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Abstract

Poor occupational safety and health (OS&H) results in an economic burden of 4% of the total world gross domestic product (GDP). Effective OS&H regulations and their implementation are one of the main factors in achieving an improved safety performance. This article discusses the current OS&H regulations applicable in all industries including construction in Oman. Construction is one of the main industries in Oman, which contributes about 9% towards its GDP. This article attempts to offer some basic understanding of the OS&H regulations applicable to both employees and employers in Oman. The current regulations comprise four chapters and 43 articles, which address some of the key areas, including the specifications of worker uniform and personal protection equipment, medical care, precautions against hazards, special precautionary measures, OS&H management system and enforcement by ministry inspectors. The minimum number of employees for an employer to have a qualified OS&H supervisor is 50. Different agreements between Oman and the International Labour Organization indicate that Oman is committed to implementing the National Programme for Work, which aims to build Oman's labour market and to provide decent work.

1. Introduction

The economy of the Gulf Cooperation Council (GCC) member countries is heavily reliant on oil and gas export and constitutes up to 50% of the gross domestic product (GDP) (Umar, 2018). Despite the dip in oil price in recent years, and its effect on the GCC economy, investment in infrastructure projects continues. A report published in Arabian Business (AB, 2017) in late 2017 indicates that there were 20 000 active construction projects worth US\$2.4 trillion. These projects also attracted internationally renowned companies. Registered international companies with the Tender Board of Oman (TBO) rose to 1092 in 2018, and this is recognising the fact that the TBO only considers government tenders valued at 3 million Omani Rial (OMR) (1 OMR = US\$2.60) or more. All these international companies were either registered as 'excellent grade' or 'first grade' (TBO, 2018). It is expected that the value of the construction industry in Oman, which was 2.26 billion OMR in 2016, will grow to 6.88 billion OMR. Similarly, the construction GDP in Oman is forecasted to grow to 15.4% of the total GDP by 2026 (Figure 1). Overall, the percentage construction growth rate is forecasted to peak in 2020 (BMI, 2018). The largest project in Oman, which is in the pre-execution phase, is the Oman Rail (Oman National Railway), with a total length of 2135 km and a budgeted value of US\$15.6 billion. It will be executed in nine segments and completed by 2022 (Umar, 2016).

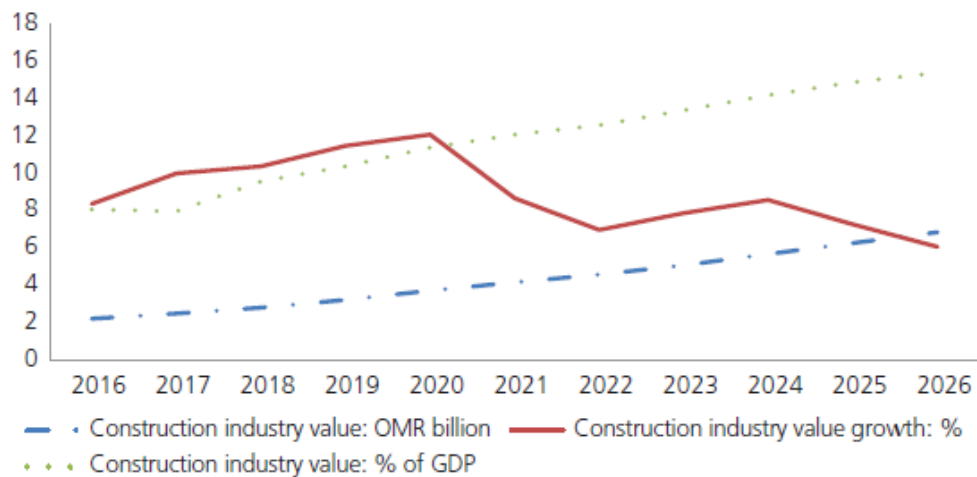


Figure 1. Oman infrastructure and construction industry forecasts (2016–2026) (BMI, 2018)

