

Dissertation

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*An investigation of Health and Safety issues in Saudi Arabia's
construction projects: challenges and solutions*

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Dissertation submitted to the University of Central Lancashire in partial
fulfilments of requirements for the degree of Masters in Construction Project

Management BN4609 Masters Dissertation

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Declaration

This dissertation is submitted to the University of Central Lancashire in partial fulfilment of the degree of Masters in Construction Project Management. I, Abdulaziz Alshemimry, declare that the work presented here is my own work. The work cited from mass literature is duly referenced using Harvard referencing system.

Signature:

15th of January 2016

Acknowledgement

I thank my supervisor, Dr.Farzad Pour-Rahimian whose encouragement, guidance and support from the beginning to the end allowed me to understand the subject and carry out this research. I thank my colleagues and the staff in the School of Architecture University of Lancaster for their support. Last but not least, I would like to thank my family for being available, without their encouragement and understanding it would have been a challenge to finish this thesis.

Abstract

The construction sector has always been and continues to be a high risk areas because of the number of fatalities reported on yearly basis .The risk comes from health and safety issues when performing construction activities. Countries like Saudi Arabia have seen an increase in the number of fatalities coming from improper health and safety measures in construction sites.

Saudi Arabia has made remarkable headlines in the media creating a buzz on how these activities are handled. Despite huge efforts in addressing these Health and Safety challenges, accidents continue to prevail the construction sector. Developing countries tend to ignore safety rules because they are profit driven. In addition, the regulatory authorities responsible for implementing robust health and safety activities have weak implementation processes.

In the above context, this dissertation investigated Health and Safety issues in Saudi Arabia's construction projects by looking at the challenges in implementation. Furthermore, this dissertations recommended solutions to address the challenges in order to address weak health and safety activities. This dissertation also creates awareness by highlighting the weaknesses in Health and Safety activities in Saudi Arabia.

This dissertation reviewed academic materials to under the health and safety in Saudi Arabia construction industry. Furthermore, it followed a qualitative approach to gather data within the sector and thematic analysis was used to analyse generated data.

The analysed data indicated that management ,organisational culture , communication , employee behaviour ,accountability were the main causes for poor Health and Safety processes and procedures Saudi Arabia construction sites.

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Introduction

1.1 Introduction

Most Arabic countries are defined by state of the art skyscrapers and this has now become the norm for those showcasing their economic power. Construction projects in this region is thriving at an alarming rate which disposes those in construction activities in huge risk such as those coming from Health and Safety .Gibson (2014) state that the need to satisfy economic appetite through mega construction has high exposure to Health and Safety. Countries like Saudi Arabia who wants to showcase their wealth to the globe have weak construction Health Safety measures as outlined by Haadir and Panuwatwanich (2011).

ILO (2013) reports that approximately 60,000 people are killed every year in construction sites which equates to one death every ten minutes. The construction industry accounts for almost one in five death of all disastrous workplace accidents (ILO 2013). In Saudi Arabia alone, between the years of 2013 and 2014 more than 500 workers died in construction sites due to Health and Safety related issues (Gibson 2014). Health and Safety has always been an issue and concern in construction projects.

Ofori (2010) state that construction is the most hazardous activity in developing countries therefore a lot of effort is needed to address Health and Safety practices. However in even though a lot of effort has been put in order to address these problems, the outcome falls short of the recommended measures.

Health and Safety accidents seem to dominate the overall construction industry therefore it is critical to understand the causation factors. It is also important to understand why Saudi Arabia has so many fatalities when Health and Safety measure are in place. Therefore the aim of this study is to understand why the construction sector in Saudi Arabia has so many accidents. This dissertation seeks to gain an understanding of the causation factors and challenges in implementing a robust health safety measure. In addition, this dissertation seeks to add to the already available knowledge on health and safety in Saudi Arabia construction sector.

1.2 Aims and objectives

The aim of this research is to recommend ways of addressing H&S standards within construction projects in Saudi Arabia. To achieve the above mentioned aim, the following objectives have been set

- Ascertain H & S protocols currently used in Saudi Arabia construction sites
- Assess the state of Health and Safety in Saudi Arabia's construction project
- Investigate the issue affecting the implementation of a robust H & S practices
- Recommend ways for its improvement in Saudi Arabia construction sector

In meeting the above mentioned objectives a detailed literature review as well as in-depth interviews was carried out and critically evaluated.

1.3 Scope

With reference to the above, there is high probability of issues in Health and Safety in construction projects and the solution to these problems in one country may be replicated in another. Therefore the scope of this project is based on methods implemented in the United Kingdom which represent the basis in which proper Health and Safety process may be created in Saudi Arabia construction projects. The point of reference has been selected on the notion that the author has academic affiliation with United Kingdom and is aware of the Health and Safety issues in that country. This thesis is only limited to the Health and Safety processes and procedures implemented in the Saudi Arabia construction sector

1.4 Significance of the research

The basis of the research project will seek to address the following questions

- Why is it necessary to develop and adopt an appropriate H&S plan?
- What is the influence of a robust Health and Safety plan in enhancing employee performance in Saudi Arabia construction site?
- What measures should be adopted by Saudi Arabia construction companies to deliver a safe and secure working environment?

1.5 Thesis outline

This thesis is structured in this format

Chapter 1 is the introduction with the scope, significance of the research and the aims and objectives detailed

Chapter 2 is the literature review where academic documents with respect to the study are reviewed

Chapter 3 is the methodology

Chapter 4 is the outcome from the study and analysis

Chapter 5 is the summary, conclusion and recommendations

Literature review

2.1 Introduction

Reese and Edison (2006) reports that construction sites are regarded as accident prone areas with high risk and raises a lot Health and Safety concerns. These concerns might come from the surrounding operations such as construction methods, heavy equipment movement etc. In most developed countries there are regulations which govern construction operations on site which help reduce Health and Safety hazards. However Health and Safety in developing countries like Saudi Arabia construction practices differs with those of its European counterparts. Therefore Health and Safety policies and procedures may need to be contextualised. This chapter presents literature review drawn from various academic materials about the nature of construction in Saudi Arabia.

2.2 Background

Health and Safety (H& S) plays an important part in safeguarding the wellbeing of employees in the workplace. By law the provision of safe and secure working environment is mandatory as outlined by Ofori (2010). However, Hamden & Awang (2015) argues that this may be obstructed by many factors such as the area or country. In developing countries the provision of safe and secure construction site is a huge challenge. Focusing on Saudi Arabia as a developing country with a growing population therefore public infrastructure is huge. However this sudden growth comes with a challenge on implementing Health and Safety practices in construction site. Calderwood & Crone (2015) reported that about 107 people were killed in Saudi Arabia construction site when scaffolding failed. Hamden & Awang (2015) acknowledges that weak Health and Safety practices and procedures in Saudi Arabia construction sites has increased the number of fatalities. GOSI (2015) acknowledges. Health and Safety will continue to be challenging issue unless effective measures are developed to deliver robust processes and procedures. In this context health and Safety weakness are due to practices within the construction site. This suggest that these practices need scrutiny so as to create viable solutions

2.3 Related work

Health and Safety is an important attribute of any construction site. Hassan et al (2007) states that there a correlation between the size of the project and the safety of construction workers. A lot of research has been done to understand the Health and Safety in the construction industry. In line with the proposed research study, more research has evolved but looking at different aspects of the domain.

Hassan et al (2007) investigated the relationship that exists between the construction projects and the safety of employees. The study focused on the size of the project. A questionnaire was used as a data collection method and the researchers randomly selected five construction site for their research study . The questionnaire was used to check if there were safety standards at the construction site and the outcome was compared to large and small construction projects. Their study proved that there was a correlation between the size of the project and safety standards. In addition, the study concluded that larger construction projects have a robust level of safety than smaller projects.

Lee and Yasmin (2012) looked at the factors influencing safety from the contractor's perspectives. The aim of the study was to understand and determine the extent to which each factor influence the safety of workers during the construction process. The research used questionnaire to collect data on 110 construction companies in Malaysia. The outcome of the research was that the factors which affect the safety of workers in the construction site where management , processes , personnel ,policy and technical. Huang and Hinze (2006) researched on the role of the stakeholders in safety in the construction process. This study looked at the owner's responsibility in the safety of the construction. They discussed the relationship between the safety of construction and the owner's effect. The outcome was that the owner impact on the safety management process in the construction by selecting subcontractors and contractors Alasamri, Chrisp and Bowles (2012) also conducted a framework for enhancing and improving the safety culture on Saudi construction. The trio further stated that Saudi Arabia's performance is poor in terms of fatalities from health and safety. Therefore, this presents a challenge in implementing Health and Safety measures. Their study further proposes a framework for addressing these issues. On the other hand, Haadir and Panuwatwanich (2011), in their study of critical success factors for safety programs implementation among construction companies in Saudi Arabia, have identified

factors that impact on the successful implementation of safety programs among construction companies in Saudi Arabia. Their study focused on the lack of understanding of these factors by promoting a detailed safety program for implementation within the Saudi Arabia construction industry (Baig 2005).

A lot of academic has followed the trend in Saudi Arabia construction projects. Most of their research seems to focus on improving the existing Health and Safety measures in the construction industry but over looks mega construction projects which have a high risk and challenges. With regards to Health and Safety in mega construction project only a handful research has been carried out but focuses on the Kingdom of Saudi Arabia (Alhajeri 2011). Therefore the purpose of this research is to identify the Health and Safety issues in Saudi Arabia Mega construction projects. Although there is safety measures in place there are still challenges in the implementation hence the number of construction fatalities has gone up

2.4 Definition of terms

Defining Health and Safety is critical before a detailed analysis of the problems surrounding the industry. The generalisation is health is an important aspect that protects the minds and bodies of people from physical injury in the work place. On the other hand safety protects employees in the work place from physical injury. Welfare is making available ways to sustain the health and wellbeing of employees in the workplace Accidents; according to HSE (2007) an accident is any unforeseen event whose outcome may be an injury or ill health or bring damage to the surrounding. In Saudi Arabia the Ministry of Labour is responsible, through its labour inspectors, for monitoring and enforcing the application of Health and Safety provisions (Xperthr.com 2015).

