

Occupational Safety and Health: Workers and Industrial Safety Monitoring For Sustainable Work Environment Development

Industrialisation and urban renewal has caused widespread problems relating to environments such as water, sanitation and health. At the same time exposure to indoor and outdoor environments has also given impact to the occupational safety and health whilst working. This is the scenario in the developed countries and the difficulty of how to implement a policy that will serve the whole spectrum. Firstly, what is the big concern about such issues, and the midst of so many other competing priorities, why should we bother to work on such issues? The WHO has estimated that 24% of global disease is caused by environmental exposures, with over 13million deaths annually due to environmental causes, nearly a third of deaths and disease in the least developed regions. So in this article, the Malaysian occupational safety and health scenario and related environmental aspect will be discussed.

“Despite the fact that people are working and spend most of their working hours at the workplace, little attention and resources are accorded to health and safety at work.”

Occupational Safety and Health (OSH) is concerned with preserving and protecting human and facility resources in the workplace (Friend and Khon, 2007). OSH is also a field wherein professionals attempt to prevent catastrophic losses. Economically, morally, and legally, OSH has become an important issue. Companies are attempting to remain profitable in an ever competitive global economy. For companies, addressing safety, health and environmental programs, this may actually lean towards survival. In reality the amount of production required to cover costs associated with accidents in the workplace can be substantial and may far outweigh the expense of providing a safe and healthy working environment. The field of OSH has undergone significant change over the past two decades. Some of these reasons are: technological changes that have introduced new hazards in the workplace; proliferation of safety and health legislation and corresponding regulation; increased pressure from regulatory agencies; realisation by executives that workers in a safe and healthy workplace are typically more productive; increased pressure from environmental groups; corporate social responsibility and increased pressure from labour organisations and employees in general (Goetsch, 2010, Reese, 2009).

OSH Management Worldwide

Organisation worldwide strives to develop their management system for business functions, ranging from quality and environment to safety, information security and social responsibility. For the last decade a considerable amount of these efforts has been concentrated on introducing and applying standards such as the ISO 9001 and ISO14001 (Eriksson and Hansson, 2006). Numerous manufacturing and service organisations are considering integrating their respective occupational and safety management and audit systems into the International Organisation for Standardisation (ISO) based audit driven quality management system (ISO 9000), or environmental management system (ISO 14000) models (Dyjack et al, AIHA, 1998). The need for Integrated Management System (IMS) often arises as a result of decisions to implement Environmental Management Systems (EMS) and occupational safety and health management systems in addition to a Quality Management System (QMS). Thus the development of standards from various sources has emerged. A good example is the series of the OSHAS 18001:2007 and OSHAS 18002:2008. The OSHAS 18001 is compatible with ISO 9001:2000 (Quality) and the ISO 14001:1996 (Environmental) management system standards, which can facilitate the integration of quality, and environment OSH management system

individual organisation (BSI, OHSAS 18001:1999). Malaysia has also introduced the Malaysian standard and the latest is MS ISO 9001:2008 and MS 1722:2003. Malaysian Standards emphasises on the employers understanding and takes the opportunity to improve on the quality aspect.

People worldwide face occupational safety and health hazards daily. Over the years, the global occupational hygiene community has worked diligently to develop ways to protect workers, in workplaces of all types and sizes. Standards and guidelines were developed to help the employers and employees to develop their OSH Management system. However, laws and regulations may refer to certain standards and make compliance with them compulsory (British Standard, 2009). In this scenario certain standards were referred based on the Malaysian standard requirements. MS 1722: Part 1: 2005, Occupational Safety and Health Management Systems-Part 1: Requirements were established to guide the company on safety and health aspects. MS 1722: Part 2: 2003, OSH Managements Systems-Part 2: Guidelines were developed to give the understanding to the company and guidance to the employer to build up the Occupational Management System. From the environment aspect, the study will also look at the MS ISO 14001: 2004, Environment Management System (EMS) Requirements with Guidance for use.

