance. It means that the implementation of accident report and investigation system improves the employees' performance.

In general, all the independent variables are correlated to the dependent variable. So, it can be said that "there is a positive statistical significant correlation between OH&S Systems and the employee's performance ". Therefore all the sub-hypotheses of the study are confirmed.

8.4.3 The Result of the Second Main Hypothesis Test :

Table 11 Regression Analysis for the Second Main Hypothesis

Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Regression	26.374	1	26.374	331.387	0.000
Residual	17.350	218	0.094		
Total	43.723	219			
Variable	**Unstandardized Coefficient**		**t- Value**		**Sig**
	B	**Std. Error**			
Constant	0.839	0.185	4.536		0.000
OH&S Systems	0.800	0.044	18.204		0.000
R Square =0.603 , Dependent Variable :Employees' Performance					

The above table shows that the analysis of variance (F= 331.387) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (OH&S Systems) and the dependent variable (Employees' Performance).The above table (4.16)also shows that the R Square value of 0.603 which indicates that the OH&S Systems are accounted for 60% of the total variance in employees' performance and 40% implied that there are other factors not studied in this study that impact employees' Performance at PETROMASIAL Company in Yemen. Moreover, the regression results of coefficient determinants in the above table (4.16) show that the statistical values for the constant is (0.839) and (B value) is (0.800) with t value equals (18.717),and P-values (sig) less than (0.01) which confirmed that there is a statistically significant impact for OH&S Systems on employees' performance. The regression equation from this data becomes in the form of:

Y= α+ Bx

Y (Employee Performance) = **(**Constant 0.839 +0.800 (OH&S Systems)

The above equation means that one-unit changes in OH&S Systems will lead to change Employee Performance by (0.800) unit.

Therefore, the study accepted the main hypothesis which stated that there is a significant impact for OH&S systems on employees' performance.

8.4.4 The result of the first sub-hypothesis test emanating from the first main hypothesis:

In order to explore the impact of OH&S policy on Employees' performance a simple linear regression test was performed and the result presented in the below table :

Table 12 The Impact of OH&S Policy on Employees' Performance

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	16.895	1	16.895	137.286	0.000
Residual	26.828	218	123		
Total	43.723	219			

Variable	Unstandardized Coefficient		t-Value	Sig
	B	Std.Error		
Constant	1.824	0.203	8.976	0.000
OH&S Policy	0.558	0.048	11.717	0.000
R Square= 0.386, Dependent Variable :Employees' Performance				

The above table shows that the analysis of variance (F= 137.286) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (OH&S policy) and the dependent variable (Employees' Performance).The above table (4.17) also shows that the R Square value of 0.386 which indicates that the OH&S Policy is accounted for 38 % of the total variance in employees' performance and 62% implied that there are other factors that impact employees' Performance at PETROMASIAL Company in Yemen. Moreover, the regression results of coefficient determinants in the above table (4.17) show that the constant is (1.824) and OH&S Policy coefficient is (0.528) which means that one-unit change in OH&S policy will lead to change Employee Performance by (0.528) unit. Therefore, the study accepted the first sub- hypothesis which stated that there is a significant impact for OH&S policy on employees' performance.

8.4.5 The result of the second sub-hypothesis test emanating from the first main hypothesis:

In order to explore the impact of top management commitment on Employees' performance a simple linear regression test was performed and the result presented in the below table:

Table 13 The Impact of Top Management Commitment on Employees' Performance

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	18.745	1	21.007	163.593	0.000
Residual	24.979	218	0.104		
Total	43.723	219			

Variable	Unstandardized Coefficient		t- Value	Sig
	B	Std. Error		
Constant	2.026	0.171	11.876	0.000
Top Management	0.528	0.041	12.790	0.000
R Square = 0.429 , Dependent Variable :Employees' Performance				

The above table shows that the analysis of variance (F= 163.593) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (top management commitment) and the dependent variable (Employees' Performance).It also shows that the R- Square value of 0.429 which indicates that the top management commitment is accounted for 43 % of the total variance in employees' performance and 57% implied that there are other factors that impact employees' Performance at PetroMasila Company in Yemen. Moreover, the regression results of coefficient determinants in the above table (4.18) show that the statistical values for the constant is (2.026) and (B value) is (0.528) with t value equals (12.790),and P-values (sig) less than (0.01) which confirmed that there is a statistically significant impact for top management commitment on employees' performance at PetroMasila Company. Thus, the study accepted the second sub-hypothesis which stated that there is a statistical significant impact for top management on employees' performance.