Keng (2004) reports that Hazard is the possibility of a process or an activity to cause harm such electricity or working from a staircase. A risk is the probability of an activity to cause harm .In general a risk can be reduced and controlled by good management. The two terms are sometimes confused and some activities in construction are sometimes labelled high risk when in fact they are high hazards. Health and Safety is an approach that discourages work practises that threatens employee wellbeing in the workplace, it eliminates construction or job sites hazards throughout the project.

2.5 Problem description and scope of construction industry

According to Coble and Haupt (2006) the construction industry is critical to feed the need for accommodation for various reasons. In most places construction tends to include activities such as demolition, site clearance, and safe disposal of construction waste material.

However, the construction process tends to involve hazardous activities which may include working at height, manual handling, lifting, scaffolding and so on. More or less construction sites tend to be temporary in nature and, change during the construction process. Therefore this presents room for health and safety practices to be compromised. With the number of organisation involved in one single construction project during the beginning, it makes the management of process in the building sector more complex and difficult. A single construction project more often has a variety of sub-contractors who bring their own influence thereby creating a different culture of decisions and authority.

Reese and Edison (2006) state that a more personal and positive relationship will yield a more satisfactory safety record. However, Smallwood (2007) argues that when the ratio is too high which is normally the case there is bound to be shortfalls on Health and Safety. According to Ismail, Doostdar and Harun (2012) the nature of construction projects is low level education work force and high subcontracting which basically is the main contributor to poor Health and Safety records within most construction projects.

2.6 Accidents statistics in the construction

HSE (2015), reports that the construction industry has a huge number of occupational fatalities every year. Kartam and Bouz(2006) acknowledges that the construction industries as compared to other industries has an increased rate of injuries .

In Saudi more than 50 workers were trapped after the collapse of a building under construction as reported by Aljazeera (2015). Gibson(2014) also reported that in Qatar more than 500 workers were been killed in construction sites since 2002.

A convention centre under construction in Riyadh Saudi Arabia collapsed and killed 11 construction workers (Thenational 2015). Press Television also reported that another 4 workers were killed in another building site collapse (Presstv 2015). These statistics indicate that Health and Safety in Saudi Arabia is major concern which needs constant monitoring

within construction sites. In Japan, construction accidents amount to forty percent of the total accidents, Ireland fifty percent and twenty five percent in United Kingdom (Agwu 2014). Accidents are more common on the constructions sites as compared to manufacturing factories because the environment in factories is more controlled and there is minimal change in the working procedures . The workforce in factories is more constant as compared to the ever changing workforce for construction sites.

In factories there is a robust Health and Safety mechanism which means whenever a hazard is identified it will be remedied promptly and the danger mitigated. However the situation is different when it comes to the construction industry because of its ever changing environment. The fragmented nature of the construction industry presents a lot uncertainty challenges tailored to health and safety. Health and Safety in construction sites is a big problem. From 1992 to 2003 about 13,502 workers were killed in construction site in the United States as outlined by Ishn.com (2004). The number of Health and Safety fatalities in the constructions industries indicates that the industry has a poor record as compared to other sectors.

2.7 Key Factors Leading to Construction Accidents

The Construction sector is a very unique and challenging therefore that makes it more susceptible to more danger than other industries. The construction site is dynamic and temporary. Many people are involved in the construction site which range from sub-contractors who perform various functions. With this many people in one place, certain tasks may be delegated to other contractors who may not be familiar with hazards in construction site which presents challenges to health and safety.

The ever dynamic construction site which is constantly being moved and modified creates conditions for hazards to constantly emerge. This uncontrolled Health and Safety on construction sites may cause hazardous conditions to go unnoticed which may cause serious injuries and probably death (Lingard 2013). A number of people are accountable for the Health and Safety in construction sites. These range from contractors, subcontractors, architects, stakeholders etc. Even though contractors are supposed to check sites with construction engineers and make sure there is compliance with these safety regulation is adhered to.

Constriction fatalities will still occur because of inadequate safety regulation. The main causes of construction accidents are down to the unique nature of the construction site and the challenging site conditions.

According to HSE(2007) the changing nature of the construction industry is the main cause of different types of incidents whose outcome are injuries and fatalities . As mentioned earlier in the statics and other Health and Safety studies, this firmly underlines the need for even more thorough accident preventions schemes. The most common causes of accidents in the construction site as outlined by Haslam et al.(2005) are ;

- Falling Hazards-Falling accidents are the most common and they occur when a worker steps to or backward an open sided slab and focusses on the work. Slips, trips or low falls are the most common. Lack of protection, scaffolding failures and inappropriate use of tools can be potential hazards
- Unsafe working conditions: these are conditions in which the physical layout of the workplace or work location violates safety working standards (Jha 2011). Unsafe conditions on a construction site includes uncovered holes, inadequate personal protective equipment etc. (Jha 2011). Accidents can be caused by failure to identify an unsafe condition, ignorance of unsafe conditions being reported by the worker or being reckless on Health and Safety issues
- Trenching and excavation hazards - trenching hazards may set workers in danger of being trapped by soil and rocks. So inadequate excavation wall support, protective system failure, unsafe passage into or out of the trench can generate construction hazard
- Stepladder misuse- most falls in the construction site are due to step ladder misuse or failures. Ladder injures are as a results of loss of balance, excessive weight etc.
- Electrocutions and power tool accidents : electrocutions can be caused by coming into contact power cables , cables strikes on the ground utilities or other defective of ground fault protections . Power tools accidents are also common which are mainly caused by inappropriate use of protective equipment or improper power tool management
- Scaffolding accidents. Scaffolding equipment failure can compromise the Health and Safety of a construction site. In addition unsecured tools may fall off scaffolding causing injuries to the employees and the general public

- Construction Vehicles Accidents. Heavy construction equipment such as cranes, concrete mixtures etc. can become potential dangers on construction site. Their weight and size present a danger to construction workers. In some cases drivers visibility on these equipment may be constrained which is a Health and Safety hazard.

2.8 Challenges in developing countries

Health and Safety differs by countries but the global generalisation is construction companies need to provide safe and secure working conditions for their employees. However the delivery of safe and secure workplace in construction site is not the same worldwide. Construction development provide the necessary infrastructure needed to boost their economies to grow. Coble and Haupt (2005) has indicated that construction reflects the level of economic development within a country. However, developing countries such as Saudi Arabia face a huge challenge in addressing the need of a very robust Health and Safety as this runs parallel to the socio economic stress as compared to developed countries (Fore 2007).

The construction sector is good source of generating employment to the local economy, however this provision should be balance with the delivery of a robust Health and Safety plan. Most construction companies in the developing countries sometimes fail to meet the needs of Health and Safety therefore failing to deliver the best safe and secure workplace environment (Data 2007). According to ILO (2013) the delivery of poor Health and Safety in construction projects within developing countries is due to;

- A large turnover of workers: this is because the stakeholder are more concerned about completing the project
- A large proportion of migrant works : According to Kartam et al.(2008) a lot of developing nations like Saudi Arabia , India ,Bangladesh etc. They have no proper training given to staff when the commence work at a construction site.

Furthermore, staff are not familiarized with the construction facilities , hazard are not highlighted and Health and Safety meetings are not normally held.

These kind activities means employees are left to learn from their own mistakes and experiences therefore presenting challenges in implementation.

There is no set standard approach in the construction sector that determines if employees have been cleared to work on a construction site. Nonetheless most of these developing

countries safety rules don't really exist but if they do ,they are not effective ,have expired and are based on their former colonial masters . In addition, authorities responsible for Health and Safety are usually weak in implementing robust rules that deliver a safe and secure workplace as suggested by Coble and Haupt (2005).

2.9 Globalisation

Construction sector is a global problem that creates a buzz where construction activities take place. There is a growing tendency that people will move to places where there is greener pastures. People are bound to look for work in different countries. Chong and Low (2014) state that the ever increasing number of global activity in construction merits a better understanding of cross cultural migration. Cross cultural migration can pose as a risk factor in the implementation of a robust Health and Safety plan. This is mostly caused by language barrier. According to the ILO (2014) Health and Safety accidents from migrant workers doubled between 2012 -2013 worldwide. In Saudi Arabia where there is migrants from different counties they may be missing out on important training due language barriers or lack of employer to make provisions in their own language

2.9 Summary

Health and Safety is an important aspect of construction sites , it is a procedures that safeguard's the safety of employs and ensures business continuity with the sector . This chapter was a review of academic literature in Health and Safety in Saudi Arabia construction sites. Academic literature indicated an increase in the number of fatalities that are linked to Health and Safety practices in developing countries such as Saudi Arabia. These fatalities have highlighted the importance of addressing Health and Safety in these construction sites. In this context it is necessary to look at causation factors which compromise Health and Safety however, it is well noted that there are challenges in implementing good Health and Safety practices

Health and Safety legislation (KSA and UK)

3.1 Introduction

Health and safety needs proper management which allows individuals to assess risks in construction site and take measures to address them. Risk control is about the knowledge and ability to take actions. However, this approach need to be covered by a legal framework to be effective. Most countries have a framework which governs Health and Safety. This legal framework empowers employees to take action when they are injured as a result of work related accidents. In the above context, This chapter will reviews the legislations related to the health and safety in Saudi Arabia.

3.2 Health and Safety regulations (UK)

The health and Safety at work Act of 1974 specifies that it is the employers duty to provide training , information and supervision required for the provision of a safe working environment , The following regulation influence the behaviour of both employer and employee at a construction site

- Management of Health and Safety at work Act 1974, Regulations 1992.
- The Construction Design and Management CDM 1994, and CDM 2007.

