AMERICAN SOCIETY OF SAFETY PROFESSIONALS

Region IX

The Bulletin
-From HSSE Standards, Regulatory and Practices Chair

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Dear Fellow HSSE professionals

We express our sincere gratitude to all team members and their extended support in shaping & bringing this Second "The Bulletin".

In this Bulletin, sharing below contents & topics and please notify us if there is any amendments in standards & Regulations, will publish in upcoming bulletins.

1. Lock out and Tag out procedures in mining industry, Standards of Illumination in opencast coal mines – Part 2
2. Green Building Movement – Part 2
3. The Factors That Change Behavior Whitepaper published by QSE.
4. Extraction – Risk Assessment, ISO 31000-2018
5. Occupational Safety and Health Laws in Pakistan.
   Note: Some of Hyperlinks may not redirects to relevant websites
6. Story from E & P : A. Toxic E-Waste. B. Forget Countdowns - Climate Catastrophe

Thank you

Sincerely

ASSP Region IX HSSE Standards & Regulatory Chair

Working together for a safer, stronger future

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COAL MINES, LOCKOUT & TAG OUT – EMERGENCY SHUTDOWN PROCEDURES

DGMS(Tech)(MMID) Circular No.02 0f 2017
Dt:15/06/2017

Part -2

Lockout / Tagout: All energy isolating devices are to be locked, tagged or both according to recommended and framed safety LOCKOUT / TAGOUT procedures put in place as a policy. Only standardized devices supplied by the employer shall be used and they aren't used for anything else. If the lock cannot be placed directly on the energy control, lockout devices can be used. When lockout is used, every other employee can also lock out a single energy isolating device by using multiple locks: For big jobs, the lockout box can be used to maintain control over large numbers of padlocks and keys. The tags are to be used along with the locks by attaching them at the same points as locks are placed or as close to it as possible. The Tags are to be filled completely and correctly.

How to control stored energy: The following steps are necessary to guard against stored energy left in the equipment after it has been isolated from its energy sources.
(i)   Inspect the system to make sure all parts have stopped.
(ii) Install ground wires, i.e. discharge rod connecting to the earth.
(iii) In case of other sources as applicable, relieve trapped pressure, release tension on the springs or block the movement of spring driven parts, block or brace the parts that could fall because of gravity.

Lockout material, including key operated Locks, locking devices shall be sturdy for issuing to workers who service or maintain equipment. An identification tag must be securely attached to the lock. Each worker will be issued only one key. It is important that for their personal protection, each worker and /or four persons working in or on a machine places his / her safety lock on the disconnecting switch. It is ensured that tags are used to spotlight the work in progress, giving details of work being done. Only when the work is completed and the work permit is signed off, each worker is allowed to remove his or her lock. The last lock to be removed should be that of a person supervising the lock out. This lockout should be the removed by the person in charge and this responsibility should not be delegated.

Requirements of Training All workers performing lockouts and their supervisors must receive training. The training should address the importance of lockouts, legal requirements of lockouts, safety and employer's policy, energy forms, hazards and procedures for administrative and work related that must be followed.

Equipment isolation verification

(i) The work areas where there is likelihood of causing danger should be free of personnel. (ii) Verify that the main disconnecting switch cannot be moved to ON position. (iii) Use a testing meter to check the switch that source of power is fully isolated. (iv) Press all ON buttons and other activating controlled on the equipment itself to verify, that the source is isolated. (v) Shut off all machine controls when the testing is finished. A clear, well defined policy supported by administrative and control procedures and proper training Is essential for lockouts be effective. A systematic approach would be drawn to develop a lockout policy.

✓ The policy is required to identify lockout situations, to develop procedures, to train

Workers and to enforce as per the prescribed recommendations.

✓ The written lockout policy should make reference to Employers general safety policy and reference to applicable statutes / laws. It should clearly outline responsibilities and refer to procedures to be followed. The policy should state employer's intent and commitment to protect the safety of personnel and equipment.

✓ The policy should identify all activities, machines, equipment and processes where lockout is required.

✓ Appropriate persons shall be made responsible for lockouts and to be ensured lockout are performed by authorized persons only.

The importance of procedures, lockout errors such as the equipment is inoperable or too small to warrant a lockout, etc., shall be brought out in methodology of training. The use and care of personal protective equipment, proper use of tools, etc., shall be addressed in the training. In the training sessions, mock lock outs shall be conducted and tested, and refresher classes shall be provided periodically.

Enforcement and updating lockout policy
The Enforcement of policy will be effective, if the persons responsible are identified and accountable for lapses. The best way is to include in their job descriptions. The policy should also put emphasis on individuals' achievements for duly rewarding them where it resulted in productivity with high safety standards.

It is also required to review lockout procedures periodically and revise them in light of any problems that may have been identified. When a change in a process or equipment, Lockout requirements also change and require Review and revision.

Green Building movement in India
Courtesy: CII-IGBC, Hyderabad, India

Part-2
Indian Green Building Council Spearheading the 21st century modern green building movement in India is Indian Green Building Council (IGBC), part of CII. The Council is headquartered in CII-Sohrabji Godrej Green Business Centre, Hyderabad which is India's first platinum rated Green Building in India, inaugurated by the then Hon'ble President of India, Dr A P Abdul Kalam in 2004. The vision of the council is to facilitate India emerge as one of the global leaders in green buildings and sustainable built-environment by 2025.