OSH Malaysian Perspective

OSH provides a working environment which is conducive to workers. Reasonable precautionary steps are taken so as to ensure that workers are prevented from injury or health hazards due to work activities being carried out. Occupational safety and health (OSH) was first implemented in Malaysia some 130 years ago towards the end of the 19th century (DOSHS 2007). The Department of Occupational Safety and Health is the only government agency responsible for administrating, managing and enforcing legislation pertaining to OSH in the country, with the vision of making all occupations safe and healthy whilst enhancing the quality of working life (OSHA, 1994). From the DOSHS report, the industrial accident statistics are tabulated in Table 2.1. The data describes the number of industrial accidents occurred by sector from the year 2005 to 2010. It shows that the number of industrial accidents is quite high especially for the manufacturing sector.

Table 2.2 presents the total number of investigation cases of occupational diseases and poisoning. For the occupational disease, The Occupational Health Division monitors and analyses the data received. For each case of occupational disease and poisoning that is investigated,

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the department advises the industries to take corrective measures to prevent recurrence. To ensure the safety, health and welfare of workers; DOSH works towards making sure that the occurrence of industrial accidents in Malaysia is low, by introducing the OSH Master Plan 2015. This plan provides the direction of OSH in the country, and function as a guide for working cohesively with stakeholders and social partners, including government agencies, local authorities, labour unions, employer associations, academic institutions and other non-governmental organisations. The Small and Medium Industries (SMI) sector has been identified as the major source of accidents in the manufacturing industry. New strategies have therefore been introduced to reduce the accidents and to increase the level of awareness for the compliance with the Factories and Machinery Act, 1967 and Occupational Safety and Health Act, 1994.

Awareness of OSH Remains Low

OSH awareness is the main agenda to reduce industrial accidents and at the same time to prevent occupational diseases. DOSH and SOSCO, coupled with the involvement of the employer, employees and the public, must be continuous, comprehensive and integrated to increase the awareness of needs to create a safe and healthy workplace. This is necessary to ensure the quality of working life and the employer's survival in occupational activities.

Eijkemans and Goelzer (2004) from the World Health Organisation (WHO) reported that observations in many countries, particularly developing countries, reveal that common constraints to the effective implementation of adequate control strategies include insufficient awareness, education and political will, shortage of adequate human and financial resources, deficiencies in information and in communication among professionals and institutions, inadequate preventive approaches, as well as failure to involve workers and their representatives directly in problem-solving processes. In the issues of OSH awareness, Kawakami (2009) reported that participatory approaches and good practice approaches as keys for improvements. The government, workers and employers have been developing and practising innovative approaches to reduce emerging OSH risks associated with globalisation whilst Kitumbo (2009) has reported that the number of accidents could be reduced considerably through enhancement of safety and health prevention measures. Even though the increase in economic activities is a desirable development, in most cases these activities are associated with numerous occupational safety and health hazards. Each person is entitled to safe and healthy conditions at the workplace. This, in turn, would result in increased productivity and well-being for the enterprises and an enhanced world economy.

Domestic and International Pressure

The domestic and international pressure according to OSH is justified, certain activities conducted by DOSH has shown their seriousness to protect the worker from OSH risk. One of the activities is OSH enforcement activities as tabulated in Table 2.3 showing the inspection on the workplace from the year 2005-2008. The inspections were carried out to ensure factories observed the Factories and Machinery Act 1967. At the same time the OSH audits are a mandatory requirement. For 2008, 2,660 SMI work premises were inspected, 2772 workplaces were audited in 2007 and 2,411 for the year 2006. In doing so, the DOSH hopes to provide advisory services and lend a helping hand, especially for newly established SMIs. There are many enforcement activities carried-out under the Act 514. The enforcement activities conducted are those related with the enforcement of industrial hygiene. For the assessment and monitoring of chemical and physical hazards, the enforcement carried out is noise exposure, lighting, chemicals hazardous to health, air and heat stress.

Emergence of New Occupational Hazards

Despite the fact that people are working and spend most of their working hours at the workplace, little attention and resources are accorded to health and safety at work (A.M Leman 2008a). One way of improving health and safety issues at the workplace is the usage of practical tools (Pule, 2008, A.Husain et.al., 2006). Practical tools are means that act as guides, instruments for developing occupational safety and health issues, in order to effect positive changes or address a challenge. The more mechanised a workplace is, the more challenges are to be found in keeping up with the