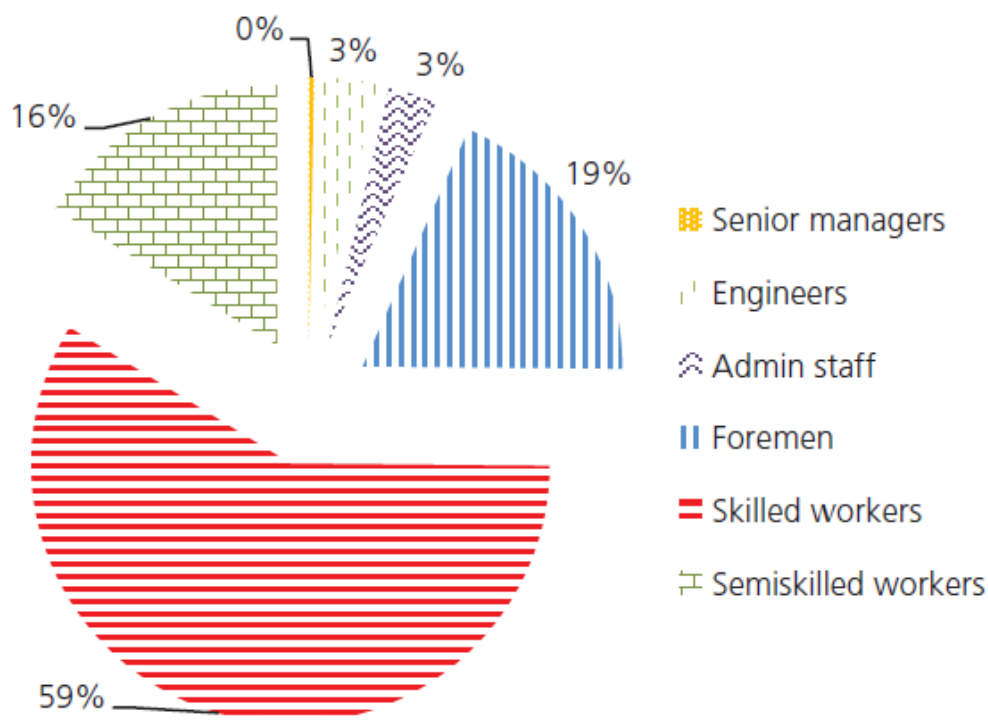


Figure 2. Distribution of foreign workers in construction organisations of Oman (OSC, 2016)

GCC countries, which include Saudi Arabia, Oman, UAE, Bahrain, Qatar and Kuwait, are highly dependent on foreign workforce. Statistics published by the GCC Centre for Statistics show that the number of expatriate workers in different GCC countries was 13.86 million by the end of December 2017, which accounts for 69.3% of the total workforce in these countries (GCC Stat, 2018). The majority of these workers are from Asian and African countries. For example, workers from Bangladesh constitute the largest group of expatriate workers in Oman (NCSI, 2017b). Similarly, in 2016, the construction workforce in Oman was approximately 725

000, of which 92% were foreign workers (Umar, 2016). These are the official data, which represent the workers who have a work permit related to the construction profession. It is possible that the actual number of the workforce may be higher than this. Figure 2 shows the distribution of foreigner workers in the construction industry in Oman (OSC, 2016). The job market in GCC countries is attractive to workers due to the relatively good earnings. An HSBC (2013) survey, however, reveals that it is poorly ranked in terms of the integration of expatriates. Similarly, the World Economic Forum (WEF, 2014) report on 'Rethinking Arab employment' indicated some of the social stability dynamics that directly affect expatriate workers. This is one of the reasons why the workforce in GCC countries remains transitional, and their stay in the country is directly affected by their jobs. It is very important not only for the companies but also for the workers to have appropriate knowledge and understanding of different rules and regulations applicable to them when they are working in these countries. One of these regulations, which is of significant importance, is the occupational safety and health (OS&H) regulation. This article discusses the current OS&H regulation applicable to the construction industry in Oman. Adopting these regulations is not only required by the Oman Labour Law, but such regulations can also be helpful in avoiding accidents and thus reducing the cost that can be directly or indirectly associated with such accidents. Adhering to these regulations also helps workers to remain safe and healthy at their workplace. Similarly, an effective implementation of OS&H regulations of a country reflects its commitment towards the achievement of zero accidents and can be helpful in reducing the economic burden on its economy.