Green Building movement in India
As on July 2018, over 4,650 green building projects amounting to over 5.34 Billion Sq.ft are adopting IGBC Green Building Rating Systems. Today, India stands no: 2 in the world in terms of largest registered green building footprint, with projects spread across the five climatic zones of the Country.

IGBC Green Building Rating Systems

IGBC, understanding the imperative to have rating system for different building typologies has launched 22 fully indigenized green building rating systems like- commercial, residential, cities, townships, schools, healthcare, data centres and several others.

IGBC Green Building Rating System enables the designer to apply integrated green concepts and reduce environmental impacts that are measurable. IGBC rating systems are designed to addresses National priorities, which include -water conservation, waste management, energy efficiency, reduced use of fossil fuels and lesser dependence on usage of virgin materials

The Factors That Change Behaviour

Courtesy – Quality Safety Edge

Changing the way we do things is often accompanied by uncertainty, frustration, and the desire to revert back to doing things the old way. At work and in our private lives, changing our behavior is not usually comfortable or easy.

Doing things differently requires us to go through a learning curve—a term that embodies all the negative feelings we experience when struggling to improve.

Making changes in our private lives provides us with some insights into what to expect when we are asked to change our work behavior—the way we are used to doing things.

When trying to lose weight or begin exercising, we find that measurement is essential to keeping ourselves committed and motivated. We count calories, count the number of minutes or miles we walk or run, record the amount of weight we lift to get stronger, or the amount of seconds we hold a stretch when trying to improve flexibility.

Measurement allows us to track change and provides us with encouraging feedback—information that motivates us and keeps us on track. Seeing our improvement gives us a good feeling; we are proud that we are successful. If others make supportive statements about our progress, this provides us with another dimension of pride and motivation toward our goal. The same factors-measurement, feedback, and recognition—which we Refer to as the behavioral approach, ensure that quality initiatives will be successfully implemented and the solutions and quality improvement

changes they produce will be executed effectively. These factors need to be applied to the efforts of managers, supervisors and frontline employees as they attempt to do new things, both individually and in team activities. The main thing to be aware of is that training alone does not ensure that the new ways will stick.

Training is the beginning; the behavioral approach adds coaching performers with measurement of their change progress, positive feedback for the change, and recognition for their improvement is essential. Quality practitioners inevitably discover that while quality approaches offer useful analytical tools, the success of *quality effort is not about the tools, it's about the people*. Should you add the behavioral approach to your quality effort? Think of some challenging projects in your quality effort. Have you experienced any of these situations?

- The operating team does not embrace a well designed quality solution developed by your quality project team.
- Initial gains from a new process end up fading over time.
- Managers have limited success on quality even though they repeatedly urge frontline employees to focus on well-designed plans.
- Frontline employees seem to need repeated retraining.
- Quality proponents complain that the organization lacks a quality-oriented culture.

- Quality audits find the same problems again and again.
- Frontline employees do the minimum to pass the quality audits.
- More time and effort are spent on finding and fixing quality problems than on preventing them.
- A great deal of quality documentation exists— procedures, standard work, control plans—but the performance in the workplace does not match it.
- Projections about quality savings and return-on investment do not seem to appear on the bottom line.

All of these situations indicate that the behavioral approach is not in place.

**Coming up Next
Include Behaviour in Quality Tools - QSE**
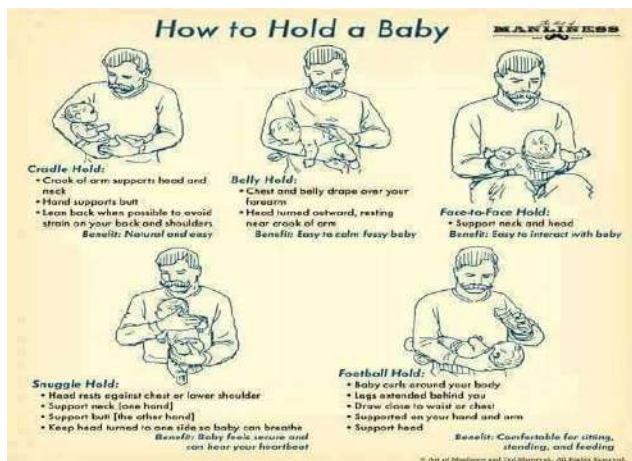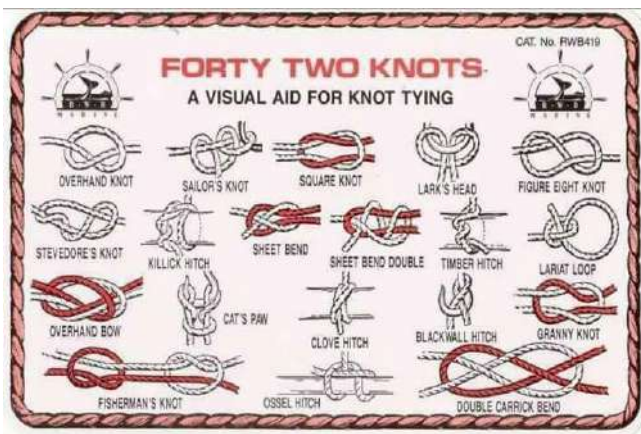
Guidance Provided in ISO 31000 - Principles

Courtesy DL Shah Trust Safety Info

ISO 31000 states that the purpose of risk management is the creation and protection of value. The principles set out in ISO 31000 provide guidance on the characteristics of effective and efficient risk management, communicating its value and explaining its intention and purpose. There are total of eight principles presented in the standard, as shown in Figure 3 of this guide. The ISO 31000 guidelines provide a statement of risk management principles.

