CII

Confederation of Indian Industry

Innovative Safety Approaches

towards Emerging OHS Challenges

A Study Report

Process

Safety Loss Prevention

Creativity

Innovation Business Technology Product

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Introduction

Globalization and free markets scenario has compelled industries to enhance their production capacity and productivity to remain operative in a highly competitive market. Sudden rise in the quantum of production keeping the unit price competitive has necessitated use of more sophisticated equipment and machinery and production processes in replacement of the conventional ones. Simultaneously, there has been structural change in several industry houses due to mergers and acquisitions as essential outcome of reorganizing to face this challenge. Rapid technological changes, extensive use of hazardous chemicals and processes are posing a threat to the workforce and creating a challenge to the health and safety issues. Most organizations are facing ever increasing challenges due to high incidence of injury and illness, lost man days and high compensation packages.

According to data released by international labour organization (ILO), about 2.3 million of workforces in various industries succumb to work related accidents or occupational diseases every year which corresponds to over 6000 deaths every single day. The statistics also reveals that around 340 million occupational accidents are taking place and 160 million victims are suffering from work-related illnesses annually worldwide.

Traditional safety programmes that consider safety as a separate function rather than an integral part of all production processes focuses on improvement of "unsafe conditions" and try to be in compliance with the regulatory requirements which are basically for improvement of unsafe "conditions". However, all over the world it has been realized that compliance to legislation alone cannot guarantee an accident free environment and their enforcement will not help in achieving the desired objectives of safe working. A structured approach within the comprehensive framework of occupational health and safety management system for the identification of hazards in specific work places, evaluation of the risk involved in each of the identified hazard, determination mitigation measures in brain storming sessions conducted by a multi-functional expert committee and implementation of the mitigation plans are now seen as essential to ensure an accident free environment. It is to be kept in mind that occupational health and safety management system includes "behaviour correction" of workmen as an essential part.

In short, the need of the hour is a proactive approach to improve the "unsafe conditions" and correction of the "behaviour" of the operator "the man behind the machine". This approach has been suggested by the ILO and the 2007 version of occupational health and safety assessment system has been developed on this philosophy.

The innovative safety programmes mentioned as the title of this write-up actually refers to this proactive approach tailor made for each hazard in an establishment for identification of mitigation plans for "envisaged hazards" as done in case of

HAZOP rather than going only by examples of past failures and learning from mistakes. Innovativeness is in respect of the mitigation plans which may be very simple, at the same time, very effective.

The proactive approach consists of the following steps:

- Identification of hazards and the corresponding risks of injury and occupational health issues;

- Designing the mitigation plans for the identified hazards. While developing the plan by the multifunctional expert committee, the legal requirements, social-cultural conditions and industry best practices must be taken into account so that the plan is accepted by the workmen;

- Implementation of the mitigation plan which includes engineering changes in the configuration of machines, equipment and the factory layout, training of workmen, formation of various safety committees involving workmen at different levels; and

- An on-going review and follow-up to evaluate the effectiveness of the risk mitigation plans and initiating corrective actions where required.

With the technological advancement, discovery and inventions of new materials, introduction of new machines, equipment, processes and techniques of manufacturing, it is essential that the focus of the management remains on managing changes by "envisaging" the safety and occupational health issues that the changes are likely to bring forth. The management system, in order to manage the changes happening every day, has, therefore, to be dynamic by resorting to continual review of the four steps mentioned above for the proactive approach.

This article has been prepared with representation of industries which have been successfully using this innovative approach in managing respective occupational health and safety management system and the idea is to share the outcome of the study conducted by these industries for mitigation of some safety issues faced by them and it is hoped that the same may be beneficial for other industries.

Occupational Health and Safety- Current Scenario of Indian Industry

Healthy and safe work environment are essential requirements in an industrial set up. With faster economic growth and industrial progress of our country, it has now become imperative that occupational health and safety at workplace be given their due importance. However it is a fact that, as a result of the focus only on enhancement of production and productivity, safety aspects are often ignored or pushed to the back bench. Significance of these issues are realized only when management has to pay heavy compensation for injuries and fatalities at work in line with the law of the land, manage the show with a bunch of demoralized work force and lose confidence of the various stake holders.

Indian industrial scenario

Along with the industrial growth in India, the number of fatalities and occupational health diseases have increased out of proportion. These numbers are on the increase mainly due to introduction of new machinery and production processes, use of toxic chemicals and chemical processes not used before, construction of high rise building structures and not meeting the safety requirements for guarding machinery.