8.4.6 The result of the third sub-hypothesis test emanating from the second main hypothesis:

In order to explore the impact of OH&S Training on Employees' performance a simple linear regression test was performed and the result presented in the below table:

Table 14. The Impact of OH&S Training On Employees' Performance

Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Regression	21.007	1	21.007	201.597	0.000
Residual	22.716	218	0.104		
Total	43.723	219			
Variable	**Unstandardized Coefficient**		**t- Value**		**Sig**
	B	**Std. Error**			
Constant	1.738	0.174	9.992		0.000
OH&S Training	0.598	0.042	14.198		0.000
R Square = **0.478 ,**Dependent Variable :Employees' Performance					

The above table shows that the analysis of variance (F= 201.597) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (OH&S Training) and the dependent variable (Employees' Performance).It also shows that the R Square value of 0.478 which indicates that the OH&S Training is accounted for 48 % of the total variance in employees' performance and 52% implied that there are other factors that impact employees' Performance at PetroMasila Company in Yemen. Furthermore, the regression results of coefficient determinants in the above table (4.19) show that the statistical values for the constant is (1.320) and (B value) is (0.598) with t value equals (14.198),and P-values (sig) less than (0.01) which confirmed that there is a statistically significant impact for OH&S Training on employees' performance.at PetroMasila Company. Thus, the study accepted the third sub- hypothesis which stated that there is a statistical significant impact for OH&S Training on employees' performance.

8.4.7 The result of the fourth sub-hypothesis test emanating from the second main hypothesis: In order to explore the impact of maintaining a healthy work environment on Employees' performance a simple linear regression test was performed and the result presented in the below table:

Table 15. The Impact of maintaining a healthy work environment on employees' performance

Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Regression	22.717	1	22.717	235.745	0.000
Residual	21.007	218	0.096		
Total	43.723	219			
Variable	**Unstandardized Coefficient**		**t- Value**		**Sig**
	B	**Std. Error**			
Constant	1.320	0.188	7.019		0.000
Maintaining a healthy work environment	0.685	0.045	15.354		0.000
R Square =0.517 Dependent Variable :Employees' Performance					

Table NO. (4.20) shows that the analysis of variance (F= 235.745) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (maintaining a healthy work environment) and the dependent variable (Employees' Performance).

The table also shows that the R Square value of 0.517 indicates that the a healthy work environment is accounted for 51 % of the total variance in employees' performance and 49% implied that there are other factors that impact employees' Performance at PetroMasila Oil Company in Yemen. Moreover, the regression results of coefficient determinants in the above table (4.20) show that the statistical values for the constant is (1.320) and (B value) is (0.685) with t value equals (15.354),and P-values (sig) less than (0.01) which confirmed that there is a statistically significant impact for maintaining a healthy work environment on employees' performance.at PetroMasila Company. Thus the study confirmed the fourth- hypothesis which stated that there is a statistical significant impact for maintaining a healthy work environment on employees' performance.

8.4.8 The result of the fifth sub-hypothesis test emanating from the second main hypothesis:

Table 16. The Impact of accident report and investigation on employees' performance

Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig**
Regression	20.297	1	20.297	188.872	0.000
Residual	23.427	218	0.107		
Total	43.723	219			
Variable	**Unstandardized Coefficient**		**t- Value**		**Sig**
	B	**Std. Error**			
Constant	1.343	0.208	6.451		0.000
Accidents Report & Investigation	0.661	0.048	13.743		0.000
R Square = **0.464**	Dependent Variable :Employees' Performance				

The above table shows that the analysis of variance (F= 188.872) and associated P-Value (sig) = (0.000) which is statistically significant at 0.01 level due to P-value (sig.) shown is less than (0.01).It indicates that the model is significant and there is a linear relationship between the independent variable (the accident report and investigation) and the dependent variable (Employees' Performance).

Table (4.21) also shows that R Square value of 0.464 indicates that accident report and investigation are accounted for 46 % of the total variance in employees' performance and 54 % implied that there are other factors that impact on employees' Performance at PetroMasila Company in Yemen. Moreover, the regression results of coefficient determinants in the above table (4.21) show that the statistical values for the constant is (1.343) and (B value) is (0.661) with t value equals (13.743),and P value (sig) less than (0.01) which confirmed that there is a statistically significant impact for accident report and investigation on employees' performance.at PetroMasila Company. Thus the study confirmed the fifth sub-hypothesis which stated that there is a statistical significant impact for accident report and investigation on employees' performance.

9 - Conclusion

Oil & gas industry is known for its wide range of hazardous activities compared to other industries, and as such requires special attention towards OH&S system to improve employees' performance. This study aimed to determine the extent of implementation OH&S Systems and their impact on employees' performance at PetroMasila Company in Yemen. The data was collected through the e-questionnaire in order to provide a real picture about the extent of implementation OH&S Systems and their impact on employee's performance. Descriptive analysis was performed using mean, standard deviation, and relative weight in order to determine the extent of implementation OH&S Systems. To identify the impact of OH&S Systems on employees' performance a multiple linear regression analysis was performed based on five independents factors and employees' performance as the dependent factor.