2. An overview of OS&H

Poor health and safety measures result in occupational accidents and work-related diseases, which further result in more than 2.78 million deaths per year (ILO, 2018). Additionally, there are about 374 million non-fatal work-related injuries and illnesses each year, many of these resulting in extended absences from work. The human cost of this daily adversity is vast, and the economic burden of poor OS&H practices is estimated at 4% of global GDP each year. The global GDP in 2018 is estimated to be US\$84 375 billion; thus, the total cost of poor OS&H practices is US\$3375 billion (Statista, 2018). Construction is a major industry providing jobs to millions of people and contributing to individual countries and the world economy. It accounts for a large proportion of GDP in many countries – for example, 6.1% in the UK, 5.5% in Japan and 9.0% in Oman (NCIS, 2017a; ONS, 2017; Statistics Japan, 2017). The Global Construction 2020 report indicates that the construction industry is predicted to grow by 70% from \$7.2 trillion to \$12 trillion by 2020 (Cision, 2018). If the cost of poor safety and health practices remains at the same level, the economic burden on the construction industry in 2020 will be approximately half a trillion US dollars.

Statistics published by the International Labor Organization (ILO) in 2016 indicate that at least 108 000 workers are killed on construction sites every year, a figure that represents about 30% of all fatal occupational injuries (Umar and Wamuziri, 2016a). Data from a number of industrialised countries show that construction workers are three to four times more likely than other workers to die from accidents at work. In the developing world, the risks associated with construction work may be three to six times higher (Umar and Egbu, 2018). In the UK, injury to workers, in the construction sector accounts for more than half a billion US dollars (US\$0.7 billion) of the total cost associated with health and safety. In Oman, however, it is estimated to be at US\$3.74 million/year (Umar, 2016). Safety performance is directly linked to individual

behaviour, organisation commitment and compliance. The role of a safety regulatory organisation in this regard is an important one in the implementation of the safety and health regulation across all industries. For instance, in the USA, statistics indicate that 'worker deaths' in America are down, on average, from about 38 worker deaths a day in 1970 to 14 a day in 2016, and 'worker injuries and illnesses' are down from 10.9 incidents per 100 workers in 1972 to 2.9 per 100 in 2016 (OSHA, 2016). The reduction in deaths and injuries in the USA was obviously due to the improvement of workers' safety and health conditions, which includes the relevant regulations and their implementation, accountability on poor safety and health status and the realisation of the benefits of improved safety and health performances. It is clearly reflected in the data of those countries, which show an improved safety and health performance, that they have a proper system of accountability on poor safety and health outputs. Such a system of accountability includes safety inspection, prosecution and punishment by a regulatory authority according to law. The health and safety statistic annual report for 2014–2015 compiled by the Health and Safety Executive (HSE) (UK) indicates that 586 cases were prosecuted by the HSE in England and Wales. Seventy cases were prosecuted by local authorities in England and Wales. Seventy-two cases were prosecuted by the procurator fiscal in Scotland. Over 12 430 enforcement notices were issued by all enforcing authorities (HSE, 2014).

3. Occupational health and safety in Oman

There has been evidence that reflects that the cost related to OS&H is rapidly increasing in Oman. Statistics published by the Public Authority of Social Insurance in Oman, which registers only Omani citizens, show that the expenditure related to OS&H rose from 1 million OMR (= US\$2.6 million) in 2012 to 2.9 million OMR (= US\$7.53 million) in 2016 (Figure 3). Although the number of active insurees also increased in this period from 172 066 in 2012 to 227 193 in 2016, which represents a growth of 32% (Figure 4), the increase in OS&H expenditure in the same period was 200%. The Ministry of Manpower (MoM), Oman, is mandated to oversee the implementation of current OS&H regulations. The data from the MoM reveal that a total of 1328 inspections were made in the year 2016. A total of 569 warning notices were issued to companies, which were found to be not complying with the regulations. This number is comparatively higher than that in 2015, when the total number of warning notices was 555. The total cases which were referred to the court of law in 2016 were six, while in 2015, there was only one case which was referred to the court of law (MoM, 2015, 2016). Similarly, a report published in the daily Times of Oman, dated 28 February 2015, states that there are no official statistics of how many company workers get hurt in the course of their duties. However, according to the individual HSE records of top ten contractors, more than 3700 of them needed medical treatment in 2014. The injured workers who were hospitalised made up nearly 10% of the total workers on this list. Tragically, about 18% of them died either at the sites or in hospitals last year. In comparison to the previous year, 246 more workers got injured in 2014, but for obvious reasons, company directors do not want this part of the record to be made public (Times of Oman, 2015). One of the possible reasons for this might be a lack of awareness of current OS&H regulations and their effective implementation in Oman. Other reasons may include the financial and managerial capabilities of small and medium enterprises (SMEs). For instance, Masi et al. (2014) stated that SMEs have fewer financial and human resources at their disposal. Thus, under conditions of economic uncertainty, managers of SMEs are reluctant to spend time and resources on problems that do not arise on a regular basis, and this would certainly include safety and