Such activities are performed both in organised and unorganised sectors and the management of occupational health and safety in the unorganised sector is really grim.

Often, these situations arise due to technical incompetence resulting improper identification of workplace hazards, assessment of the risk potential and shortcomings in defining suitable mitigation plans.

As per Statistics of factories 2010 (Labour bureau; Ministry of Labour and employment, Government of India, Shimla):

a) Total Injuries (fatal and non-fatal) have increased by 68.02 per cent i.e. from 6651 in 2009 to 11175 in 2010.

b) Frequency rate of injuries per one lakh mandays worked declined from 0.85 during 2009 to 0.64 during 2010.

c) Incidence rate per thousand (average daily employment) has remained static for 1.03 in 2009 to 1.03 in 2010.

d) About 93.41 per cent of men and about 6.38 per cent of women suffered from injuries (fatal and non-fatal).

e) Severity rate of mandays lost due to injuries per one lakh mandays worked has decreased from 15.91 in 2009 to 10.07 in 2010.

So far as the Indian legislative measures are concerned, a large number of labour legislations have been enacted in order to promote and protect worker's well being and welfare and to give proper direction to deal occupational health and safety matters.

Despite all these statutes, the health and safety scenario in the Indian industry asks for more focused action to implement and improve the overall safety standards of Indian industry.

Due to economic constraints in developing countries like India, industries are sometimes obligated to use cheaper equipment and processes which do not meet minimum safety requirements. The skills and training required for operating and maintaining new technologies are often not imparted to

workmen in many industries, particularly in the unorganized sectors and the concept of occupational health and safety has not been understood by majority of management staff members and workmen.

The Government of India has also realized the need to ensure and maintain a high level of occupational health and safety in the industry. Therefore it has been suggested that various key personnel such as the factory manager, safety officers, front line executives and supervisors, safety committee members and union representatives be imparted training programs periodically for updating their knowledge of safety and occupational health on the basis of latest developments and create a positive safety culture in the industry [Report of the working group on occupational health and safety for the 12th Five year Plan (2012-2017)].

Our latest National Policy on Safety, Health and Environment also urges on the need for, not only eliminating incidence of work related injuries and diseases, fatalities, disaster and loss of national assets, but to enhance the wellbeing of the employees and society. The main objective of this policy enumerates:

a) Continuous reduction in the incidence of work related injuries, fatalities, diseases, disasters and loss of national assets.

b) Improved coverage of work related injuries, fatalities and diseases and provide for a more comprehensive data base for facilitating better performance and monitoring.

c) Continuous enhancement of community awareness regarding safety, health and environment at workplace related areas.

d) Continually increasing community expectation of workplace health and safety standards.

e) Improving safety, health and environment at workplace by creation of "green jobs" contributing to sustainable enterprise development.

Industrial Incidents/Accidents in India - Few examples

Following recent industrial accidents /incidents in the workplaces reflect the consequences of improper safety management of industries.[1]

a) Accident

In a textile industry, a worker was engaged in the task of transferring the bobbins in a trolley from 2nd floor to 3rd floor. He kept the collapsible gates of both the lift cage and the landing platform open. He was pushing a trolley towards the lift. Meanwhile someone operated the lift to third floor. The worker thinking that the lift car was available went pushing the trolley unwarily. As the lift cage was not available he plummeted into the hollow lift way along with the trolley and grievously hit at the base of the lift pit after traversing a depth of 33 ft resulting in his death.

Causes of Accident

Interlocking the device that will prevent the lift cage from being operated unless both gates of the lift cage and landing platform are in closed position was not fitted to the lift.

b) Incident

In an oil refinery, A 12,700 KL internal floating roof storage tank exploded and burned while being filled with diesel oil at a petroleum product storage terminal.

The tank contained approximately 1,100 KL of HSD at the time of the incident, and had previously contained Motor Spirit.

The fire burned for 21 hours and damaged two nearby storage tanks.

There were no injuries or fatalities, but the total loss was over two million US dollars, nearby residents were evacuated.

Causes of Incident

The tank was switch loaded (from MS to HSD) at flow velocities significantly higher than those in industry-recommended practices (API-RP-2003: $\sim$ 1 m/s till the roof is in landed condition).