The Health and Safety act is the backbone of all safety laws. It provides the general duties which employers have towards their employees. The law expects employees to behave in a way that show good management and reasonability .The requirement is to assess hazards and take reasonable action to address them.

3.3 Existing Health and Safety code of practice in Saudi Arabia

The labour law number 8 of 1980 administers Health and Safety in construction. The law provisions Health and Safety in the construction sector. The labour law requires employers to protect employees from work related hazards by providing appropriate safety . The provisions of the law stipulate that the following measures should be adhered to (Saudi Arabia labour law)

- Employer should provide employee with reasonable means of protection against work place injuries. The employers should apply all precautionary measures specified by the law or the Ministry of labour and social affairs. The employee shall in turn use safety equipment supplied to the purpose specified and should follow the employers instruction which protects from accident
- Employers should display on the construction site comprehensive instruction on Health and Safety and these instructions should be in language understood by the employees
- Employer should make available first aid kit and should make sure the work place is clean and ventilated.

3.4 Summary

In a typical construction workplace, the employer will go an extra mile to reduce and control risk. To do this they need to have the required knowledge to manage risk attached to health and safety. However this approach on it's own is not sufficient it requires legislation which covers negligence in cases where Health and Safety of employees is concerned. Most countries have Health and Safety frameworks which are backed by a system that protects employee safety on the workplace. This chapter briefly reviewed legislation related to Health and Safety in the work place. There is commonality between legislations although some have more robust Health and Safety processes and procedures. For example the United Kingdom has a more established Health and Safety system with high accountability and enforcement.

Methodology

4.1 Introduction

This chapter is an outline of the methodology adopted in the research. The research looks at the kingdom of Saudi Arabia construction sites. The reason for this choice is because the Arabian peninsula is experiencing an economic boom. To begin with attempts were done to identify the Health and Safety mechanism for construction sites. Secondly, in depth interviews were carried to identify accident causation factors in construction. Furthermore these interviews helped to identify any barriers in implementing Health and Safety approaches in Saudi Arabia. Therefore in this chapter the hypothesis and research question are explained. In addition, the method adopted justifies the aims and objectives. The research will also contribute to the health and safety in the construction sector. In hindsight, academic literature has indicated a detailed grasp of existing knowledge. The literature review has provided an orderly understanding of previously published, unpublished information including related work on the research study. It has also helped in focussing the research and formulating the study more effectively.

4.2 Hypothesis

The hypothesis on this thesis is based on the literature review and details that very limited work has been done to deal with issues of Health and Safety in Saudi Arabia. A more comprehensive investigation on Health and Safety could make a huge contribution to the knowledge in this domain. The work presented in this thesis is drawn from the author's work and point of view which may not be covered by any published work. Secondly the hypothesis looks at the relationship that exists between management and health safety at the construction site in Saudi Arabia. The generality is that there are problems linked to Health and Safety which are peculiar to Saudi Arabia. This is down to social, cultural and political controls which exert a pressure on how Health and Safety are adopted in the construction sites. Construction sites in Saudi Arabia draw workforce from various countries with different backgrounds. Therefore with this influx Saudi Arabia's construction sector needs to align itself to a changing workforce and also needs to wary of a diverse workforce. It is prevalent for the sector to learn from countries with a robust Health and Safety policy such as the United Kingdom.

4.3 Qualitative vs Quantitative Research

Information for research purposes can either follow quantitative and qualitative approach depending on the study. The first form of research came from the natural sciences such as chemistry, biology, geology etc. And the aim was to investigate attributes that could be observed and quantified. This approach was more objective and could be repeated by other researchers and was called quantitative research approach. Another approach came from the natural sciences such as anthropology, Sociology and psychology. The approach looked at behaviour and the social world inhabited by humans (Henning, Hotter and Bailey 2011). The ideology behind this approach was it was challenging to explain behaviour by quantifying it, therefore qualitative behaviour has shown an understanding of why things are the way they are in the social world and why humans behave the way they do (Roulston 2010)

Quantitative research is referred to by the terms Empiricism and Positivism (Uebel 2013). This is an objectives and systemic process in which there is a huge numerical data finding and analysis. The process involves tests and looks at cause and effect relationships by using a deductive route of data attainment (Bowers 2014). While quantitative research approach test theory deductively from already available knowledge by formulating theorised relationships and proposed results for the study, qualitative research is directed by different ideas with regards to the study being investigated. The two approaches differs in that qualitative develops theory inductively while quantitative does it deductively (Bryman and Bell 2015). Qualitative research is used as way of studying the empirical world from the point of view of the subject not of the researcher (Ritchie et al. 2014). (Denzin & Lincoln (2005) define qualitative research as an activity that finds the observer in the work which consist of a set of interpretative, material practices that makes the world visible. Qualitative research studies things in their natural setting, then attempts to make sense of the phenomena in terms of meaning in what participants bring to them as stated by Hesse-Biber & Leavy (2006).

4.4 Justification of the research methodology adopted for current study

From the literature review the author determined that there is limited research previously conducted on looking at the Health and Safety in construction sites in Saudi Arabia. Due to the nature of the research and the need to understand human behaviour in this domain, this research will adopted qualitative methods of collecting data because it gave the author the ability to provide complex textual descriptions of how people experience

Health and Safety in the kingdom of Saudi Arabia. It also provided information about the human side of issues that is more often contradictory behaviours, beliefs, emotions, options etc. Qualitative methods have been more effective in identifying intangible factors such as socio-economic, social norms etc. The method uses in depth interviews in the form of discussions.

4.5 Qualitative via in depth Interviews

This data collection methodology requires the conduct of interview focused on understanding issues related to Health and Safety in Saudi Arabia. Misoch(2015) defines qualitative research interviews as aimed at collecting data based on actual facts about particular issues and they look for clarification of answers to standardised questions. The interviews can either be structured, semi structured and unstructured. Structured interview allow the interviewer to ask each respondent questions the same questions in the same way. This is often used where the researcher has the intention to use quantitative data analysis. Semi-structured interviews involves planning for the questions to asked in advance and basing on open ended questions. Semi structured interviews are useful when collecting attitudinal data on a large scale. Unstructured interviews also called in-depth interviews have little structure. The interviewer approaches the interview with the aim of discussing a limited number of topics. The approach covers topics in much more greater detail which gives a picture of what is happening to the settings. In in depth interviews the research. In in depth interviews the research will be able to gather as much information possible from the respondent in order to gain the fullest understanding.

In this research 10 interviews which focused on the Construction Company and employees. Gill et al. (2008) acknowledge that in depth interviews are helpful to gain a more detailed understanding of the research topic. The author has relied on the available literature to emphasise how important the research topic is. The author has also relied on literature journals, publications, government documents. The interview were held with key players in the construction sectors including employees and the following set of questions were used in the investigation

Interviews questions design

- a) Tell me about Health and Safety at construction site in Saudi Arabia
- b) Do you think it adequately applied in the construction sites
- c) Do you think Health and Safety compromise is all down to the management
- d) Is health and safety an essential part of the construction site if not how can this be improved
- e) What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned
- f) What are the employer and employee concerns to the implementation of a robust Health and Safety program
- g) How well are Health and Safety programs observed at the construction site
- h) What are the obstacles in implementing a health and safety program at a construction site
- i) Are there designated individuals who make Health and Safety their priority during individuals
- j) How often do Health and Safety workshop take place in construction sites
- k) Do employer and employer take Health and Safety seriously?

4.6 Data collection

Primary data

10 respondents were interviewed and each interview lasted 10-15 minutes. These were conducted in Saudi Arabia and the interviews were conducted over a period of 6 weeks. The respondents were sourced through Construction Company's portal and government website. The interviewees had a lot of experience in Health and Safety in construction sites. During the course of the interviews all data was recorded and analysed using patterns between each interview

Secondary data

From the start of this research an initial literature review was produced in order to gain an in-depth understanding of the research problem. This approach utilised secondary data and this was identified through academic literature, publications, journals and conference proceedings. The use of secondary data is critical in any research as outlined by Saunders et al. (2009). Secondary data provide contextual data which transform the theoretical framework into context.

4.7 Data analysis

In qualitative research data can be analysed through drawing patterns (Thematic), critical discourse analysis and qualitative content analysis. Thematic analysis was used in this research because it does not have an identifiable distinctive cluster of techniques as outlined by Bryman (2008). Thematic analysis allowed interview data to be split into themes and framework model was used to gain a detailed understanding of the data. Bryman (2008) acknowledges by creating a structure of themes within framework matrix, detailed reading of the transcript is required in order to full understand what the interviewee is putting across. The application of this framework to the data sets meant core themes were created from which sub themes branch of. The data generated was written down and analysed in order to draw final themes. This type of analysis in social science is known as thematic analysis. Braun and Clarke (2006) define thematic analysis as qualitative analytic method of identifying, evaluating and writing themes within a set of generated data. This approach analyses data sets in a more comprehensive way.

4.8 Ethical Considerations

As a researcher it is important to consider ethics in social science because they promote the aims of the research such as the truth, knowledge and avoiding errors as outlined by (Niehs 2015). In addition, ethics promote the values that are required or necessary for collaborative work. This study addressed ethical issues by following procedures. Ethical aspects of the study were addressed by adopting the following; the interviewees were promised full privacy and a numbering system was adopted instead their original names. Additionally, those who participated in the interviews did so by choice and were informed of the aims and objectives of the study. Literature which belonged to other authors or academic researchers that was used as part of this study was acknowledged and referenced according to the Harvard referencing system.

4.9 Sampling

The participants in this research were selected because of their affiliation with the construction sector in Saudi Arabia. Most of the participants were contractors in Saudi Arabia construction time and 2 came from the management. The participants in this research represent the characteristics of employees in Saudi Arabia construction sector.