The eight principles are described below:
1. Framework and processes should be customized and proportionate.
2. Appropriate and timely involvement of stakeholders is necessary.
3. Structured and comprehensive approach is required.
4. Risk management is an integral part of all organizational activities.
5. Risk management anticipates, detects, acknowledges and responds to changes.
6. Risk management explicitly considers any limitations of available information.
7. Human and cultural factors influence all aspects of risk management.
8. Risk management is continually improved through learning and experience.

The first five principles provide guidance on how a risk management initiative should be designed, and principles six, seven and eight relate to the operation of the risk management initiative. These latter principles confirm that the best information available should be used; human and cultural factors should be considered; and the risk management arrangements should ensure continual improvement.

Structure and Approach of ISO 31000

Courtesy DL Shah Trust Safety Info

ISO 31000 was originally published in 2009 and an updated version was published in February 2018. However, the overall purpose of ISO 31000 remains the same – integrating the management of risk into a strategic and operational management system. The 2018 version is very similar to the original version, but the following bullet points identify the main changes for the 2018 version of the guidelines:

- The principles of risk management have been reviewed, as these are the key criteria for successful risk management

- The importance of leadership by top management is highlighted, as is the integration of risk management, starting with the governance of the organization

- Greater emphasis is placed on the iterative nature of risk management, because new knowledge and analysis leads to revision of processes, actions and controls; and

- The content is streamlined with greater focus on sustaining an open systems model to fit multiple needs and contexts.

ISO 31000:2018 *Risk Management – Guidelines*

"A lot of the complicated language has been eliminated, so the text is leaner and more precise. The new draft is shorter, but it gains in clarity and precision and is much easier to read. It includes improvements, such as the importance of human and cultural factors in achieving an organisation's objectives and an emphasis on embedding risk management within the decision-making process."

Edited extract from ISO website, www.iso.org

As with all ISO standards and guidelines, the first substantive section defines key terms . A total of eight terms are defined, including the definition of risk as "the effect of uncertainty on objectives". This definition is clarified by a note to the definition stating that risk is usually expressed in terms of risk sources, potential events, their consequences and their likelihood. The new version of ISO 31000 is shorter than the earlier version, and it presents a high level overview of risk management and how a risk management initiative can be implemented. ISO 31000 suggests that effective risk management is characterized by principles, framework and process. The separation of principles, framework and process is not in line with the suggested format for management system standards, as described in Annex SL. This may present the risk professional with a challenge when seeking to produce an implementation plan or checklist for their risk management initiative based on ISO 31000 The overall structure and approach adopted by the 2018 edition of ISO 31000 is best illustrated by the diagram included in ISO 31000 and reproduced over the page as Figure 3. ISO 31000 states that managing risk is based on the principles, framework and process described in the guidelines. It also states that these principles and components might already exist in full or in part within an organization, but they might need to be adapted or improved so that managing risk is efficient, effective and consistent.

The overall structure and approach adopted by the 2018 edition of ISO 31000 is best illustrated by the diagram included in ISO 31000 and reproduced over the page as Figure 3. ISO 31000 states that managing risk is based on the principles, framework and process described in the guidelines. It also states that these principles and components might already exist in full or in part within an organization, but they might need to be adapted or improved so that managing risk is efficient, effective and consistent.

ISO 31000 states that the guidelines should be used by people who create and protect value in organizations by managing risks, making decisions, setting and achieving objectives and improving performance. The guidelines are applicable to all types and sizes of organizations and relevant to all external and internal factors and influences. They also state that managing risk assists organizations in setting strategy, achieving objectives and making informed decisions. Managing risk is part of governance and leadership and is fundamental to how organizations are managed at all levels.