The study showed that the extent of implementation OH&S Systems at PetroMasila Company was high. A correlation analysis revealed a strong positive relationship between OH&S Systems and Employees' performance. Regression analysis indicated that there was a significant positive impact of OH&S Systems as independent variable on employees' performance. The study showed that the implementation of OH&S systems plays a significant role in the performance of employees. It is also indicated that there is not a statistically significant impact for OH&S policy and top management commitment on employees' performance and there is a statistically significant impact for each training, maintaining healthy work environment and accident report investigation on employees' performance.

Based on the study results, it can be concluded that continuous improvement of OH&S systems should be promoted in the oil & gas industry in order to protect the lives of employees at the work place.

10 - Recommendations:

The following recommendations are addressed to decision makers of PetroMasila Company based on the findings of the study:

1. Continuous improvement of OH&S systems should be promoted which drives company towards excellence.
2. OH&S policy should be reviewed and updated on regular basis to ensure the commitment for OH&S Systems and employees' safety.
3. Enhance the empowerment and motivation of the employees by deepening their participation in implementing and maintaining of OH&S Systems so as to help in making them effective and applicable.
4. Various OH&S training programs should be conducted to the employees to improve their performance.
5. There is a need to pay attention to the development of employees and enhance their skills by carefully identifying the training of OH&S Systems as the main pillar leading to the success of training process.
6. OH&S Training outputs need to be evaluated regularly.
7. Work environment should be maintained and developed in accordance with the relevant latest technology in order to prevent occupational accidents.
8. The equipment in the company should be inspected continuously to ensure its validity and replace the defect equipment with new one.
9. Employees' performance should go in line with requirements of promoting OH&S Systems.
10. The company should study the causes that affect performance negatively.
11. Employees must be made aware of the importance of OH&S training which is an essential element in maintaining a healthy work environment. They need to know not only how to do their work but also how to protect their lives and those of others while working.

12. The company should conduct a regular medical checkup for all employees to ensure they are free from disease and this is reflecting positively on the improvement of their performance at work.

11 - Directions for future Studies:

- A Further study could be conducted on a public sector to assess the implementation of OH&S Systems in Yemeni hospitals or hotels.
- A Further study could also be conducted on oil &gas industry to assess the impact of OH&S Systems on Job satisfaction.
- Alternative data collection methods such as interview can be used to find out the impact of OH&S Systems on employees' performance in oil & gas companies in Yemen.
- This study based on five OH&S principles, a further study is recommended to examine more principles in order to obtain a wider and deeper view about the impact of OH&S Systems on employees' performance.

References

1 - Abdullah, N. (2010). *Occupational Health and Safety Management Perception in Malaysian Public hospitals*. PhD Submitted to the school of public health, Curtin University of Technology.

2 - Andersen, J., Malmros, P., Ebbehoej, N., Flachs, E., Bengtsen, E., Bonde, J. (2019). Systematic literature review on the effects of occupational safety and health (OSH) interventions at the workplace, *Scand J Work Environ Health*, 45 (2), 103–113.

3 - Armstrong, M. (2006). *Strategic Human Resource Management: A guide to Action*, 3th Edition.UK: London and Philadelphia.

4 - Autenieth, D. (2015). *Occupational health and safety management Systems in animals' production Agriculture*. PhD submitted to the department of Environment and Radiological Health Sciences, Colorado State University.

5 - Esi, Y. (2012). *The Effect of Occupational Health and Safety Standards on Productivity*. Master Thesis submitted to the Institute of Distance Learning,

Kwame Nkrumah. University of Science and Technology. Commonwealth.

6 - Fleming, M., & Lardner, R., (2002). *Strategies to promote safe behaviour as part of a health and safety management system*, 1st Edition.UK: the Keil Centre 5 South Lauder Road Edinburgh.

7 - Fuller, P. (2019). *Global Occupational Safety and Health Management Handbook*. London; New York: Taylor & Francis Group, LLC.

8 - Gao, Y., G., Fan, Y., Wang, J., & Pei, J. (2019). The mediating role of safety management practices in process safety culture in the Chinese oil industry. *Journal of Loss Prevention in the Process Industries*, 57, 223–230.

9 - Gbadago, P., Amedome, S., & Honyenuga, B. (2017). The Impact of Occupational Health and Safety measures on the employees' Performance. *Global Journal of Medical Research, (17) 5.*

10 - George, D., & Mallery, P. (2019). *IBM SPSS Statistics 25 Step by Step*,15th Edition. New York, USA: Taylor & Francis Group, LLC.

11 - Greepherson, A. (2013). *The Impact of Health and Safety Programs on the organizational Performance.* Master Thesis of Human Resource Management submitted to the Open University of Tanzania.