Table 2.1: Industrial Accidents Statistics by sector from 2005-2010

Sector /Year	Year 2005			Year 2006			Year 2007			Year 2008			Year 2009			Year 2010		
	D	PD	NPD	D	PD	NPD	D	PD	NPD	D	PD	NPD	D	PD	NPD	D	PD	NPD
Manufacturing	65	93	2058	66	116	2752	63	133	2094	76	134	1564	63	90	1419	56	162	1493
Mining and Quarrying	3	4	107	2	1	22	9	1	5	6	0	4	3	1	2	1	1	2
Construction	87	36	246	81	25	365	95	10	76	72	2	55	71	6	38	66	4	50
Agriculture and Forestry	18	23	614	32	19	1014	30	14	712	42	7	365	44	8	440	30	18	469
Utility	2	20	177	5	6	66	10	4	51	19	12	82	23	3	116	11	3	34
Transport & Communication	14	0	145	10	1	47	2	0	7	8	1	18	18	0	21	14	1	6
Wholesale and retail	2	3	53	0	1	13	3	1	11	0	0	2	0	0	0	0	0	0
Hotel and restaurant	3	1	27	0	0	7	0	2	11	1	1	13	0	0	18	0	0	25
Financial & Real Estate	0	0	10	4	2	18	4	0	25	4	1	2	1	0	0	1	1	30
Public Services	2	2	22	9	3	44	3	3	16	2	1	3	1	0	0	3	2	40
Total	196	182	3459	209	174	219	219	168	3008	230	159	2108	224	108	2054	185	192	2159

Table 2.2: Total Number of Investigation Cases of Occupational Diseases and Poisoning from 2005 to 2009

No.	Types of Disease	2005	2006	2007	2008	2009
1.	Occupational Lung disease (OLD)	51	38	50	56	57
2.	Occupational Skin Disease (OSD)	57	30	192	70	53
3.	Occupational Noise Hearing Loss (NIHL)	190	106	120	169	427
4.	Occupational Muscular Skeletal Disorder (OMD)	10	22	18	31	57
5.	Disease caused by chemical agent (poisoning)	139	116	117	41	61
6.	Disease caused by biological agent	0	3	1	2	3
7.	Occupational Cancer	0	2	1	3	2
8.	Other and Non- Occupational Disease	4	45	47	81	2
TOTAL		451	362	546	453	669

Table 2.3: The Inspection on the Workplace

No.	Subject	2005	2006	2007	2008
1.	Industrial Hygiene Inspection	328	323	444	436
2.	USECHH Regulations Enforcement	955	953	1088	1068
3.	CPL Regulations Enforcement	115	120	124	119
4.	Industrial Hygiene Monitoring and Assessment: Air/Lighting/Heat Stress/CHRA/Noise/Chemicals	741	609	165	260
5.	Ergonomic	123	134	139	149
6.	Confine Space Audit	Na	Na	49	72
7.	Competent/Responsible Person Monitoring	Na	Na	361	367
8.	OSHA Briefing	Na	Na	473	366

speed of work and decision making. There are many tools and still more to come that will empower people to be well informed and to know how to avoid serious effect, or any effect at all, during their work life. These tools, if properly utilised by people in the world of work, can improve the quality of life. It is pleasing to realise that the tools and guides being developed include everything from identification of risks, including data collection and job safety analysis, to work setting application (Pule, 2008).

Acts and regulation for safety, health and Environment Protection and prevention

To prevent the industrial accident and environmental impact, the Malaysia government has implemented acts and regulations that are focused on the safety and health in the country. The acts

implemented are:

- i. Factories and Machinery Act 1967 (FMA 1967) with Regulations.
- ii. Occupational Safety and Health Act 1994 (OSHA 1994) with Regulations.
- iii. Environmental Quality Act 1974 (EQA 1974) with Regulations.

Factories and Machinery Act 1967 and Occupational Safety and Health Act 1994

Factories and Machinery Act 1967 (FMA 1967) is an act to provide the control of factories with respect to matters relating to the safety, health and welfare of people working there, the registration and inspection of machinery and the matters connected there. Occupational Safety and Health Act 1994 (OSHA 1994) was derived

from the philosophy of the Roben's Report and Health & Safety at Work Act 1974 in United Kingdom, a reflexive-type of Act which was less prescriptive, and also emphasis on duties of care by the individual. This act supports the philosophy of self-regulation for people at work and provides legislative framework for promotion, stimulation and encouraging high standards of safety and health at work. The Objectives of OSHA 1994 are to secure the safety, health & welfare of people at work, to protect other people at a place of work, to promote an occupational environment for people at work; which is adapted to their physiological and psychological needs and to provide means for Occupational Safety and Health legislation progressively replaced by systems of regulations and approved industry codes of practice. The scopes of applications are divided into the industrial sector such as:

- Manufacturing
- Mining & Quarrying
- Construction
- Agriculture, Forestry & Fishing
- Utilities – Electricity, Water and Sanitary Services
- Transport, Storage and Communication
- Wholesale and Retail Trades
- Hotels and Restaurants
- Finance, Insurance, Real Estates and Business Services
- Public Services and Statutory Authorities

Environmental Quality Act 1974 (EQA 1974) with Regulations.