4.10 Validity and reliability of interviews

Using interview for this study, the researcher developed questions that were relevant to the qualitative research study. The aim is to make sure the method of collecting data should valid and reliable. Feedback from the interview should act as a basis for analysis where the researcher will have to come up with part tens to the data. The researcher has been careful in constructing interview questions to make sure the data generated will add value to the study. To achieve reliability the interview question aim to generate data relevant to the study. Questions were formulated in a way that the participants had no indication of the desired answers. The participants were assured of confidentiality and that their credentials and answers will remain anonymous. In addition to the above, the study adopted triangulation method to verify and validate the data generated. Triangulation is a methodology that determines the legitimacy and proof of data generated, this ensures an account is rich, robust, comprehensive and well formulated (MacPhail, Khoza, Abler & Ranganathan 2015).

Results and analysis

5.1 introduction

This chapter is a critical analysis of the findings from interviews on Health and Safety in Saudi Arabia. The main findings of this research study were that Health and Safety has become a concern in the construction sector. Organisations who want to remain competitive in the global market have stepped in to address health and safety as it is seen as good corporate practice. For other organisations, adopting a Health and Safety practice can be the difference between stay competitive or being in business and to be driven out the sector. Statistical evidence on the compromise of Health and Safety reflect the gravity of the problem.

5.2 Data collection

As stated earlier, interviews were formulated to gather data for the research study. Some interviews were face to face and some through skype. The target interviewees of this study were managers, contractors, employees, and Health and Safety officers in the Saudi Arabia construction sector. The participants came from management, employees and safety officers. The employees interviewed were heavily involved in the building process with a mix of commercial and residential constructions. While Safety officers involved safety managers and health safety officers who are responsible for implementing safety within the construction industry.

5.3. Analysis

Thematic analysis was conducted on all transcripts and key ideas were coded and grouped into keywords and themes. The thematic analysis was guided by Guest, MacQueen and Namey (2012) and these themes will reflect patterns across data sets which is important to the research question

Thematic analysis of the study

Summary of findings from interviews

Participants quotes	Keyword	Themes
One thing to note is in Saudi Arabia there is lack of concern for safety and well-being of employees at a construction sites. It is a little shocking as compared to the west, for example the United Kingdom where safety rules and regulations in construction sites go overboard	Lack of accountability	Accountability
Sometimes management will fail to adhere to robust health and safety. some of it is due to employs	Improper management an	Management
Safety programs are fairly moderate	Lack of regular workshops	Training
The construction industry in Saudi Arabia falls short of communication health and safety issues to the employees : Participants quoted communication as one of the biggest challenges	Lack of communication	Communication
Ans: management and the culture of the organisation	Culture	Organisation culture

<p>Ans: I think it's all down to the culture of the organisation. If driven by profits then implementing a Health and Safety plan might not be a priority</p>		
<p>Employees are partly to blame in the implementation of Health and Safety process. This is due to lack of knowledge , language barrier that affect communication</p>	<p>Employee behaviour</p>	<p>Employee behaviour</p>

Theme one: Management

Management involves the process of controlling people's behaviour. According to the BusinessDictionary (2015) it is a process that involves organising, scheduling, mobilising, directing equipment and personal in executing a construction contract. Management are involved in addressing Health and Safety issues in a construction site in order to ensure business continuity. In principle a more engaged management at all levels can provide direction and input to a preventable approach which makes everyone aware of Health and Safety within the construction site. Management failure to control people in construction sites puts all employees at risk. During the interviews all participants stated that the failure of Health and Safety in the Saudi Arabia construction side is due to management.

Participant 1 stated "Partly yes, management will sometime fail to adhere to robust Health and Safety measures. Some of them do it to drive projects cost down. Some of the Health and Safety compromise is down to employees not following the set Health and Safety measures. For example, some employees may refrain from wearing safety gear because it makes them uncomfortable".

Participant 3 stated "from a management point of view, yes we have to take the blame. We should be responsible of implementing a robust plan to adhere to Health and Safety procedures. Some compromises is also down to the employees as they fail to observe the set procedures"

Participant 6 stated "I think both management, stakeholders and employees are to blame if there is compromise to health and safety.

The management of Health and Safety is critical and it plays a big role to safeguard employee health and safety. Management practice concerning the safety culture in Saudi Arabia is a big issue as discussed by Lingard Cooke and Bliss's(2009).

Maher Altayeb and Bashir Alhasanat (2014) state that management commitment to Health and Safety plays a very critical role in influencing the construction site safety processes and procedures.

Looking at participants responses, management are partly to blame in the portions of a weak health and safety program.

Beckmerhagen and Berg(2008) state that management give value to safety measures which in this way may limit risk. The intervention of management in the Health and Safety means they are able to motivate employees to remain committed to carry out their job in a safety way.

if management are more involved in the safety program it means the safety programs can be merged so that construction employees can support management to achieve a safety standard in line with health and safety.

Management involvement means they can implement official policies and practices such as encouraging employees to meet the requirement of health and safety at

the construction site . By sharing a common belief and values between management and employees means safety is given a priority. However in the case of Saudi Arabia construction sites accidents occur because there is no proper integration and the safety culture does not recognise employees attitude and behaviour as outlined by Clarke (2004). Management practices should involve commitment to push forward safe working place for employees. Snell and Bohlander (2010) attest that management involvement to safety is important in influencing the successes of a Health and Safety program of an organisation. Hinze, Hallowell and Baud (2013)adds by stating that management involvement adds value to safety measures in a way that puts importance on risk.

Theme two: Training

According to Borner, Moormann and Wang (2012), training plays a critical role in the improvement of safety within an organisation. It involves organised activities which are aimed at imparting information or improve the employees performance or to help employee attain a requited level of knowledge and skill (Borner, Moormann and Wang 2012). It is basically a management function. There is clear understanding from the data gathered that there is lack of training amongst managers and employees on the issue of health and safety, which puts everyone involved at risk. When participants were asked how well Health and Safety programs are observed at the construction site are

Participant 1 stated “ A Little less because there is no proper training so employers may not know how to observe these procedures “

Participant 2 stated “I think it’s fairly moderate but I think there is a lack of training to empower both employees and management”

Participant 3 stated “very poor I think all those implementing the Health and Safety programs lack the proper training

Looking at the participants responses training is very important as it provides ways for making accidents more foreseeable. To improve the quality of Health and Safety in the construction site , organisations should adopt a systematic health and safety programs for all construction employees. For new employees it is critical to provide orientation programs so that they are aware of the consequencxe4s of breaching any health and safety procedures and protocols. Health and Safety training is important especially in high risk area such as construction. Harvey Cohen (2009) acknowledges that it is critical that

employees are trained so that they are able to identify and behave appropriately against hazard related to their work place. Regular training programs can help the organisation , employees and management prevent accidents as this informs the everyone about the Health and Safety rules and process while at the same time they identify any further training needs.

Theme three: Communication

HSE.(2015) states that to achieve success in health and safety management there is critical need for effective communication up ,down and across the organisations. In the study participants stated that communication between to management and the employees was not followed in appropriate manner . The participants were asked what issues were faced by Saudi Arabia as far as Health and Safety is concerned. The participant responses were;

Participant 5 : *“Ans: I think in this part of the word implementation is kind of a challenge , some of this might be caused by communication barriers and cultural background”*

Participant 4: *“Ans: communication and implementation*

Participant 3: *Ans “Communication across all spectrums is a problem “*

Participant 2:” *Ans: implementation, training, scale of the project and communication “*

Participant 1 *Ans: “Communication”*

Gordon, Buchanan and Bretherton (2008) state that communication is vital cross all level of the organisational structure in order to deliver a robust and effective service . It is clear that communication play a big role in the delivery of information across the organisation. HSE(2015) affirms that construction organisations need to communicate Health and Safety information to their workers on the risk to health and safety identified in their risk assessment. The e information provided should be communicated in the right manner taking into consideration the employees level of competency and the organisational structure.

Theme four: Employee behaviour

Employee involvement is critical to the delivery of a robust Health and Safety program. Health and Safety at the construction site can be improved by employees. If employees have no regard for this, it may compromise the process and procedures to deliver a safe working environment. When participants were asked if employees take Health and Safety seriously, their responses were;

Participant 5: *Ans: "some do some don't"*

Participant 4: *Ans: "employees do but some bosses tend to overlook Health and Safety procedures"*

Participant 6: *Ans: "Ans: not really, they just want to get the job done"*

Participant 5: *Ans: "some do some don't"*

According to the participants, employees do not take Health and Safety seriously, which is witnessed in their behaviour. Employee behaviour is important in driving the Health and Safety agenda at the construction site, as expressed by Gao, Tian and To (2015). Bellamy, Geyer and Wilkinson (2008) state that employee behaviour should match environment and capabilities in a way that helps the Health and Safety of employees. Employee behaviours fall under human factors, these are attributes that influence accidents such as skills, knowledge and attitude. The interviews indicated that employees have a lack of understanding in maintaining robust Health and Safety processes and procedures. This is due to the number of foreign labourers that make up the Saudi Arabia construction sector. The interview also pointed out cultural barriers which add to employees not following the proper Health and Safety procedures on site.

Theme five: Accountability

Accountability is to accept responsibility for activities and disclose outcome in a transparent way. It is the responsibility of the construction organisation to ensure health safety it's adhered to at the construction site as outlined by HSE (2015). When participants were asked what they thought about Health and Safety in Saudi Arabia construction site.