12 - International Labor Organization (2005). *Safety and Health*. Information available on: https://www.ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm. Geneva, Switzerland (cited on 5 May 2019).

13 - International Labor Organization (2016). *Report for discussion at the Tripartite Sectoral Meeting on OSH and Skills in the Oil and Gas Industry Operating in Polar and Subarctic Climate Zones of the Northern Hemisphere*. Geneva, Switzerland.

14 - International Labor Organization (2009).*Yemen*. Information available on: https://www.ilo.org/safework/countries/arab-states/yemen/lang--en/index.htm

Safety. Adoption: 1998 | Date of entry into force: 1998-02-18 | YEM-1998-M-57366, Geneva. Switzerland (cited on 10 May 2019).

15 - Katsuro, P., Gadzirayi, C., Taruwona, M., & Mupararano, S. (2010). Impact of

occupational health and safety on worker productivity. *Academic Journal*, 4(13), 2644-2651.

16 - Kaynak, R., Toklu, A., Elci, M. &Toklu, I (2016). Effects of Occupational Health and Safety Practices on Organizational Commitment. Work Alienation, and Job Performance. *International Journal of Business and Management*, 11 (5).

17 - Keshawn, & Nielsen Y. (2017). Evaluation of safety engineering system in Oil and Gas construction projects in UAE. *International Journal of GEOMATE*, 12 (29), 178-185.

18 - Khaleel, A. (2008). *Assessment of Occupational health and safety and its impact on employees' performance in the Gaza public hospitals*. Master Thesis submitted to Islamic University of Gaza.

19 - Kim, Y, Park, J, & Park, M. (2016). *Creating a culture of prevention in occupational safety and health practice*. Safety and Health at Work.doi: 10.1016/j.shaw.2016.02.002.

20 - Lebeau, M., Duguay, P., & Boucher, A (2014). Costs of occupational injuries and diseases in Quebec. *Journal of Safety Research*, 50, 89-98.

21 - Lussier Robert (2018). *Human Resource Management: Functions, Applications, and Skill Development*, 3rd Edition. USA: SAGE Publications Inc.

22 - Maryjoan, U., &Ezekiel, T. (2016). Effects of Industrial Safety and Health on Employees' Job performance in selected cement companies. *International Journal of Business and Management Review*, 4 (3)49-56.

23 - Maslow, A. (1943). *A Theory of Human Motivation*. Psychological Review .50, 270-306.

24 - Mcknigh, A. P. (2018). *Strategies Small Construction Business Managers Use to Reduce Safety Incidents in Their organization*. PhD submitted to college of management and Technology, Walden University.

25 - Mohammed, O. (2018). The impact of implementation OSH System on employees' performance. Jordon. *Journal of Human Development and Education for specialized Research*, 4 (2).

26 - Mohammed, O., Tengku, M., Aligilat, M., & Alatif, A. (2017). Could Occupational Safety and Health Systems Improve Employees' Performance in Arab Nations? *The International Journal of Social Sciences and Humanities Invention*, 4 (8).

27 - Oluoch, E. (2015). *Effect of Occupational Health and Safety programs on Employee Performance at Kenya power Company*. A master thesis in Human Resource Management submitted to the School of business, University of Nairobi.

28 - Patrick, G., Sedem N., &Ben Q. (2017). The Impact of Occupational Health and Safety Measures on Employee Performance at the South Tongu District Hospital. *Global Journals of Medical Research,* 17 (5).

29 - PetroMasila (2019). *An overview of the company*. Information available on www.pertomasila.com. (Cited on 16 December 2019).

30 - Putri, O., Triatmant, P., & Setiyadi, S. (2017). The effect of occupational health and safety, work environment and discipline on employee performance in a consumer goods company.*IOP.Publishing ltd*, 337, doi:10.1088l1757-899x/33771/012036.

31 - Salah, A. (2010). *The impact of workplace design on employees' performance: An Empirical study of the Administration Building of Islamic University of Gaza*. Master Thesis submitted to Islamic University of Gaza.

32 - Salvendy, G. (2012). *Handbook of Human Factors and Ergonomics,* 4th Edition.UK: John Wiley & Sons, Inc.

33 - Stephen, P. & Timothy, A. (2017). Organizational *Behavior*,17th Edition. US: Pearson Educational Limited.

34 - Tabitha, M. (2018). *Influence of Occupational Health and Safety Practices on Employees' Performance at Kenya Power and lighting Company.* Master Thesis submitted to the School of Business, University of Nairobi

35 - Thompson K. S. (2012). *Wiley Series in Probability and Statistics: Sampling,* 3rd Edition. A John Wiley & Sons.Inc.

36 - Wambulwa, B., & Elizabeth, M. (2018). Effect of Occupational Safety and

Health on Organizational Performance: A Case of Nzoia Water in Trans-Nzoia County, *European Journal of Business and Management*, 10 (11).