Figure 3: Principles, framework and risk management process from ISO 31000
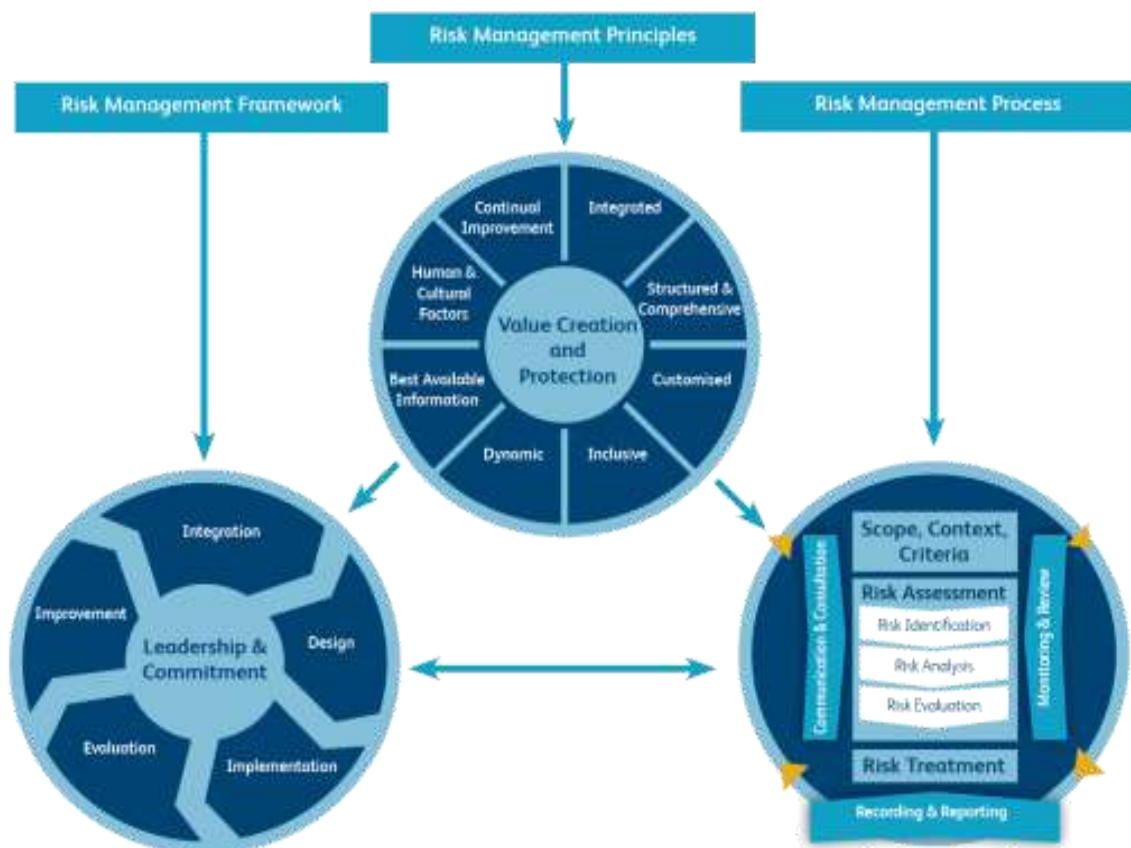
Occupational Safety and Health Laws in Pakistan

Contributor Mr Mr Syed Amjad Ali, ASSP Pakistan President

In Pakistan, the occupational health and safety in different sectors is covered in various laws. There is no single comprehensive law covering occupational health and safety. The following pieces of legislation deal with different aspects of occupational safety and health in the whole country[9,10].
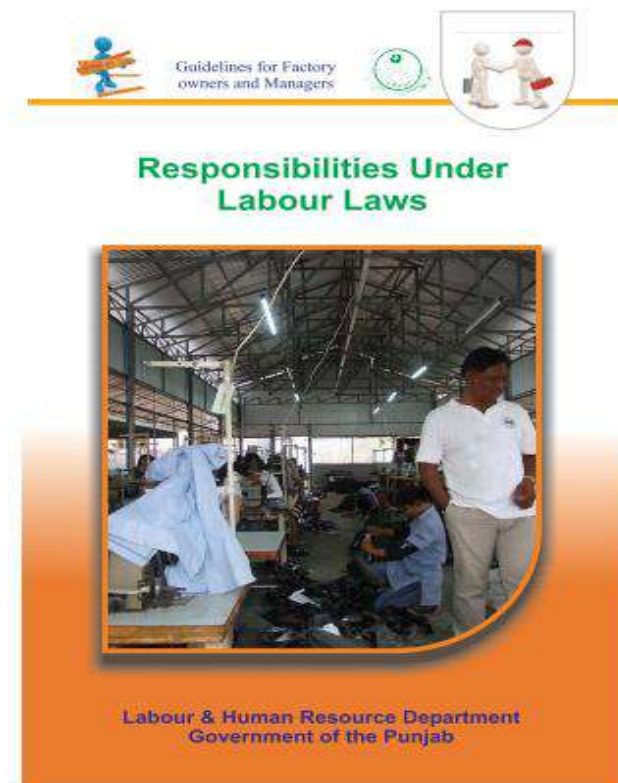
- Factories Act 1934
- Punjab Factories Rules 1978
- Sindh Factories Rules 1975
- North-West Frontier Province Factories Rules 1975
- West Pakistan Hazardous Occupations Rules 1963
- Mines Act 1923
- Provincial Employees Social Security (Occupational Diseases) Regulation 1967
- Dock Labourers act 1934
- Silicon Rules 2015
- International Chemical safety cards

Guidelines for Factory owners and Managers

Responsibilities Under Labour Laws

Labour & Human Resource Department Government of the Punjab

Click here / on image to download report

Some highlights :

Lighting: Every factory must provide and maintain sufficient and suitable lighting, natural or artificial, or both and emergency lighting of special points in work-rooms and passages to function automatically in case of a failure of the ordinary electric supply system.

Drinking Water: Every factory must provide sufficient supply of wholesome drinking water to all employed workers.

In every factory wherein more than two hundred and fifty workers are ordinarily employed, provision are to be made for cooling the drinking water during the hot weather by effective means

Precautions against contagious or infections disease: Every worker must be provided with a hygiene card. The information in this card is updated twice a year (January and July) after examination by a factory appointed doctor that the worker is not suffering from any contagious or infectious disease. The medical examination is free for workers and its cost is borne by the employer.