The high velocity of the diesel in the tank fills piping and the turbulence created in the sump area resulted in the generation of increased static charge

Due to very low electrical conductivity (static accumulating) of liquid (diesel) caused static discharge inside the tank.

The explosion most likely occurred when a static discharge ignited a flammable fuel-air mixture in the space between the surface of the diesel and the floating roof.

c) Accident

In an iron and steel industry, a person was cleaning the charcoal ramp in the early morning (06.50 A.M.) at raw material preparation plant. Meanwhile a loaded pay loader was moving reverse on the ramp at a certain speed to unload the charcoal. Suddenly the person was hit by that pay loader from the back and got severely injured. The victim was admitted to hospital and he died there.

Causes of Accident

As there was no signal-man during the reverse movement of pay loader, and the ramp was poorly illuminated, person who was cleaning the ramp was not able to see the reverse movement of pay loader. Also, the permit to entry as well as working at the charcoal ramp was not in place.

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[1] Accidental case study from DGFASLI website

Occupational Health and Safety- Need for innovation

Occupational health and safety practice exists in India since long back. Legal provisions are also in place to deal with occupational health and safety issues. Organizations were only focused to comply with bare minimum safety requirements prescribed in statutory provisions. Therefore, sometimes it was only associated with the deployment of safety officer, formulation of occupational health and safety policy, getting compliance with respect to periodic inspection/testing of lifting tools and tackles, machineries, pressure vessels, boilers etc. In our country, the evolution of industrial safety management from traditional safety management practices to today's approach towards occupational health and safety has been transformed through different practices. Brief views of those practices are outlined.

General safety management practices

In earlier days, in our country, occupational health and safety management generally focused on formulation and implementation occupational health and safety policy, providing necessary training to concerned personnel to work safely, abiding the existing statutory/legal provision, developing different programs of inspection in order to identify hazardous conditions and the rectification measures of any such conditions prevailing at the workplace. investigation of accidents or incidents for finding out the cause of any accident or incident and development of prompt arrangements to prevent recurrence, preparation of emergency preparedness plan as well as forming communication and execution plans

to prescribe the effective management of emergency situations, framing of safety committees, evaluation of job related hazards and development of safety procedures. In addition to that companies were also focused on the promotion, development and maintenance of safety and health awareness in a workplace. These general occupational health and safety initiatives were in practice at that time (even today also) for minimizing occupational health and safety related issues. As the time went on, management of different industries felt that these initiatives alone may be not enough to deal with the emerging occupational health and safety issues arising out of different processes due to use of new technological process.

Behaviour based safety approach

As the existing safety practices do not always prevent recurrence of any unsafe practices, therefore it was noticed that many a times these unsafe practices may lead to accidents or incidents. It was noticed that most of these unsafe practices are more of behavioural issues of individuals or group of workers. The need for behaviour based safety approaches were realized by most of the organizations to motivate the workforce from committing or repeating unsafe work practices.

Lagging and leading indicators

For any management process, measurement is an important parameter to evaluate the effective existing practices and to find out the improvement opportunities for continuous up gradation. In order to deal with the emerging issues of occupational health and safety,

management felt the necessity for measuring the effectiveness of existing safety practices of industries. Finding out the perfect measure of safety is a difficult task. The main objective is to measure both the bottom-line results of safety as well as how well safety facility is doing to prevent accidents and incidents. To do this, many industries have used the combination of lagging and leading indicators of safety performance.

a) Lagging indicators

Lagging indicators are basically the traditional safety approaches which are used to indicate progress toward compliance with safety rules. These are the bottom-line numbers in order to evaluate the overall effectiveness of safety in any workplace. Few examples are:

- Frequency and severity rate of any injury
- Man days Lost
- Cost of worker's compensation

Lagging indicators will only reflect the reactionary measures taken with respect to any lagging safety performance. Like, analysis of frequency and severity rate will tell about the number of people getting injured, but will not represent the fact how well an organization is doing to prevent incidents and accidents. If the injury rates are decreasing, managers may put safety at the bottom of their to-do list, when in fact, there are several risk factors present in the workplace which could contribute to future injuries. Due to these constrains of lagging indicators management have adopted the leading indicators to get proper direction to deal with the OHS issues.

b) Leading indicators

Leading indicators are the measures which are proactive in nature to direct future safety performance and continuous improvement. Few examples of leading indicators are:

- Occupational health and safety training
- Identification and correction of work related ergonomic issues as well as reduction of the risk factors contributing to musculoskeletal disorders.
- Hazard identification and risk assessment
- Safety audits

Industries have felt the effectiveness of leading indicators instead of using lagging indicators to drive the continuous improvement of occupational health and safety. So it is better to measure performance (through leading indicators) rather than measuring failure (through lagging indicators).

