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Industrial occupational safety and health innovation for sustainable development

Kassu Jilcha ^{a,*}, Daniel Kitaw ^b^a Mechanical Engineering department, Kombolcha Institute of Technology, Wollo University, Kombolcha, Ethiopia^b Industrial Engineering Chair, School of Mechanical and Industrial Engineering, Addis Ababa Institute of Technology, Addis Ababa University, Addis Ababa, Ethiopia

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ABSTRACT

Sustainable development is not thought in a box without development pillars. Previous researchers put these pillars as economy, social and environment. Upon improving these three pillars, sustainable development becomes trustworthy in relation to workplace safety and health improvement. However, the researchers' findings have drawback in considering existing three pillars. Previous researches neglected to incorporate the other three pillars of sustainable development which are culture, political and technological factors. Having these pillars, sustainable development can also be guaranteed by considering workplace safety and health innovation for all internal and external entities engage at work. This is because of the implementation the pillars reduce the working environment accidents and disease. Hence, this research focuses on the workplace safety & health innovation, introducing new pillars for sustainable development, their impact on sustainable developments and indicating the three pillars future research areas. Methods like literature review, interviewing employees and observation of industries were used. There were few researches found on how sustainable development affected by workplace safety and health innovation approaches. However, this literature more focused on the relationship workplace innovation and sustainable development share in common. The other finding in this study showed that the innovation of workplace safety and health brings sustainable development through healthy people, safer workplace, reduced cost of accidents, controlled environment, managed workplace accidents and improved workplace safety knowledge. The researchers have also attempted to forward roads toward sustainable development through occupational safety and health innovation and improvement approaches.

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1. Introduction

Modern economies are driven by agriculture, manufacturing and service industries. Regardless of the governing factors, national economic growth and development on the basis of weak Occupational Safety and Health (OSH) regulatory regime is an invitation for accident [30]. Yesterday, occupational safety and health was not the concern of all parties. But, nowadays, health and safety is becoming the key issues of global worries. In many studies, effective management of occupational safety and health found to play a pivotal role in running a successful business [21]. The global issue for sustainable development of the citizen is the health and safe working groups at their workplace. In order to achieve this, one

of them is the development of sustainable occupational safety and health environments.

Having this challenges, it is mandatory to answer the questions how workplace safety and health innovation results in sustainable development of citizens and forward the roads toward sustainable development in industrial occupational safety hand health. The dynamism of socio-economic development has brought change on all aspects of the expansion. Dynamical change on workplace health and safety innovation, high prevalence of occupational diseases and accidents registration are the initial factors of sustainable development. The existence of occupational safety and health problems is adding level of poverty onto existing burden of the society. There is a strong Malthusian movement which maintains that continued economic growth will disturb the balance of nature, and will eventually lead to ecological catastrophes [34]. This imbalance between innovation and development tends to result in failure in sustainable developments.

* Corresponding author.

E-mail addresses: jkassu@gmail.com (K. Jilcha), danielkitaw@yahoo.com (D. Kitaw).

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As Zohreh and Napsiah [33] wrote in their research findings in summarizing that sustainable development and occupational safety, health, and environment are the two controversial concepts which have attracted the attention of many researchers in recent years. They argue that sustainable development cannot be thought without considering environment, society, economy and their working condition.

Hence, this research has attempted to assess OSH innovation in relation to sustainable development variables and their impact on each other. The other approach used is from the interview and observation made in some of Ethiopian manufacturing industries. The researcher used semi-structured interview question to justify the how industrial occupational safety and health innovation affects sustainable development of socio-economy. The result obtained showed us that workplace safety and health innovation has not been considered as a key driver of sustainable development. The companies have less consciousness about these issues. As it has been discussed in literature review, most of the companies' focus on productivity improvement, technological build up and profit maximization of the industries than workplace safety and health innovation. This approach results in indifference of workplace safety, health and environment for sustainable development. Hence, this research attempted to show how workplace safety and health innovation results in sustainable development of the socio-economy. The researchers also forwarded a way how to relate OSH and sustainable development. The future research areas recommended from the gaps identified. The remaining sections in this research includes literature review, methodology of data organization, result & discussion, concluding remarks and future research areas recommended.