Compulsory vaccination and inoculation: Workers must be vaccinated and inoculated against such diseases and at such intervals as may be prescribed (These are prescribed as cholera, small pox and typhoid). The expenses for such vaccination and inoculation are borne by the employer.

Occupational Safety and Health Laws in Pakistan

Contributor Mr Mr Syed Amjad Ali, ASSP Pakistan President

GOVERNMENT OF PAKISTAN
PLANNING COMMISSION
MINISTRY OF PLANNING, DEVELOPMENT & REFORM
(Industries and Commerce Section)
****

Subject: <u>Stakeholders' Comments on Pakistan Occupational Health and Safety Act 2018 (Draft)</u>

S.No	Stakeholders' Name	Stakeholders 'Comments	Ministry Comments
1	Aviation Division, Islamabad	Not Provided.	
2	Ministry of Climate Change, Islamabad	Not Provided.	
3	Commerce Division, Islamabad	i. The draft Act is mainly focused on welfare, wellbeing and safety standards of the physical labor class which in our opinion is restrictive. We are of the view that *in the OHS Categories all types of labor be included including highly skilled, semi-skilled and unskilled.* For example, the IT Professionals, Hi-tech Equipment Operators, Doctors, Engineers and other highly skilled persons and these categories may be included. ii. Medical Health Sector (both Hospitals and Laboratories), Information Technology and related industry and Agriculture Sector are not included in the draft Act which may be included. iii. Labor Courts, Magistrates and Tribunals are established which may create confusion in implementing the provisions of the Draft OHS Act as there may be duplicity in their work. It is therefore proposed that only specific tribunals for implementing the provisions of the Draft OHS Act be established and other legal forums be abolished. iv. Personal Health Survey of the employees of the registered units be conducted every year. v. It should be mandatory that respective DGs prepare and publish the report of implementing the provisions of the OHS Act every year. vi. Industrial Units or registered entities should be given special monogram to be attached with their products if they implement the provisions of OHS. This will help them in marketing their products. vii. *1% Income Tax and Sales Tax incentive be given to the registered entities who are implementing the provisions of the OHS Act.* viii. *OHS Directorate should be established at the district levels.* ix. *Domestic Help workers* should also be included in the category of Worker and should be entitled for compensation as per the provisions of the OHS Act. x. Petitions and Appeals proceedings in the Tribunals and High Courts should be *time bound* for early disposal of the cases.	i. Section -3 Definitions – (xlvi) "Worker" definition is comprehensive which covers all professionals ii. Section -3 Definitions – (xv) "Establishment" definition is comprehensive which covers all areas iii. Matter may be discussed in consultation meeting iv. May be included in Rules & Regulations under this Act v. Section -7 (d) covers about point but may be further elaborated, if required. vi. May be included in Rules & Regulations under this Act. This should not be the job at the Govt. level but the certification bodies can give certificates. vii. May be add in Provincial OHS Act, Rules and regulations. Implementing the OSH provisions should itself be an incentive. Further incentives not required. viii. May add in Provincial OHS Act ix. Section -3 Definitions – (xlvi) "Worker" definition is comprehensive which covers all professionals x. Matter may be discussed in consultation meeting

Occupational Safety and Health Laws in Pakistan

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		xi. For each sector under OHS Act *separate Rules and Regulations considering their peculiar nature of work may be prepared once the Act is passed by the Parliament.* xii. An Honorary Directorate be appointed in each district which may have *Deputy Commissioner, MS of the District Hospital, EDO Education, DPO/CPO, SE Building Department and two eminent persons* which may prepare policy guidelines for their respective district and ensure implementing the guidelines in the entities registered in their district. They should also prepare *yearly report.* Secretariat support may be provided by the DC Office.	xi. It will be done once Act approve by Parliament xii. May be added in Provincial OHS Act, Rules and regulations. See the structure of OSH Directorate prepared by Sindh.
4	Textile Industry Division, Islamabad	i. Pakistan, being a developing country, has low engineering and industrial base. At present, various federal, provincial and district departments/agencies have been inspecting textile factories/units for compliance audits. It is pertinent to mention that textile manufacturing unit also bears costs of these compliances and audits and pay for EOBI, social security certification etc. It has been observed *these departments often mis-use their regulatory powers as well.* Further, the international buyers also check the compliances of these factories. Hence *there is already overlapping and duplication of majority of laws and functions of implementing organizations.* ii. The *implementation mechanism of these laws should be with associations and chambers* because international compliances are not enforced rather adopted. Therefore, government should play role for improvement prospective like Bangladesh model. The Government's support should be available for achieving the OHS audits and no cost should be incurred. iii. Therefore, *multiple agencies carrying out similar audits for same compliances is duplication and over-lapping.* Moreover, proposed fund in *draft Act would further increase cost of doing business* of already over-burdened industry. Hence, this Division is of the opinion that *instead of formulating another Act and establishing one more regulatory body,* Planning Commission in consultation with all stakeholders especially the provinces, may formulate a policy which will provide guidelines and framework to implementing agencies to achieve international compliance. It is further proposed that Planning Commission may direct concerned federal, provincial and district departments/ agencies *to review existing laws and amend accordingly* within specified timelines.	i. The implementation of this Act will not negatively impact Textile industry. Investment on OHS will pay back to industry as proven in many researches. Compliance with OSH laws will help the textile units in complying with buyer guidelines & hence duplication will be overcome. The economic & business benefits of these compliances are amply proven from studies as well as examples of major textile exporters of Pakistan. ii. May be agreed upon on later stage. Even in Bangladesh & elsewhere in the world, implementation mechanism is not with Chambers & associations but with the government. Spending on compliance should be treated as an investment with multifold payoffs. iii. The implementation of this Act will not increase cost rather increase profits and enhance exports due to better OHS compliance as required by GSP Plus. Instead of adding duplication & over-lapping, this act will simplify the implementation by superseding several other specific acts & ordinances as mentioned in section 29.
5	Ministry of Communications, Islamabad	Not Provided.	