Need for innovation in Occupational Health and Safety

Industries have always tried to adopt different proactive measures to deal with the emerging occupational health and safety issues, but sometimes these measures have been effective, and sometimes not. In the 21st century, most of the industries are now moving towards to introduce more sophisticated machineries to their facilities in order to minimize the dependency on manual labour, but this will often evolve situations which may spell disaster for workforce. So, the need for adopting innovative, simple and effective safety approaches is essential to safeguard the industrial workers.

Innovative safety approaches in Indian Industry - Recent Trends

Approach and adaptation towards the innovation

The recent trends in our country shows, companies that really care for welfare of their workforce are having well defined and structured safety department. Such organisations have promoted safety as being of utmost importance and have adopted safe and clean technology and gradually replaced those materials which are hazardous to human health and environment. There are plenty of such examples in oil industry (elimination of the additive - tetra ethyl lead compound in motor spirit), paint manufacturing industry (elimination of lead in paints), paper industry (elimination of use of Mercury cell for production of hydrogen) etc.

Positive initiatives of different industries are also seen in the following areas:

Workers awareness build-up

Continuous process to increase workers' awareness on safety, health and environment at workplace is one of the positive initiatives taken up by many organizations. They have provided several forums for consultations of employer and employee's representatives on matters relating to safety, health and environment at work place with the overall objective of creating awareness and enhancing organizational safety culture.

Periodic training of workforces, in order to increase workers' awareness through structured and audience specific training modules have been implemented in many industries.

Occupational health monitoring facilities have been provided in all the large PSUs and large scale private sector units in order to assure that no employee suffers weakened health, functional incapacity, or reduced life expectancy as a result of his workplace activities.

Providing practical guidance and encouraging employees in their efforts to reduce the incidence of accidents and occupational health problems.

Forums have been provided for consultation with workers and their representatives, providing training, information sharing and involving them in all measures related to their safety and health at work.

Research and development

A number of research and development assignments are undertaken in India every year in the field of occupational health and safety at workplace. These aim to develop innovative methods and techniques to deal with social and psychological factors associated with occupational health and safety issues at workplace. Researchers are also trying to explore ways to discover suppressed diseases and establish causal connections between diseases and work environmental conditions.

Occupational health and safety - skill development

Providing information and advice, in an appropriate manner to all employees, aiming at elimination of hazards or reducing them as far as reasonably practicable.

Involving workmen in the safety management system.

Establishing occupational health services

aimed at the protection and promotion of health of the employees and to improve the working conditions as well as providing employees' access to these services across the organization.

Competence enhancement of key personnel in the industry

Continual competence awareness of senior managers, HRD personnel, safety officers, factory medical officers, competent supervisors, key personnel of MAH installations, Occupational health and safety trainers, Occupational health and safety auditors, safety committee members, union representatives, key personnel for emergency planning, etc., need to be updated with specific technical inputs for improving Occupational health and safety knowledge and skills as well as appropriate training for creating positive occupational safety and health culture in the organization.

Periodic testing of protective equipment

Periodic testing of the various personal protective equipment such as helmets, ear plugs and ear muffs, safety goggles, face masks, hand gloves, safety belts and safety harness and safety shoes as per the relevant BIS standards. This will ensure that quality and tested PPEs would be available for the workers to use which would improve the safety and health of the workers. At present the only such facility is available in CLI, Mumbai which at times become difficult for the manufacturers and industry to get the PPEs tested and certified.

Introduction of new technology and adoption of global safety standards

The rapid progression of technological advancements has brought quick changes in working conditions, work processes and systems in the organization. Adoption of new safety standards sometimes become more essential for many of the organizations to address the changes or to keep pace to find out new hazard and risks associated with newly adopted technology.

Formulation of sound occupational safety and health management system to build effective responses to dynamic management strategies within the organizations has now become essential for many industries.