Participant 1 *“Ans: One thing to note is in Saudi Arabia there is lack of concern for safety and well-being of employees at a construction sites. It is a little shocking as compared to the west, for example the United Kingdom where safety rules and regulations in construction sites go overboard “*

Participant 2: *Ans:” err! From my perspective health and safety is not widely observed in Saudi Arabia construction sites . Although there are health and safety rules and regulations they are not as robust as other countries such as most western countries “*

Participant 4 *Ans: “I think Health and Safety procedures are not widely observed in the construction site in Saudi Arabia which causes the number of fatalities in this sector to plummet “*

Participant 5 *Ans: “Health and Safety in Saudi Arabia construction site is a huge concern , there is a huge need of accountability By looking at current fatalities I think it's an issue that need to be addressed with immediate effect” . HSE(2005) State organisations should ensure accountability at all levels, to deliver a Health and Safety climate on a construction project management and workers should both be accountable for the health and safety. An effective safety climate cannot exist without accountability throughout the organisations therefore everyone concerned with construction project should be held accountable for safety , that include stakeholders , contractors , employees etc.*

Theme six: Organisation culture.

Organisational culture is systematic values and beliefs which given how people behave in an organisation. These are shared values which have a strong impact on the employees in the organisation and detect how they behave. Every organisation develops and maintain a unique cultures and these become factors which lay out guidelines and boundaries of employee behaviour as outlined by Fellows (2010). Organisational culture is made up risk, precision, achievement, fairness, collaboration, competitiveness and rules. Organisational

culture under the notion of Health and Safety are attributes that can compromise employees at a construction site. For example, an organisational culture which places high value on Health and Safety will put more focus on employee safety while one which places low value will deliver a weak health and safety program for its employees. Lingard and Rawlinson (2005) state that organisational culture is linked to factors that predict employee health and safety. Therefore when ignored these can act as barriers to the implementation of an employee safety program. Most participants in the interview have stated that organisational culture was a big issue in the implementation of health and safety program.

Participant 10 stated that *“organisational culture was acting as barrier to the implementation of a Health and Safety procedure to construction employees and this was mainly due to the need to maximise profits”*

Participant 8 “Ans: *I think it’s the culture of the organisation, I.e. The way Health and Safety is perceived within the organisation* “

Participant 7 “Ans: *management and the culture of the organisation* “

Participant 3: Ans: *management and the culture of the organisation*

Participant 6 Ans: *I think it’s all down to the culture of the organisation. If driven by profits then implementing a Health and Safety plan might not be a priority*

The majority of participants quoted organisational culture as being the obstacle in the implementation of Health and Safety program. However this may vary, if an organisation is deeply rooted in the culture of pushing forwards profit first then the Health and Safety employees is at risk as outlined by Fellows (2010).

5.4. Discussion

The Analysis indicated that there were certain elements that hindered the delivery of health and safety practices in Saudi Arabia construction site. The study highlighted that management, communication, accountability, organisational culture, employee behaviour and training were the causes of weak health and safety practices.

Management plays a critical role in the control and delivery of health and safety practices. As mentioned earlier, management behaviour was in construction sites was a big issue. Respondents highlighted that one of the key issue facing Saudi Arabia health and safety in construction sites was that management behaviour did not reflect good practice. Management approach to health and safety overlooked all the processes and procedures. Their approach was driven by the need to make profits within a short period of time. The generalisation is management have a greater influence on the behaviour of employees, subcontractors and so on. Therefore this suggest that positive management approach will yield positive health and safety outcome at construction sites. Whereas negative approaches will have always negative outcomes. Snell and Bohlander (2010) have acknowledged that the success of health and safety practices in construction sites can be delivered through enhanced management involvement. Hinze, Hallowell and Baud (2013) have also supported the notion that management involvement will ensure all the necessary processes and procedures are followed in order to minimise accidental risk

Lack of training was one of the issues highlighted by the corresponded. Employees that are not trained properly on health and safety issues are a risk to health and safety. The respondent pointed out that training was one of the shortfalls in the delivery of robust health and safety practices. Respondent also pointed out that where training was available it was fairly basic and didn't cover the most important elements of health and safety processes and procedures in constructions sites.

Training is an attribute that empowers the employee and it influence their behaviour. Harvey (2009) argues that lack of training amongst construction employees in Saudi Arabia exposes them to unsusceptible risk. This will come from not having the knowledge of health and

safety processes and procedures in a construction site. Therefore it is important to have a well-trained labour force at the construction site.

Lack of communication was highlighted as one of the elements that weakens the delivery of robust health and safety practice. Without communication health and safety processes and procedures are challenged. The study indicated that communication protocols between management and employees were very weak. This suggested nothing that concerned health and safety was communicated to employees. Academic literature from all spheres has indicated the importance of communication in any setting. Gordon, Buchanan and Bretherton (2008) has acknowledged that communication in construction sites is critical delivering better or robust health and safety processes and procedures. However this might be met by challenges of language barrier which is down to different cultures working on construction sites.

This study also indicated that accountability and organisational culture were the causes of weak health and safety processes and procedures in Saudi Arabia. Respondents have highlighted that there was lack of responsibility and concern on the health and safety of employees. This suggested that no one accepted responsibility for their action. This approach side-lined all the health and safety processes and procedures. On the other hand, organisational culture was seen to be blocking the implementation of proper health and safety practices. Respondents stated that organisational culture was a barrier to the implementation of safety processes and procedures. This was because construction organisations were so eager to finish their project so as to maximise profits and reputation. By so doing they create an opportunity to ignore health and safety processes and procedures as some of them will impact on the cost.

The analysis has shown that lack of elements mentioned above the health and safety processes and procedures are compromised. It is important to have all the elements work in parallel in order to deliver a safe working place for the employees and the employer.

Summary, Conclusion and Solutions

6.1 Introduction

This chapter summarises the study by highlighting the research conducted on the issues of Health and Safety in Saudi Arabia construction sector. The conclusion and solutions to the issues are addressed. The conclusion was drawn from the outcomes of the research in Health and Safety in Saudi Arabia construction site. The solution mentioned were based from the findings of the study and linked to the Health and Safety practices in the United Kingdom.

6.2 Summary of work performed

As a central part of this study, a qualitative approach was adopted which made it possible to understand the severity of Health and Safety in Saudi Arabia. The issues raised in this research were drawn from Interviews conducted by the author. The aim of this project was to investigate the challenges faced in implementing health and safety processes and procedures in Saudi Arabia. To meet the aims of this study the following objectives were achieved :

Ascertain H & S protocols currently used in Saudi Arabia construction sites: Literature review(chapter 2) drawn from academic sources indicated that health and safety protocols in were in existence however they fell short of proper methodologies in implementation. The health and safety protocols were governed by the code of practice under labour law number 8. The laws upheld that employers are required to provide a safe working environment for employees by the provision of hazard free site

Assess the state of Health and Safety in Saudi Arabia's construction project: literature (chapter 2) indicated that health and safety practices in Saudi Arabia are not robust as compared to other countries such as the United Kingdom. The weaknesses of the processes and procedures has increased the number of fatalities in construction side in Saudi Arabia

Investigate the issue affecting the implementation of a robust H & S program : Chapter 4 indicated that the implementation of health and safety processes and procedures in Saudi Arabia construction side was due to the lack of positive management approaches , lack of communication or weak communication patterns and lack of training . In addition, the study

also highlighted that employee behaviour , organisation culture and accountability also added to the lapse of health and safety practices in Saudi Arabia construction sites.

Recommend ways for its improvement in Saudi Arabia construction sector: Chapter 6 highlighted the importance of health and safety practices in construction sites and further recommended solutions to the identified challenges

6.3 Recommendations

Health and Safety is critical area which needs to be addressed extra care. The construction industry in Saudi Arabia needs to formulate better ways to make their Health and Safety process and procedures more robust. In this context and in line with the research study, the following recommendation has been suggested , these recommendations have been drawn from the United Kingdom health and safety procedures because its considered to be one the most robust in the world and the author has had access to their Health and safety program

Management practices: management practice should reflect the need to prioritise Health and Safety in construction sites. Their job is to assist in the creation of a safe working environment as outlined by Choudhry, Fangs and Ahmed (2010). Shelley et al.(.) also indicate that management practice and involvement in health and safety is important to influence in the creation of a robust Health and Safety program . Therefore management in Saudi Arabia construction projects should be involved in the whole Health and Safety process in order to reduce accidents

Training : training is important facets in organisation ,it empowers both the employee and employer to behave in a rightful way . Construction companies in Saudi Arabia should incorporate more training into their Health and Safety agenda. Training should involve having regular Health and Safety program for stakeholders and everyone involved with the organisation

Communication : As mentioned in the study one of the problems was there was lack of communication in health and safety to all parties concerned . Communication plays a critical role in any organisation, for it to be effective it should follow the right channels. Good communication is critical in achieving results and maintaining a strong link at all level of the organisation as outlined by Page(2015). Employers who invest more time into delivering clear line of communication will build up levels trust amongst everyone in the

organisation which will help in the development of a robust health and safety program. Poor communication in any construction place will inevitably lead to unmotivated employees that may begin to question their own abilities in the organisation which compromises the health and safety activities .

Accountability: This involves creating systems which ensure that all construction employers and employees are well aware of their roles and responsibilities and they (employers and employee) act without fail as outlined by Page (2015). Creating a successful accountable system should include everyone concerned with the construction project , should also be able to clearly identify the work to be accomplished and establish roles in all divisions of the organisation which are appropriate , practical, renewed at the right intervals and directly aligned to health and safety. In the interview participant stated there was lack of accountability within Saudi Arabia construction sector, it is critical to push forward accountability in a satisfactory way so as to create a robust Health and Safety plan. Employers and employees should be accountable for their own safety and for the safety of others. Having an accountability policy means the employee live up to their responsibilities. For managers, it is their responsibility to engage and lead the employees to achieve Health and Safety in the work place. The management should be held accountable for delivering Health and Safety by openly defining the roles and responsibilities of those under them. This can be done by making sure the necessary resources are provided and by constantly reviewing Health and Safety performance

Other recommendations

For everyone involved in the construction site in Saudi Arabia, the following have been identified as following a proper Health and Safety plan

Lifting and handling; this is the main cause of injury or accident in the construction site. Employers should encourage employees to use lifting equipment to move objects around the construction site. However in situation where manual handling is necessary the employer and employee should make sure that only the stipulated weight is lifted depending on how comfortable they are.