To be continued..

Environment & People

RNI - 63997/94

Contribution : Mr Narayanarao, P. Editor E & P

Where Do 50 Million Tonnes a Year of Toxic E-Waste Go?

By Baher Kamal

Each year, the electronics industry generates up to 41 million tonnes of e-waste, but as the number of consumers rises, and the lifespan of devices shrinks in response to demand for the newest and best, that figure could reach 50 million tonnes this year, according to specialised studies.

Of all these tonnes of noxious waste, a staggering 60-90 per cent of e-waste - worth nearly 19 billion dollars- is illegally traded or dumped, often with the involvement of transnational criminal gangs, a UN Environment Programme (UNEP) research had already warned a couple of years ago.

West Africa has been reported by the UN Office on Drugs and Crime (UNODC) to be a major destination for electronic waste, while some Asian countries are also recipients of millions of tonnes of these toxic materials, sometimes as part of so-called trade free agreements with Western countries.

Old computers and mobile phones, electric cables, televisions, coffee machines, fridges, old analogue radios are piling up in landfills across the world, UNEP explains.

According to the research, e-waste often contains hazardous materials, which pose risks to human health and the environment, especially in developing countries.

One of Fastest Growing Waste Streams

E-waste is one of the fastest growing waste streams in developed as well as in developing countries, reports the Global Partnership on Waste Management.

Due to the fact that the life span of computers has dropped in developed countries from six years in 1997 to just two years in 2005, and mobile phones have a lifespan of even less than two years, the amount of generated e-waste per year grows rapidly, it adds.

"This has a major impact on developing countries as loopholes in the current {European Commission} Waste Electrical & Electronic Equipment (WEEE) Directives allow the export of e-waste from developed to develop-

ing countries (70 per cent of the collected WEEE ends up in unreported and largely unknown destinations)."

Recycling, Re-Using, an Enormous Challenge

According to the Global Partnership on Waste Management, inappropriate methods like open burning, which are often used by the informal sector in developing countries to recover valuable materials, have heavy impacts on human health and the environment.

"Electronic goods are increasing exponentially in number, variety and complexity, and all of them include both valuable and hazardous materials," said Keith Alverson, head of the UNEP-hosted International Environmental Technology Centre, which looks at ways to increase recycling and handle waste in a more sound manner.

"The challenge of re-using, recycling and properly disposing of electronic waste is already enormous, and will grow - be it in individual households, in the private sector or in countries around the world. We need to think carefully about, and implement solutions for, e-waste as we continue to benefit more and more from electronic goods and services."

A Criminal Business

"It is illegal to export e-waste, but extensive smuggling networks classify the waste as second-hand goods and dump it in places like Ghana, India, Pakistan and Brazil," said Dr. Christian Nellemann, head of the Rapid Response Unit at the Rhipto-Norwegian Center for Global Analyses and author of UNEP's e-waste report.

"Tricks include declaring waste batteries as plastic or mixed metal scrap, and cathode ray tubes and computer monitors as metal scrap. Both small and large-scale smuggling techniques can be seen all over the world, from organized truck transport across Europe and North America to the use of major smuggling hubs in South Asia, including widespread container transport by sea."

Insufficient control over waste removal is another loophole exploited by criminals, who collect payments for the safe disposal of waste, which they later dump or recycle unsafely, the study warns.

Risks for Human Health

According to the report, the illegal dumping of waste in developing countries is where health problems start to creep in. Inappropriate methods like open burning are often used by the informal sector to recover valuable materials, bringing heavy impacts on human health and the environment.

"Harmful emissions come from lead in circuit boards or cathode ray tube glass, mercury in liquid crystal display (LCD) backlights, cadmium, chromium, brominated flame retardants or polychlorinated biphenyls (PCBs), and the accumulation of chemicals in soil, water and food. Inhalation of toxic fumes from reagents such as cyanide or other strong leaching acids to extract rare earth metals, copper and gold also cause health issues."

Children in developing countries are exposed as family members try to recycle at home or are forced to recycle themselves, or simply by living or going to school close to dumps. They are especially vulnerable to the health risks as their bodies are still developing, the report adds.

Low Rates of Recycling

"Key to solving a lot of these problems - and ensuring that we don't run out of metals in decades to come, is better, more-formalised recycling."