health issues (Agumba and Haupt, 2012; MacEachen et al., 2010). In Canada, an SME is defined as a company with a staff of fewer than 100 employees, and such enterprises represent 98% of all businesses and employ 67% of the workforce in some parts of the country (Statistics Canada, 2013). Mendeloff et al. (2006) noted that workplace fatal accidents are up to eight times more frequent in SMEs, and non-fatal accidents are as much as 50% more likely to occur in SMEs (Fabiano et al., 2004). Officially, in Oman, there are 100 000 registered construction organisations with a total workforce of 725 000, indicating that the majority of these organisations fall under the definition of SMEs. These organisations, in the main, experience challenges with regard to improving OS&H performance (OSC, 2016; Umar, 2016).

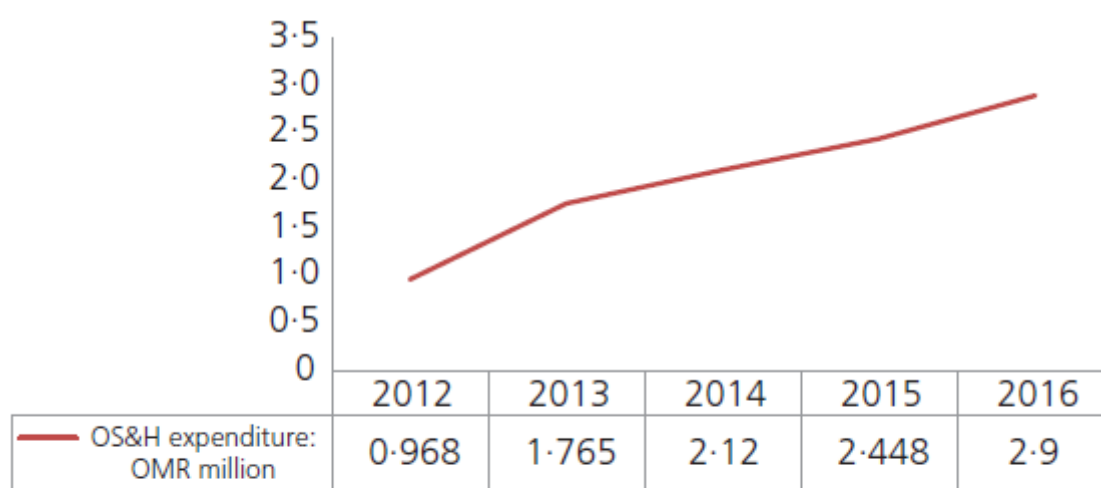


Figure 3. Increase in OS&H expenditure in Oman (Pasi, 2012, 2013, 2014, 2015, 2016)

The situation around safety and health, and the availability of related data, is, however, more or less the same in all GCC countries. In the UAE, when the Abu Dhabi municipality first collected accident data for a full 12 months in 2010, it was revealed that there were 101 deaths due to occupational injuries. Workers falling from heights and being hit by falling objects were the most common hazards for labourers on sites. Unsafe scaffolding and open shafts were also some of the common hazards (Thomas, 2012). In Oman, the major portion of work-related injuries arise from road traffic accidents (36.6%) followed by slipping and falling of workers (19%) and then getting crammed between solid objects (12.4%), as shown in Figure 5. This represents the data of Omani workers registered with the Public Authority of Social Insurance in Oman; thus, the collection and analysis of such data for all workers in Oman will help develop strategies to avoid such causes of accidents in the future (Umar and Egbu, 2018).

4. Occupational safety and law (rules and regulations) in Oman

Since the 1970s, Oman has been witnessing a steady progress in the political and socioeconomic fields. However, the country has had to rely on expatriates to implement its ambitious socioeconomic programmes (of 5-year consecutive development plans) due to the limited number of qualified Omanis in the areas of occupational safety and law. The MoM is facilitating the issuance of permits for foreign workers, particularly in the sectors that

witness shortages in the number of qualified national workers. Articles 27, 40, 41, 87, 88, 89, 90, 98 and 99 of the MoM Labour Law stress that both workers and employers are to abide by the health and safety regulation mentioned in these articles (MoM, 2003). Oman has other decrees, namely, the Sultanate Decree Number 40/1977: Issuing the Compensation for Work Injuries and Professional Diseases Law (GLMM, 1977); Ministerial Decree Number 19/1982: Occupational Health and Industrial Safety Precautions (MoM, 1982); and Ministerial Decree Number 286/2008: Regulation of Occupational Safety and Health (MoM, 2008).