Working with heights; construction involved working at heights, by so doing it puts the employer at a huge risk. The majority of deaths in construction sites are caused by falling. If the job requires working at heights then the employer should use the right equipment

provided by the employers. The employer should also make available soft landing surfaces in places where the probability of falling is high. In ladders should also be used only if the risk of falling is consider law

Scaffolding: improper scaffolding is a cause for concern and compromises the Health and Safety of the employer. The general Health and Safety rule is scaffolding should be erected by qualified personal, this is to ensure their stability and that they are strong. The employer should make sure the scaffolding is put into a firm and stable surface and should be inspected regularly. In addition, it is critical to stop employees using incomplete scaffolding by put putting barriers and warning signage

Safety Gear: it is important for the employee to be reminded of how important safety gear such as helmets to avoid possibility of head injuries .These could be from falling objects hitting the head. Line managers should ensure that protective equipment is supplied to the employees to avoid the possibility of cuts and infection from building material. Employers should have standard safety footwear with steel toecaps which protect against sharp and dropping objects

Risk assessment: it is important to get everyone involved in Health and Safety processes and procedures. For employers it is important to have external persons and employer to carry out proper risk assessment, these should then push forward a discussion a platform where Health and Safety is openly debated with everyone involved. Employees should be able to understand the risk involved in breach and Health and Safety process and procedures. The employer should then be able to develop a Health and Safety policy that entails the procedures for specific situations and the nominated first aider.

Leadership and worker involvement toolkit: as mentioned from the start of this research project, reducing Health and Safety injuries in Saudi Arabia construction sites is important for business continuity. It is a good approach follows countries such as the United Kingdom because they have robust Health and Safety the construction industry when it comes to health and safety. The United Kingdom has developed a toolkit that managers and workers can get involved in the Health and Safety process. A more detailed version of the involvement toolkit is shown in the appendices.

6.4 Contribution to Knowledge

The study suggests that health and safety is a serious issue in Saudi Arabia construction sites. However, it is something that can be addressed by looking at those causation factors. This study contributes to what is already known within the construction sector, however, the main focus is Saudi Arabia where there has been an increase in the number of fatalities. In addition, this study makes the public, construction and academic domain aware of the challenges faced in the implementation of health and safety processes and procedures in construction sites (Saudi Arabia).

6.5 Conclusion

This qualitative study has found out there are issues related to Health and Safety in the Saudi Arabia construction sector. The issues relate to management, communication, organisational culture, training, employee behaviour and accountability. In this context, this study concludes that the mentioned factors have a great influence in the delivery of health and safety processes and procedures.

Firstly, the management practice was seen as weak in the implementation of a robust Health and Safety program. This could be due to the need to maximise profits and ignore the safety of the employees. Secondly, communication did not follow a procedure where everyone with construction site knew what they were required to do. Thirdly, the issue of training was a big one, there were no regular workshops to empower the employee with the necessary skills to perform their duties in a safe environment. In addition, the research found out there was less accountability within the Saudi Arabia construction sector, therefore everyone failed to take their Health and Safety seriously.

6.6 Further work

Health and Safety in construction sites is a big problem. Developing countries such as Saudi Arabia, with the quest to showcase global infrastructural dominance, may overlook health and safety issues during the construction of these projects. From a different perspective, it is vital to highlight that these construction sites are a mix of various cultures. These cultures stem from the influx of migrants coming to seek better opportunities; therefore, it is important to investigate the influence of different cultures in the implementation of Health and Safety processes and procedures in Saudi Arabia construction sites.

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Appendix 1 : Transcripts

Participant 1

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: One thing to note is in Saudi Arabia there is lack of concern for safety and well-being of employees at a construction sites. It is a little shocking as compared to the west, for example the United Kingdom where safety rules and regulations in construction sites go overboard

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: No based on the fact that most construction projects are huge (Mega) therefore there is a lot of risk.

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Partly yes, management will sometime fail to adhere to robust Health and Safety measures. Some of them do it to drive projects cost down. Some of the Health and Safety compromise is down to employees not following the set Health and Safety measures. For example, some employees may refrain from wearing safety gear because it makes them uncomfortable

4. Is health and safety an essential part of the construction site if yes how can this be improved

Health and Safety is critical to the wellbeing of the employee , as we all know construction sites is a high risk sector therefore having a robust health and safety procedure will safe guard both the employee and the stakeholders.

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Communication

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: Lack of proper procedures

7. How well are Health and Safety programs observed at the construction site

Ans: A Little less

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: Organisational culture, Poor communication procedures and Lack of knowledge

9. Are there designated individuals who make Health and Safety their priority during Construction

Ans: In some sites yes but most of the Health and Safety is down to the responsibility of the employee

10. How often do Health and Safety workshop take place in construction sites

Ans: Once during the start of the project

11. Do employer and employer take Health and Safety seriously

Ans: Not in Saudi Arabia, Health and Safety is a secondary thing

Participant 2

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: err! From my perspective health and safety is not widely observed in Saudi Arabia construction sites . Although there are health and safety rules and regulations they are not as robust as other countries such as most western countries

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: a little bit, I think some of it is down to organisation wanting to finish project on time at a lower possible timescale. Therefore that means it is easy to ignore Health and Safety procedures.

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: I can management is partly to blame as they have to make Health and Safety should come as priority in their day to day operations . Some of it is partly to employee as they fail to observe health and procedure.

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Health and Safety is critical to the wellbeing of the employee , as we all know construction sites is a high risk sector therefore having a robust health and safety procedure will safe guard both the employee and the stakeholders.

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Communication across all spectrums is a problem

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: Lack of proper procedures

7. How well are Health and Safety programs observed at the construction site

Ans: I think it's fairly moderate

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: Lack of understanding and awareness of the meaning of Health and Safety

9. Are there designated individuals who make Health and Safety their priority during Construction

In commercial sites yes but the case is different with residential constructions sites

10. How often do Health and Safety workshop take place in construction sites

Not very often

11. Do employer and employer take Health and Safety seriously

Not sure

Participant 3

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: I think safety is observed but not to the level required by the rule and regulation of health and safety in the construction sector

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: No, if it was we wouldn't have all these fatalities coming from the construction sector

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: from a management point of view, yes we have to take the blame. We should be responsible of implementing a robust plan to adhere to Health and Safety procedures. Some compromises is also down to the employees as they fail to observe the set procedures

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes it is, however this can be improved by holding more regular training and workshops. Carrying out a Health and Safety audit regularly

What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: implementation

5. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: the size of the project can present a huge risk to the implementation of a robust Health and Safety procedure

6. How well are Health and Safety programs observed at the construction site

Ans: very poor

7. What are the obstacles in implementing a health and safety program at a construction site

Ans: attitude towards Health and Safety

8. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

9. How often do Health and Safety workshop take place in construction sites

Ans: Since I have been here they have happened twice

10. Do employer and employer take Health and Safety seriously

Ans: Not in this side of the word

Participant 4

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: I think Health and Safety procedures are not widely observed in the construction site

In Saudi Arabia which causes the number of fatalities in this sector to plummet

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: No

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: I think both management and employees are partly to blame in any compromises

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes, more regular workshops on Health and Safety in construction sites

Regular meeting between all parties to the construction project

Risk analysis and management

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: communication and implementation

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: some construction projects are too large such that it becomes difficult to manage Health and Safety

How well are Health and Safety programs observed at the construction site?

Ans: moderate

7. What are the obstacles in implementing a health and safety program at a construction site

Ans: organisation culture and the value attached to the involvement in the Health and Safety and other issues in relation to time and cost incurred through the Implementation of good practice

8. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

9. How often do Health and Safety workshop take place in construction sites

Ans: Not sure, may be one or twice

10. Do employer and employee take Health and Safety seriously

Ans: employees do but some bosses tend to overlook Health and Safety procedures

Participant 5

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: Health and Safety in Saudi Arabia construction site is a huge concern , there is a huge need of accountability By looking at current fatalities I think it's an issue that need to be addressed with immediate effect

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: I would say partially but it's not as robust as other western countries where Health and Safety in construction site take precedence over every other thing

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: I would say yes as they are responsible for making sure the procedures are followed in accordance with the laws and regulations

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Absolutely! This is a critical part, as we know construction site are a high risk area. To keep on improving Health and Safety , it is important to communicate health and safety issues to the employees by holding meeting , Health and Safety workshops, induction and so on.

What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: I think in this part of the word implementation is kind of a challenge , some of this might be caused by communication barriers and cultural background

5. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: if the project is too big that might disrupt the implementation of a very robust Health and Safety program

6. How well are Health and Safety programs observed at the construction site

Ans: poor

7. What are the obstacles in implementing a health and safety program at a construction site

Ans: I think the standards are very poor and sometimes the organisation culture can be an obstacle

8. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

9. How often do Health and Safety workshop take place in construction sites

Ans: twice after a forty night

10. Do employer and employee take Health and Safety seriously

Ans: some do some don't

Participant 6

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: I think it has become a huge issue especially in construction sites as they are many fatalities which are down to failure to observe Health and Safety measures

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: I think it is moderately applied

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: I think both management, stakeholders and employees are to blame if there is compromise to Health and Safety

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes. This can be improved by holding regular meetings on health and safety, holding inductions, regular Health and Safety checks.