According to research by the International Resource Panel (IRP), recycling rates have been consistently low: less than one-third of some 60 metals studied have an end-of-life recycling rate above 50 per cent and 34 elements are below one per cent recycling. This presents a valuable opportunity to reduce environmental degradation, energy and water use, and cut down on health impacts by doing it right.

"We need to address the full circle, establishing recycling systems and formalizing and subsidizing the informal handling systems," said Nellemann, who authored UNEP's report. "We also need to address the significant involvement of organized crime in waste handling."

Solutions to combat illegal and unsustainable handling of e-waste are emerging. Recovering valuable metals and other resources locked inside electronic products, for example, can reduce the amount of e-waste produced, diminishing pressure on the environment, creating jobs and generating income.

According to the IRP, designers must look at making materials such as rare earth metals in products easily recoverable at their end of use - including in green tech such as solar panels and wind turbine magnets. Binding agreements on classification of waste through the conventions will also be vital to prevent the dumping of waste in developing countries.

The Global Partnership on Waste Management also looks at improving sound management of e-waste in

HELP CONSERVE THE EARTH

Forget Countdowns - Climate Catastrophe Has Started in the High Mountains of Asia

By T.V. Padma

If the world manages to keep warming by the century's end below 1.5° C - an extremely ambitious target - over a third of the ice volume in Asia's high mountains will still be lost.

Glaciers in the high mountains of Asia, including the Himalaya, are in danger of melting due to global warming. Climate scientists have already established this much. But exactly how much area of ice is likely to be lost has not yet been quantified - until now. New research estimates that 28-43% of the glacier mass will be lost by the end of the century, with conservative projections of limiting global warming to 1.5° C over pre-industrial levels.

A team of scientists from Utrecht University and a research organisation named FutureWater, both in the Netherlands, and the International Centre for Integrated Mountain Development (ICIMOD), Nepal, have reported that a global temperature rise of 1.5° C over pre-industrial levels will lead to a warming of about 2° C in the high mountains of Asia (HMA).

Their estimates are based on detailed computer modelling, and factored in one of the four possible climate futures described by the UN Intergovernmental Panel on Climate Change (IPCC). The scenarios - RCP2.6, RCP4.5, RCP6 and RCP8 - are based on how much greenhouse gases are likely to be emitted in the future and how the gases move around in time. (RCP stands for representative concentration pathway.)

Their report, published in the journal Nature, says that "the 1.5° C goal is extremely ambitious and is projected by only a small number of climate models of the conservative IPCC's RCP2.6 ensemble."

Projections for the other three RCPs also reveal "that much of the glacier ice is likely to disappear", with projected mass losses ranging from 42% to 69% depending on the pathway. "These projections have potentially serious consequences for regional water management and mountain communities," the report cautions.

"Glaciers in the high mountains of Asia (HMA) make a substantial contribution to the water supply of millions of people, and they are retreating and losing mass as a result of anthropogenic climate change at similar rates to those seen elsewhere," it adds.

The fundamental form of the problem is this: The glacierised areas of the HMA are consistently warming at much higher rates than the global average, and the difference between global and HMA temperature rises is climbing. That is, the HMA are warming faster the more the world warms.

The scientists made projections for the future using a model they calibrated for past conditions using satellite-based observations of glacier mass balance (the difference between accumulation and melting of glacier ice). Then, they validated their findings with independent datasets on glacier retreat rates and the few field observations. They also analysed uncertainty in climate models and in the model's parameters.

Apart from revealing that the HMA are warming faster, "we show that even if the world meets this extremely ambitious target, then 36% of the ice volume will be lost by 2100," Walter Immerzeel, lead author and associate professor at the department of physical geography at Utrecht University, explained to The Wire.