Environmental Quality Act 1974 (EQA 1974) was implemented for the prevention, abatement, control of pollution and enhancement of the environment, and for purposes connected therewith. In Malaysia, National Policy on the Environment which integrates the three elements of sustainable development: economic, social and cultural development and environmental conservation was formulated and approved in 2002. The Policy aims at continued economic, social and cultural progress and enhancement of the quality of life of Malaysians through environmentally sound and sustainable development. It is based on eight inter-related and mutually supporting principles set to harmonise economic development goals with environmental imperatives:

- i. Stewardship of the Environment
- ii. Conservation of Nature's Vitality and Diversity
- iii. Continuous Improvement in the Quality of the Environment
- iv. Sustainable Use of Natural Resources
- v. Integrated Decision-Making
- vi. Role of the Private Sector
- vii. Commitment and Accountability
- viii. Active Participation in the International Community

In keeping abreast with the country's rapid economic development and to meet with the nation's aspiration for an improved quality of life, the National policy on the Environment serves as an important guide to all stakeholders to ensure that the environment is clean, safe, healthy and productive.

Safety and Health and Environment Culture

The greatest challenge is developing OSH programs (workers & Industrial safety monitoring) that are feasible in developing nations, as well as in small and medium industries (SMI's) where resources and technical expertise may be very limited (WHO Gohnet, 2009). The health status of workers in small companies has been noted to be relatively poor (Yamataki et. al., 2006). There has been increased interest in trying to understand how management practices and other organisational factors impact workplace safety,

Regulations Under FMA 1967	Regulations Under OSHA1994
<ul style="list-style-type: none"> • Certificate of Competency-Examinations Regulations • Electric Passenger and Good Lift Regulations • Fencing of Machinery and Safety Regulations • Notification, Certificates of Fitness and Inspection Regulations • (Person-In-Charge) Regulations • (Safety, Health and Welfare) Regulations 1970 • (Steam Boiler and Unfired Pressure Vessel) Regulations 1970 • Administration Regulations • (Factories and Machinery(Compounding of Offences(Revocation) Rules)Regulations 2010 • Factories and Machinery(Compounding of Offences) (Revocation) Rules) (No.2) Regulations 2010 • (Lead) Regulations • Asbestos Process) Regulations • Building Operations and Works of Engineering Construction) (Safety) Regulations • (Noise Exposure) Regulations 1989 • (Mineral Dust) Regulations 	<ul style="list-style-type: none"> • (Safety and Health General Policy Statements) (Exception) Regulations 1995 • (Control of Industrial Major Accidents Hazard) Regulations 1996 • (Safety and Health Committee) Regulations 1997 • (Classification, Packaging and Labeling of Hazardous' Chemicals) Regulations 1997 • (Safety and Health Officer) Order 1997 • (Prohibition of Use of Substance) Order 1999 • (Use And Standards Of Exposure of Chemicals Hazardous to Health Regulations 2000 • Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease Regulations 2004

health and environment. Current trends in society and work organisations are creating new risks and putting new demands on occupational safety and health research. Higher Learning Institutions (HLIs) can and should play a more active role in supporting national OSH efforts through the provision of pre employment education and training on OSH. It can work closely with industry, workplaces, NCOSH, DOSH, NIOSH, DOE etc. to integrate OSH into the academic syllabuses of relevant courses such as engineering, the sciences, medicine or architecture. Doing so will engender a strong preventive work culture among students from a young age. These institutions can also spearhead research into the relevant OSH areas, in partnership with the NCOSH and DOE. It can also act as a forum for discussion and sharing of OSH and DOE information. Together we support Malaysian Occupational Safety and Helath Malaysia Plan 2015 (OSH-MP15).

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