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: I think implementation is an issue because management are dealing with employees from different cultures. Usually the language barrier presents a huge drawback

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: The employer: huge construction project sometime becomes unmanageable and unrealistic demands from other stakeholders. Employee concerns is lack of adequate training and robust procedures

7. How well are Health and Safety programs observed at the construction site

Ans: poor

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: I think it's all down to the culture of the organisation. If driven by profits then implementing a Health and Safety plan might not be a priority

9. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

10. How often do Health and Safety workshop take place in construction sites

Ans: 4 time a month

11. Do employer and employee take Health and Safety seriously

Ans: not really, they just want to get the job done

Participant 7

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans : I think health and safety is an interesting topic within the construction industry in Saudi Arabia . By looking at the statistics they reflect a huge number of fatalities coming from that sector. This means it's not as robust as compared to other countries such the UK, USA and Germany

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: No

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: I management

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: By looking at the risk in the construction industry , it mandatory to have health and safety procedures in place. This can be improved by holding regular workshops between stakeholders, employees and so on

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: I think implementation is an issue

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: the size of the construction proje3ct

7. How well are Health and Safety programs observed at the construction site

Ans: poor

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: management and the culture of the organisation

9. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

10. How often do Health and Safety workshop take place in construction sites

Ans: 2 times a month

11. Do employer and employee take Health and Safety seriously

Ans: yes

Participant 8

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: I think some construction organisations are getting to grips with providing health and safety procedures centred on hazard identification, risk assessment and risk control. For example my organisation which I work on takes health and safety seriously

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: In a developing country like Saudi Arabia, Health and Safety does not exist therefore I do not believe it is adequately applied in the construction sites

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: Partially yes but workers play a role too

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes, construction organisations should make sure they emphasize on Health and Safety by holding group meetings, workshops etc.

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: implementation is a bit of challenge

What are the employer and employee concerns to the implementation of a robust Health and Safety program?

Ans: the size of the project

6. How well are Health and Safety programs observed at the construction site

Ans: I should say moderate

7. What are the obstacles in implementing a health and safety program at a construction site

Ans: I think it's the culture of the organisation, i.e. The way Health and Safety is perceived within the organisation

8. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

9. How often do Health and Safety workshop take place in construction sites

Ans: 2 times a week

10. Do employer and employee take Health and Safety seriously

Ans: some do some don't

Participant 9

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: I think it needs to be addressed with immediate as the number of fatalities keep on increasing

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: No, if it were the number of fatalities will be fairly low

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: Yes as they are responsible for implementing these procedures

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes. I believe regular workshops or meetings will make a difference

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: I think implementation

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: lack of knowledge is a huge challenge

7. How well are Health and Safety programs observed at the construction site

Ans: poor

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: organisational culture and communication

9. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

10. How often do Health and Safety workshop take place in construction sites

Ans: 3 time a week

11. Do employer and employer take Health and Safety seriously

Ans: partially

Participant 10

1. Tell me about Health and Safety at construction site in Saudi Arabia

Ans: At the moment Health and Safety is a hot topic considering the number of fatalities in the construction sites. I still think it's not as robust as other western countries

2. Do you think safety is adequately applied in the construction sites in Saudi Arabia

Ans: I think its weak there less applied

3. Do you think Health and Safety compromise in Saudi Arabia construction projects is all down to the management

Ans: Both stakeholders, management and employees are responsible for the Health and Safety

4. Is health and safety an essential part of the construction site if yes how can this be improved

Ans: Yes it is, it can be improved by holding regular workshops, meetings and induction which emphasize on the Health and Safety

5. What are the issues faced by the construction industry in Saudi Arabia as far as Health and Safety is concerned

Ans: implementation

6. What are the employer and employee concerns to the implementation of a robust Health and Safety program

Ans: The size of the construction project can be a drawback can be a drawback to the implementation

7. How well are Health and Safety programs observed at the construction site

Ans: poor

8. What are the obstacles in implementing a health and safety program at a construction site

Ans: The organisational culture, some organisations are driven by profits so they don't see Health and Safety as an important option

9. Are there designated individuals who make Health and Safety their priority during Construction

Ans: Yes

10. How often do Health and Safety workshop take place in construction sites

Ans: twice a week

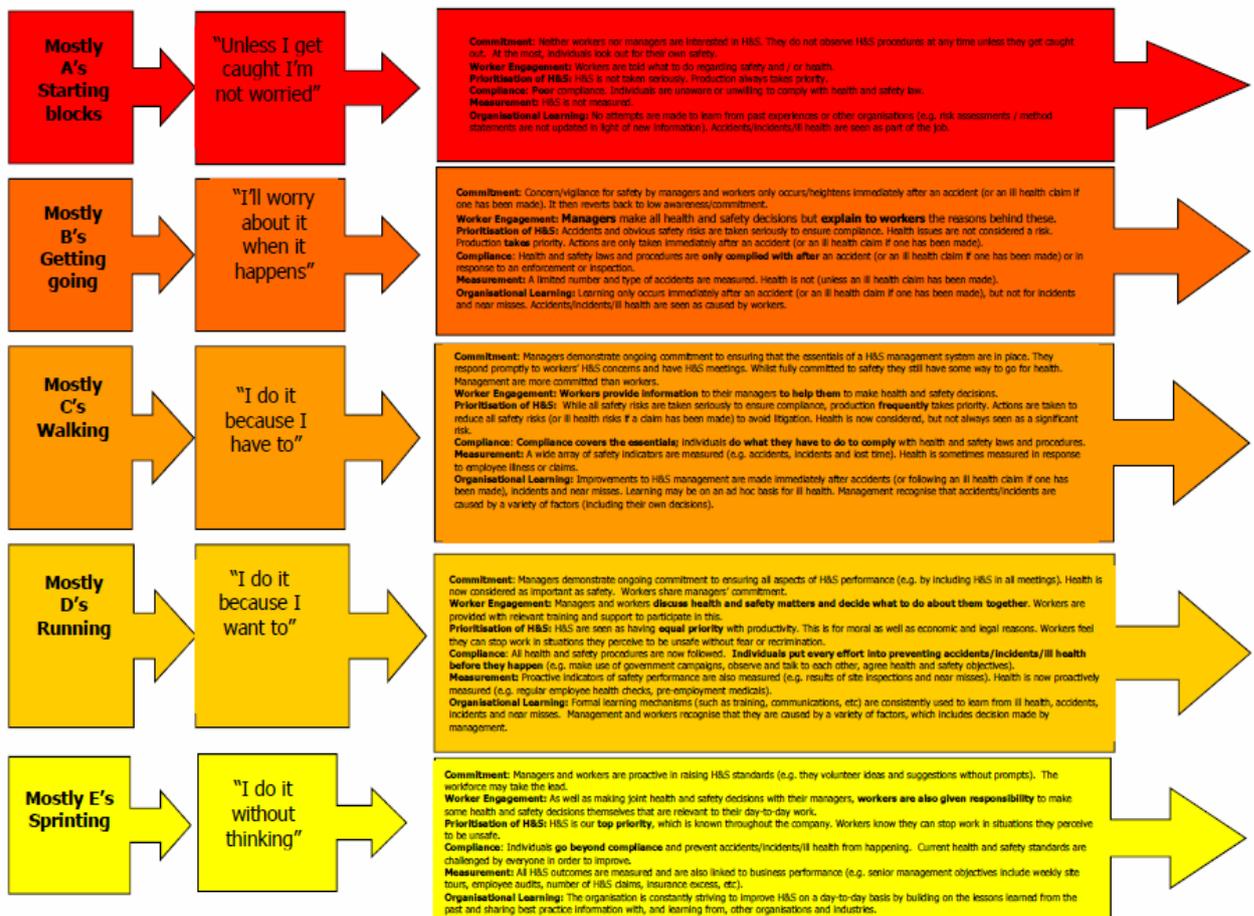
11. Do employer and employee take Health and Safety seriously