"However, more realistic scenarios show an ice loss between 49% and 64%.
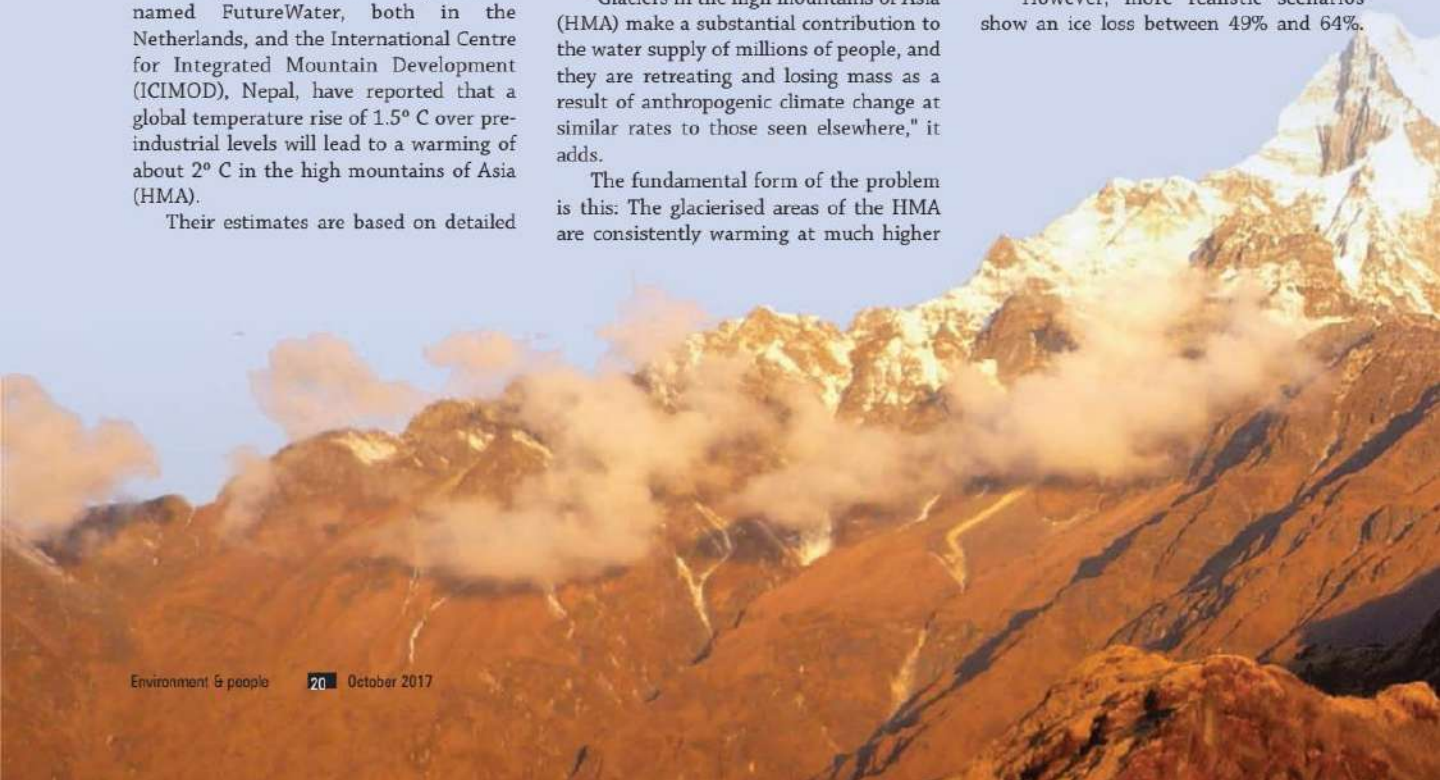
Finally we show that there is great variation in the region in glacier response to climate change, which is caused by differences in glacier characteristics and projected local climate change."

Immerzeel says that understanding how glaciers 'evolve' in a world warmer by 1.5° C is important - "but for the millions depending on the water from Asia's mountains, other parts of the water cycle are also of great importance, such as changes in snowmelt and monsoon dynamics."

He added that he and his team will next "focus on these parts of the water cycle, and in particular focus on understanding extreme events. The recent events have shown how much damage can be caused by this and how important it is to understand the drivers of those extremes."

Immerzeel's team also factored in the impact of debris deposited by mountain erosion on glacier melt. The HMA have 95,537 glaciers with a total glacier area of 97,605 sq. km. Many of its parts, especially in the low-lying glacier tongues, are covered by a thick layer of debris left behind by erosion. This influences the glaciers' climate sensitivity. A thin layer of debris accelerates melt, whereas a debris layer thicker than a few centimetres suppresses melt because it insulates the underlying ice.

"Our results show that about 11% of the glacier area in HMA is covered with debris, with the largest relative debris-cover in the Hindu Kush (19% of the regional glacier area)," the report says.

The latest findings are in the same vein of previous ones by researchers from the Indian Institute of Science (IISc), Bengaluru, reported in 2014. The scientists studied the impact of future climate change on the glaciers in the Karakoram and Himalaya (KH). And they estimated the glacial mass balance: the entire KH region is losing mass, between 5.6 and 7.6 billion tonnes each year, climbing to about 33-37 giga tonnes per year by the 2080s, under a scenario of high emissions of global warming gases. However, even a low-emission scenario will not be easy to deal with: the glacial mass loss goes up to 10-14 giga tonnes each year by the 2080s.

They also found that 10% to 27% of the glaciers could face 'eventual disappearance' by the end of the century under RCP2.6 and RCP8.5 respectively, underscoring the threat to water resources under high-emission scenarios.

(Source: thewire.in)

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Benefits

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4 Helps shed pounds

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Dr. Axe

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Dear ASSP Region IX members and HSSE professionals

ASSP Region IX (Global) and Lex Nimble Solutions presenting a virtual panel discussion on **ISO 45001-2018 Standard Implementation and Implications.**

Date : September 5th, 2018 | Time : 20.30 Hrs to 21.30 Hrs IST
Please click here to check your local time

While processing the ISO 45001-2018 transition or while implementation people may find the implications/ gaps between the lines something like showcasing the opportunities, etc. This may vary from sector to sector / industry to industry.

Objective of webinar panel discussion is to make understand the scenario in different industry sectors. In this virtual panel discussion, panelists are subject matter experts from Oil, Gas and Petroleum, Pharmaceuticals / chemical, Infra and Construction and Engineering.

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| 3 Knots 5,5 Km/h 3,5 mph 1.5 m/s | 6 Knots 11 Km/h 7 mph 3 m/s | 9 Knots 16 Km/h 10 mph 4.5 m/s |
| 12 Knots 22 Km/h 14 mph 6 m/s | 15 Knots 28 Km/h 17 mph 7.5 m/s | |

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