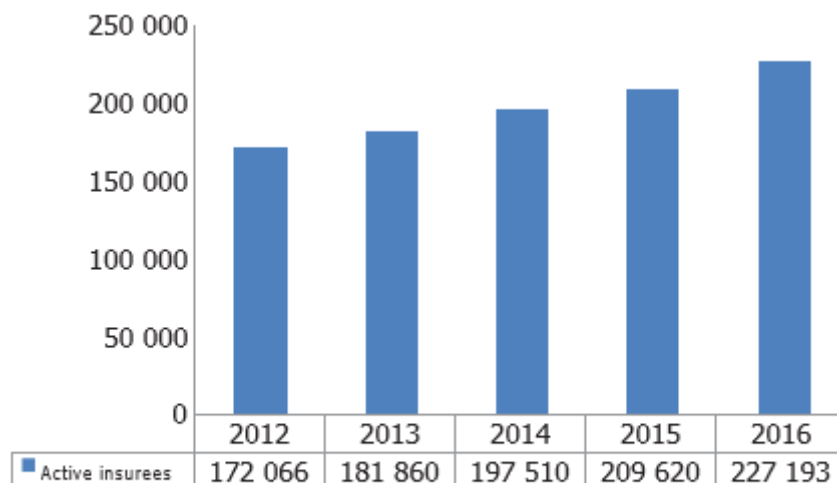


Figure 4. Active insureds in the Public Authority of Social Insurance in Oman (Pasi, 2012, 2013, 2014, 2015, 2016)

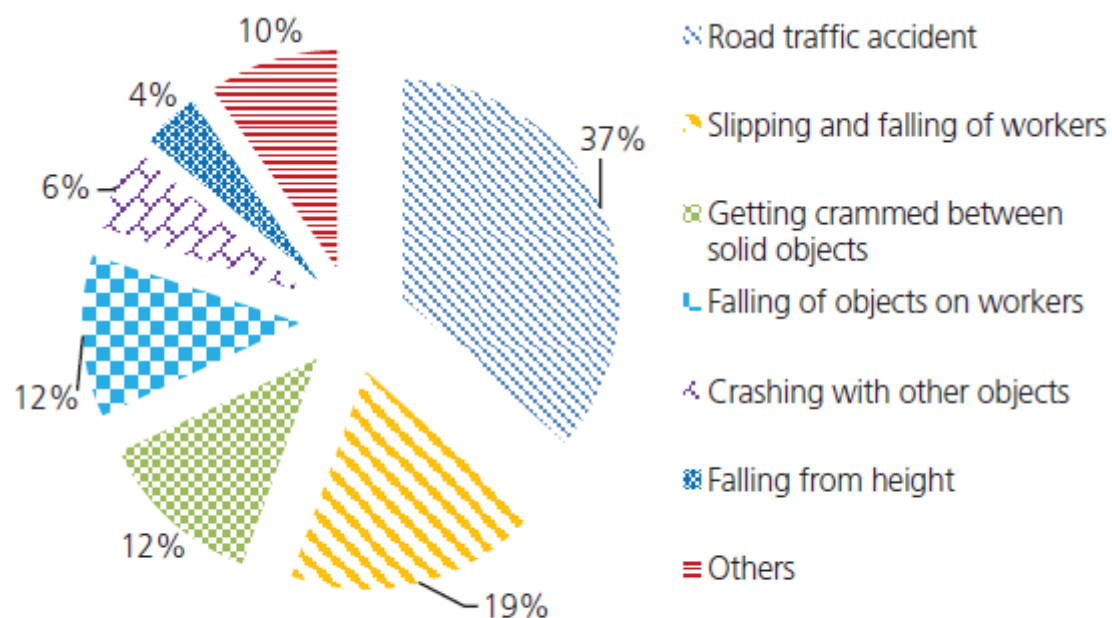


Figure 5. Causes of work-related injuries in Oman (Pasi, 2016)