Ans: not in the level that is required

Appendix 2 : Health and Safety Diagnostic tool

Building Block	Description	Statements: Which of the following applies to your organisation?
Commitment	The importance you and your workers attach to H&S.	<input type="checkbox"/> A. Neither managers nor workers are interested in health and safety at any time unless they get caught out. At the most, individuals look out for their own safety. <input type="checkbox"/> B. Concern/vigilance for safety by managers and workers only occurs/heightens immediately after an accident (or an ill health claim if one has been made). It then reverts back to low awareness/commitment. <input type="checkbox"/> C. Managers demonstrate ongoing commitment to ensuring that the essentials of a health and safety management system are in place. They respond to workers' health and safety concerns and use various means to consult with workers. Whilst fully committed to safety they still have some way to go for health. Management are more committed than workers. <input type="checkbox"/> D. Managers demonstrate ongoing commitment to ensuring that all aspects of health and safety performance are met (e.g. by including health and safety in all meetings). Health is now considered as important as safety. Workers share managers' commitment. <input type="checkbox"/> E. Both management and the workforce cooperate on health and safety matters and are proactive in raising health and safety standards, (e.g. they volunteer ideas and suggestions without prompts). The workforce sometimes take the lead.
Worker Engagement	The involvement your workers have in H&S decisions.	<input type="checkbox"/> A. Individuals are simply told what to do regarding safety and/or health. <input type="checkbox"/> B. Managers make all health and safety decisions but explain to workers the reasons behind these. <input type="checkbox"/> C. Workers provide information to their managers to help them to make health and safety decisions. <input type="checkbox"/> D. Managers and workers discuss health and safety matters and decide what to do about them together . Workers are provided with relevant training and support to participate in this. <input type="checkbox"/> E. As well as making joint health and safety decisions with their managers, workers are also given responsibility to make some health and safety decisions themselves that are relevant to their day-to-day work.
Prioritisation of Health and Safety	The attention given to H&S compared to 'getting the job done'.	<input type="checkbox"/> A. Health and safety is not taken seriously. Production always takes priority. <input type="checkbox"/> B. Accidents and obvious safety risks are taken seriously to ensure compliance. Health issues are not considered a risk (unless an ill health claim has been made). Production frequently takes priority. <input type="checkbox"/> C. Whilst all safety risks are taken seriously (or ill health risks if a claim has been made) to ensure compliance production sometimes takes priority . Health is now considered but not always seen as a significant risk. <input type="checkbox"/> D. Health and safety are seen as having equal priority with productivity. This is for moral as well as economic and legal reasons. Workers feel they can stop work in situations they perceive to be unsafe without fear or reprimand. <input type="checkbox"/> E. Health and safety is our top priority , which is known throughout the company. Workers know they can stop work in situations they perceive to be unsafe.
Compliance	How the organisation is complying with its H&S responsibilities.	<input type="checkbox"/> A. Poor compliance. Individuals are unaware or unwilling to comply with health and safety law. <input type="checkbox"/> B. Health and safety laws and procedures are only complied with after an accident (or an ill health claim if one has been made) or in response to an enforcement or inspection. <input type="checkbox"/> C. Compliance covers the essentials ; individuals do what they have to do to comply with health and safety laws and procedures. <input type="checkbox"/> D. All health and safety procedures are now followed. Individuals put every effort into preventing accidents/incidents/ill health before they happen (e.g. make use of government campaigns, observe and talk to each other, agree health and safety objectives). <input type="checkbox"/> E. Individuals go beyond compliance to prevent accidents/incidents/ill health from happening. Current health and safety standards are challenged by everyone in order to improve.
Measurement	The way H&S is measured.	<input type="checkbox"/> A. No measurement of health and safety is in place (e.g. accident rates are not monitored). <input type="checkbox"/> B. Measurement of safety is limited to the number and type of accidents only. Health is not measured. <input type="checkbox"/> C. Measurements broaden to a wider array of safety indicators including accidents, incidents and lost time. Health is sometimes measured in response to employee illness or claims. <input type="checkbox"/> D. Measurement also includes proactive measures of safety performance (e.g. results of site inspections and near misses). Health is now proactively measured (e.g. regular employee health checks, pre-employment screening). <input type="checkbox"/> E. All health and safety outcomes are measured and are also linked to business performance (e.g. senior management objectives include weekly site tours, employee audits, number of health and safety claims, insurance excess, etc).
Organisational Learning	Learning from experience on H&S. Lessons learned are communicated to workers.	<input type="checkbox"/> A. No attempts are made to learn from past experiences or other organisations (e.g. risk assessments / method statements are not updated in light of new information). <input type="checkbox"/> B. Accidents/incidents/ill health are seen as part of the job. <input type="checkbox"/> C. Learning only occurs immediately after an accident (or an ill health claim if one has been made), but not for incidents and near misses. Accidents/incidents/ill health are seen as caused by workers. <input type="checkbox"/> D. Learning only formally occurs immediately after accidents , incidents and near misses (or following an ill health claim if one has been made). Learning may be on an ad hoc basis for ill health. Management recognise that accidents/incidents are caused by a variety of factors (including their own decisions). <input type="checkbox"/> E. Formal learning mechanisms (such as training, communications, etc) are always used to learn from ill health, accidents, incidents and near misses. Management and workers recognise that they are caused by a variety of factors, which includes decisions made by management. <input type="checkbox"/> F. The organisation is always striving to improve health and safety by building on the lessons learned from the past and sharing helpful information with, and learning from, other organisations and industries.

(Hse.gov.uk, 2015)



(Hse.gov.uk, 2015)

Identify your specific solutions

Follow the instructions at the start of the measure to complete the matrix below.

Building Blocks	Starting blocks (A)	Getting going (B)	Walking (C)	Running (D)	Sprinting (E)
Commitment	1	2	3	4	Continue to ensure that managers and workers are proactive in raising H&S standards by volunteering their ideas.
Worker Engagement	5	6	7	8	Continue to ensure that workers take the lead on H&S matters and are involved in making H&S decisions
Prioritisation of health and safety	9	10	11	12	Continue to emphasise H&S as a core company value.
Compliance	13	14	15	16	Continue to seek out proactive and innovative ways of preventing accidents and ill health.
Measurement	17	18	19	20	Continue to measure H&S outcomes and link these to business performance.
Organisational learning	21	22	23	24	Continue to make efforts to improve H&S on a day-to-day basis. Share and seek ideas from industry peers and colleagues.

(Hse.gov.uk, 2015)

Identify your next steps: "this is what you need to do"

Building Block	STAGE PROGRESSION			
	Starting Blocks → Getting Going	Getting Going → Walking	Walking → Running	Running → Sprinting
Commitment	1. Show genuine concern for workers' welfare at all times. When accidents or ill health (if a claim has been made) do occur, be vigilant in exploring its causes (see Section B of the toolkit for W/E advice) and solutions.	2. Make sure you consistently demonstrate commitment to H&S by responding promptly to H&S concerns and have regular H&S meetings (delegating actions from discussions) to keep your workforce involved / committed. Make sure that you are not seen as taking unnecessary risks (e.g. wear the correct PPE when on site, use equipment safely, follow your risk assessments and method statements, etc).	3. You should now be focused on gaining the commitment of your workers to H&S. Get your workers to think how their behaviour not only affects them, but also their work mates/colleagues and their family if they were to fall ill or become injured as a result of working unsafely. To encourage workforce commitment, continue to make H&S top of the agenda in all meetings, giving it due thought and attention. [Link to JD video in Section E].	4. Consistently demonstrate an 'open door' approach to any H&S suggestions put forward by your workers and involve them in implementing their own solutions (where feasible).
Worker Engagement	5. Tell your workers when you have made decisions or changes to your H&S practices. Make sure you explain why you have taken the decision that you have.	6. When taking decisions on H&S, ask workers about what works well, and what does not work well. Use this information to guide your decisions. Let workers know that you are using their ideas.	7. Regularly include your workers in your decisions on which solutions you choose for improving H&S. Ensure workers are trained to participate in decision making. Discuss the pros and cons of different options with them. Encourage them to come to you with their ideas. You should now be jointly making H&S decisions with your workers.	8. Give your workers appropriate responsibility for making decisions on H&S matters that are directly relevant to them (e.g. PPE selection; tool choices; when they have breaks, hygiene etc). Give your workers every opportunity to generate ideas on improving H&S on an ongoing basis (see Sections B and F of the toolkit for worker engagement techniques).
Prioritisation of Health and Safety	9. You need to demonstrate that you now take accidents and obvious safety risks seriously. Do this by beginning to investigate how and why these happen, e.g. talk to your workers about the importance of doing this. Use past accidents / safety risks as a way of encouraging workers to see that they are important. Give workers time to conduct safety activities themselves.	10. Use a range of sources (e.g. previous accidents, worker engagement, networks) to identify safety improvements before accidents happen. Consider health risks also. Ask yourself how seriously you take H&S as a manager compared to how seriously you think an HSE inspector would expect you to take H&S? (See toolkit section D for information on the values needed to make safety a top priority). Talk to your workers about safety as well as production, (e.g. planned production stops).	11. Ensure your workers are familiar with 'stop' / 'time out' procedures (see toolkit sections C, D and E). Through appropriate communication and your own actions ensure that they feel able to stop work in situations they perceive to be unsafe. Make sure you include in your communications that health matters are as important as safety matters. H&S together should be regarded as important as productivity. Develop a strong business case (i.e. cost benefits of H&S) to persuade leaders that H&S is a top priority.	12. As far as possible, make sure that H&S have a visible presence in all your dealings with your workers (e.g. as the first agenda item on any meeting, in all your decision-making). Continue to ensure that H&S is a top priority for all leaders by progressing your business case, (i.e. cost benefits of H&S taking priority over production). H&S should now be a core company value.
Compliance	13. Make yourself familiar with H&S law. Ensure you are compliant by developing generic policy statements, and producing generic risk assessment and method statements, etc.	14. Involve workers in developing risk assessments, method statements, etc for all hazards and work activities to ensure compliance. Make sure you take the actions necessary to reasonably reduce all safety risks.	15. In consultation with workers, and considering previous risk assessments, start to think about what might go wrong in the future. Put preventative measures in place (e.g. signage/prompts, training, etc) following task specific risk assessments carried out with workers.	16. Use worker engagement and your learning from experience on H&S to identify new ways of improving the company's overall H&S. Generic and task specific risk assessments should be used on a regular basis to inform your H&S decision-making.
Measurement	17. Start to monitor and measure accident rates, the circumstances in which they occur, and the impact that they have for your workers, you and your business (see sections B and G of the toolkit for information on measurement). Ill health should also be measured especially if a claim has been made.	18. Broaden what you measure to include incident, near misses and lost time. Regularly consider the impact that these measures have on your workers, your overall business and productivity (see Sections G of the toolkit for information on measurement). Update workers on your findings. Ill health should also be measured (e.g. no ill health claims/issues identified through health surveillance).	19. Broaden what you measure to include proactive indicators of both H&S (e.g. amount of training provided, amount of discussions you have with your staff on H&S). What do these additional measures tell you about your overall productivity in relation to H&S? Consult your workers to help you decide what action to take.	20. Together with your workforce, continue to monitor the link between what you are collectively measuring, your company's productivity and everyone's attitudes and approach to work, (e.g. morale, job satisfaction). Continue to take appropriate action based on your findings. Set yourself and your leaders objectives to improve H&S on site.
Organisational Learning	21. Learn from past accidents and incidents (and ill health claims, if relevant) and modify your policy, risk assessment and method statements (safety management system) to decrease the likelihood of the same event happening again.	22. Use any learning from previous ill health/accidents/incidents and near misses to modify your policy, risk assessment and method statements (safety management system). Begin to put measures in place to identify why these happened (e.g. make time to ask your workforce what happened and why. Ask yourself the same questions!). Start to recognise that your actions play a role in H&S outcomes. Learn from these interactions with your workers.	23. Formal learning mechanisms should be in place (e.g. training, communication systems). Formal measures should be in place that uses worker engagement to identify and understand why ill health/accidents/ incidents and near misses happen. Modify your safety management system accordingly. Leaders openly admit to workers that their decisions play a part in H&S outcomes.	24. Look at what other companies of your size and type of work are doing to improve their H&S. Identify what you can learn from them and what they can learn from you. Share your ideas.

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