2. Literature review

2.1. Occupational safety and health

Occupational safety and health are controversial issues which are most significant in succeeding in industrial development. The German philosopher (1788–1860), Schopenhauer, emphasized on the importance of health by stating that “health is not everything, but without health, everything is nothing [17]. Therefore the specific definition of health, safety and the integration of the two can be seen as occupational health and safety is a holistic approach towards total wellbeing of the employee at work [5]. According to WHO [32] occupational health includes the actions for occupational medicine, occupational hygiene, occupational psychology, safety, physiotherapy, ergonomics, rehabilitation, etc. Safety on the other side involves the protection of people from physical injury [37]. The International Occupational Hygiene Association (IOHA) generally defines occupational health and safety (OHS) as the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment [18]. Thus, OHS can be seen to concern the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations [20].

As discussed by Amponsah-Tawiah occupational health and safety matters are particularly critical in the developing world especially Africa and Asia. Africa is especially beleaguered with unsafe working conditions in industries such as mining, construction, manufacturing and even service. Alli [12] describes that Africa and Asia have most unsafe practice and conditions in management of children labor, employment, informal economy, gender mainstreaming, labor statistics, labor inspection and maritime safety, HIV/AIDS and the world of work and international migration.

Migration especially from Africa to Europe is one which indicates that the existence of unsafe and sustainable workplace safety and health. People are crossing borders to Europe due to the workplace and living area unsafe for all kinds of activities. Unsustainable development comes from uncomfortable working conditions or low economic status otherwise due to instable political condition.

Estimating the economic cost of occupational injuries and illnesses is another issue of workplace accident and disease. In addition to immeasurable human suffering, these fatalities and ill health cause major economic losses for enterprises and societies as a whole, including lost productivity and reduced work capacity [3]. This study has compiled that an estimated that around 4% of the world's gross domestic product (GDP) is lost due to various direct and indirect costs, including compensation, medical expenses, property damage, lost earnings and replacement training (ILO, 2003, 2012 cited in [3]).

It is much more widely recognized today that occupational accidents and diseases can have a major impact on the productivity, competitiveness, reputation of individual enterprises, livelihoods of individuals and their families. Moreover, at the national level, occupational accidents and ill health can cause an intolerable humanitarian and economic burden, damaging any reputation for good business and negatively impacting sustainable economic growth. In short, prevention pays [3]. This indicates that relevant high-burden non-communicable diseases are getting increased than communicable disease in which these are from occupational burdens globally. These non-communicable disease results in deficiency of sustainable development of the citizen, especially for developing countries, it draws backward from sustainable development movement.

2.2. Sustainable development

Sustainable development is the optimum use of resources in all respects. The Rio Summit [32] and Gilding et al. [8] in its declaration defined sustainable development comprehensively as strategy to meet the needs of the present world population without causing adverse effect on health and on the environment, and without depleting or endangering the global resource base, hence without compromising the ability of future generations to meet their needs.

The new strategy outlined by the World Conservation Union, Caring for the Earth, defines sustainable development as “improving the quality of human life while living within the carrying capacity of supporting ecosystems” (18). This report focuses on sustainable development as a process requiring simultaneous global progress in a variety of dimensions: economic, human, environmental, and technological.

Thus, sustainable development appears that gains marked in green technology and sustainable development stands the risk of being offset by costs of occupational health and safety, diseases and hazards [5]. Sustainable development from the definition should focus on the present and future generation needs centering the human health and environmental protection as a base line of the development. It does not compromise the present and the future world changing generation health and needs so that productive life and needs of the generation kept well. In traditional view, sustainable development was seen as interlocking of three pillars economic development, social development, and environmental protection overlooking emerging dimensions of sustainable developments [22,5].

The sustainable development strategy of an organization is not only reflected in the increase in the production value of the organization, but should be evaluated together with other aspects such as economic effectiveness, utilization of resources, occupational health and safety, and environmental protection [1]. In this

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