Based on the stipulation of the Labour Law, which entitles the MoM to issue regulations, OS&H has been regulated under the Ministerial Decree Number 286/2008, namely, the Regulation

of Occupational Safety and Health, for establishments governed by the Labour Law (MoM, 2008). This regulation is regarded as the framework legislation in OS&H at the level of the sultanate. It supersedes the Occupational Health and Industrial Safety Precautions issued by Ministerial Decree Number 19/1982, which addresses general provisions regarding safety at work and the protection of the health of the workers in private sector establishments. The precautions in the 1982 regulations consist of two chapters and 14 articles that cover the following (MoM, 1982)

- (a) general provisions
- (b) dangers of machinery
- (c) working conditions (lighting, ventilation, drinking water, eating places, toilet facilities, sleeping quarters and fire)
- (d) health hazards
- (e) safety supervisors for establishments employing 100 or more workers
- (f) accidents
- (g) construction work
- (h) hoisting and hauling machines
- (i) mines and quarries.

The new regulation applies to all establishments, which are subject to the Labour Law. Its provisions are covered by four chapters and 43 articles (MoM, 2008).

Chapter 1 of the regulation covers definitions of the terminology used in the text under article 1.

Under chapter 2, article 3, the MoM inspector is entitled to

- (a) enter work sites without prior notice during the working hours
- (b) check the properties of the materials used and to take samples for analysis
- (c) require medical and laboratory investigations for the purpose of assessing the effects of exposure
- (d)) conduct the necessary investigations and look at records for the purpose of ensuring compliance with the regulation
- (e) instruct the employer to take measures needed in alleviating the dangers associated with work and raise awareness regarding protection against such dangers.

The regulations also authorise the inspector to issue warnings and order partial or total stoppage of activities in cases of imminent dangers, with the backing of the Royal Oman Police if necessary. While they are required to maintain business secrets, the inspectors explain the employer's responsibilities to inform workers of the hazards associated with work, provide the necessary personal protection, display safety instructions in a prominent place at the workplace and keep the results of periodic monitoring and exposure to hazards in a special registry. Workers are also reminded of their duties to follow safety instructions and to refrain from any action to obstruct implementation of safety measures, for the purpose of protecting themselves and their fellow workers from injuries. Under this chapter, the responsibilities of employers who employ ten or more workers are defined in detail, so as to cover the establishment's OS&H policy, including the organisation and management of OS&H, specific hazards, emergency plans, training, monitoring, testing of protective devices and materials,

medical examinations, investigation of accidents and arrangements for handling workers' complaints. The employer's OS&H policy and programme are subject to the approval of the concerned department or section at the MoM.

Article 15 of the regulations specifies the actions of the employer needed for providing a safe and healthy workplace. For instance, the work site, buildings, materials and all the equipment used for work must conform to the technical specifications. Paragraph two of the same article states that the size of the building must be adequate to the size of the operations executed in the building. Similarly, the work materials coming from one work area should be directly used by the next work area without being transferred across a far distance. Movable storage shelves, carriers, revolving cylinders, conveyor belts or any other adequate method should be used to transfer the materials from one work area to the other. Provisions of facilities at workplace which includes lighting, ventilation, hot and cold drinking water, sleeping quarters, eating facilities, changing of clothes and rest rooms are covered under article 16. Chapter 3 of the regulation covers work uniforms and personal protective equipment, first aid, medical check-up, analysis and arrangement in cases of diagnosing occupational diseases. The protection of women workers is also covered in this chapter.

Chapter 4 (articles 29–43) addresses in detail the following topics

- (a) protection of the disabled
- (b) fire hazards
- (c) mechanical and electrical hazards
- (d) hazards of lift tools, heavy-duty machinery and workers' transport buses
- (e) boilers, vapour and air reservoirs (f) chemical hazards
- (g) radiation, occupational cancer and asbestos
- (h) special precautionary measures (construction, drilling, demolition and civil engineering)
- (i) agriculture and animal breeding (tools and machinery, manual field work use of insecticides and fertilizers) (j) sea ports.

Annexed to the regulation are five tables and schedules on

- (a) lighting levels
- (b) limits of exposure to low temperatures
- (c) limits of exposure to noise
- (d) required check-up and analysis according to the type of exposure to some occupational diseases
- (e) limits of exposure to radiation.

5. Conclusion and recommendations

It has been observed that OS&H has been of importance to the Omani government since 1970. Different regulations have been introduced to tackle the OS&H status effectively in different industries. Since its membership of ILO in 1994, Oman has ratified four out of the eight core conventions, namely, the

- (a) Forced Labour Convention (C-29) (ILO, 1930)

- (b) Abolition of Forced Labour Convention(C-105) (ILO, 1957)
- (c) Minimum Age Convention (C-138) (ILO, 1973)
- (d) Worst Forms of Child Labour Convention (C-182) (ILO, 1999).

Oman still has to ratify to the ILO some of the OS&H conventions, including

- (a) Occupational Safety and Health Convention (C-155) (ILO, 1981)
- (b) Occupational Health Services Convention (C-161) (ILO, 1985)
- (c) Promotional Framework for Occupational Safety and Health Convention (C-187) (ILO, 2006).

Different agreements and memoranda of understanding between ILO and Oman show that Oman is committed to the implementation of the National Programme for Work, which aims to build Oman's labour market and provide decent work (Times of Oman, 2017). The National Programme for Work is to be implemented from 2017 to 2019, and the ILO will help develop it in the sultanate. There are also areas where the current regulations may need amendment for instance, in chapter 2, 'General provision', under article 10, the OS&H programmes are only required for employers who have ten or more employees. Similarly, under article 11, only the employer who has 50 or more workers shall assign a qualified supervisor to handle the OS&H tasks. This means that if there are nine employees in an establishment, they do not need to have OS&H programme. Similarly, if there are 49 employees in a company, the company does not need to have a qualified OS&H supervisor. Umar and Wamuziri (2016b) noted that there were 100 000 registered construction companies in 2016. The total workforce in the construction industry in the same year was 725 000 (Umar, 2016). This indicates that most of the construction companies in Oman may be very small in size in terms of number of employees. Thus, the current OS&H regulation would not be that effective in such a situation. In countries that exhibit good OS&H performance, such regulations are revised from time to time. For instance, in the UK, the Construction (Design and Management) (CDM) regulations were first introduced in 1995 and revised in 2007 and then in 2015 (HMG, 2015). Similarly, in both the USA and UK, there have been separate regulations that are applicable only to the construction industry (HSE, 2018; OSHA, 2005). While there is no comparison between Oman and the USA and UK, as the construction industry is quite mature in the USA and UK, there are always lessons that could be learned from those countries that exhibit an improved safety performance. Thus, there is an opportunity for Oman to identify the areas in the current regulation that need to be revised, and if necessary, separate regulation for construction can be introduced to manage OS&H effectively in the construction industry. Apart from this, many countries used to have an analysis of their OS&H regulations and their enforcement to evaluate their performance. For instance, the Labour Inspectorate in France sends around 6000–8000 cases to the prosecutor each year. About 76% of OS&H cases lead to fines in France, 12% to fines and imprisonment and 2% to imprisonment (AL, 2018). Similarly, in the UK, the HSE prosecuted 1058 offences in 2014–2015, resulting in 905 convictions, a conviction rate of 86%. The total fines imposed was £16.5 million with an average penalty of £18 198 per offence (HSE, 2016). The collection and analysis of such data, by the relevant organisation in Oman, will help evaluate the effectiveness of OS&H regulations and pave the way for improvement. It is worth mentioning that apart from robust OS&H regulations and their implementation, organisational and personal commitments play a significant role in improving safety performance. Organisations normally hesitate to invest in safety due to less understanding of its financial benefits. Some

researchers also claim that small and medium organisations have a low capability to comply with the safety regulations, or they need to bear a high cost for this, which results in less financial benefits (Lancaster et al., 2003; Tang et al., 2004). However, the results of the research conducted by Ikpe et al. (2012) in the UK shows that the argument that construction organisations have low capability to comply with the OS&H regulations and less financial benefits from an improved safety performance is no longer valid. The results of cost and benefit analysis revealed that when the total costs of accident prevention were compared to the total benefits of accident prevention, the benefits far outweigh the costs of accident prevention by a ratio of approximately 3:1. This means that when contractors in the UK, irrespective of their sizes, spend £1.0 on accident prevention, they gain £3.0. In general, this can be valid for other industries, and organisations in Oman would be able to take financial advantages from spending on safety. In some countries, there is a specific voluntary certification scheme for workers, which is highly valued by employers. For instance, In the UK, the Construction Skills Certification Scheme (CSCS, 2018) required workers to pass a health, safety and environment test. CSCS in the UK is a non-profit organisation, and its directors are from employer organisations and unions representing the breadth of the industry. The implementation of such a scheme in Oman would add value to the overall improvement of safety performance of the country.

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