Visible leadership of management towards occupational health and safety

Many structured organizations have implemented and are practicing the concept of visible leadership of management towards occupational health and safety. Visible leadership is actuated in adopting different types of management programmes like: safety management as well as bonding with the contractor workers, introduction of different meeting programme with employees (both contractual and regular) like safety gate meeting apart from traditional National Safety Day celebration adoption, safety induction for visitors and contractor employees. In addition to that, there are other initiatives which are practiced by many structured organizations, like introduction of safety gallery and safety park to give proper view about the organization's overall safety culture, supply chain action for road safety and health, annual review of individuals' safety performance within the organization and system for structured reward and recognition with respect to organization's occupational health and safety performance, online kiosk portal for all employees including workers to participate in submission of safety suggestions and concerns with the

provision of monthly review of submitted suggestions and concerns.

Community engagement programme - promoting occupational health and safety

Many of the large organizations have taken the initiative to engage the local community in order to promote the occupational health and safety. Therefore several occupational health and safety related programmes are adopted in companies' townships, schools, colleges etc. Different community engagement programmes like safety quiz, community race, safety poster drawing competition etc are being conducted on the occasion of National Safety month, Road Safety week, National Fire week etc. with awards.

Many organizations have also initiated a safety curriculum to be introduced in the schools in the city to generate an awakening within the community. This initiative has been taken by organizations for spreading awareness in the community and produce positive results within the next few years benefitting both the company and the community.

Strengthening behaviour based safety system

Several behaviour based safety approaches have been adopted by many of the organizations where the main objective is to promote the organizational occupational health and safety. Initiatives are taken in form of pain and gain system, prizing of defaulters, different motivational programmes etc.

Innovation
Find out more

Different innovative occupational health and safety approaches - Adopted by industries

Vehicle and traffic safety - inside the plant

In factories having frequent movement of vehicles it is difficult for workers to cross roads and as such requires traffic signal lights or arrangements where advancing vehicle shall give way to the pedestrians. A push button / buzzer arrangements installed when activated changes the road signal from green to red with a buzzing sound alerting the moving vehicles to make way for the pedestrian.

Many accidents, at times fatal, have happened with dumper / loco when these were in reverse movement as the driver cannot see the reverse side. Dumpers/ locos are provided with rear view camera to improve the vision of the driver while reversing the vehicle. To improve the vision of the driver of hydra while in forward movement many companies have replaced their hydras with a suitable small crane.

Drivers are advised to park their vehicles and apply the hand brakes to avoid accidental movement particularly for heavy vehicles or when the slope of the road is not proper. To have additional safety on parked vehicles scotch blocks are applied on the wheels.

Loading / unloading of materials

Forklifts are normally used to stack materials. Forklifts have certain limitations in lifting the materials. Accidents have happened when the limits were stretched by ambitious drivers. In order to avoid such accidents mechanical stoppers have been introduced to arrest lifting movement beyond a certain height.

Grabber arms were attached to forklifts for lifting bitumen drums. However slipping of drums from grabbers were a common phenomenon and drums are now lifted from the bottom to make slipping incidents a rare phenomenon. Drum handling attachments have been attached also to a fork lift for lifting and transportation.

In order to reach the top of a loading vehicle ladders are normally used. Accidents have occurred many a times with the use of ladder and a moving platform is a better option and is used by many companies. These are called cherry-pickers at certain industries.

CCTVs have been installed in the wagon tippler area of a power plant to ensure that no personnel are present on the grating with a locking security when the wagon is unloaded.

In certain plants loading vehicles need to be covered with a tarpaulin before commencement of loading. Manual placement of tarpaulin caused threats and at times accidents also. Mechanized placement of tarpaulin has done away with the threat potential.

Supply of coal through wagon often contain

large boulders. These boulders were removed after breaking them into small pieces. Manual breaking of such boulders was a source of accidents."Bob cat" specialized rock breaking equipment has done away the accident threat.

Driving safely

A driver is provided with safety card with removable corners. For each violation one corner of the card is removed and the card

provided a grim reminder to the driver and the inspectors with the driving habit of the driver. The driver is removed from the team when all the corners are cut and reduces accident risk from an errant driver.

Drivers are assigned points for their performances. Driving performances are often monitored remotely through GPS. Even compulsory rest and avoidance of night driving are monitored Drivers and their family members are invited to a dinner after achieving the safe driver of the year award

Special software has been developed through the iris movement of a driver to identify the sleepy condition and alert him through a buzzer for such state.

Safety training

Every company puts in a lot of effort for the promotion of safety. Normally safety trainings are provided by safety personnel /officers and attended by workers. Companies have adopted bottoms up approach wherein a workman is first trained in safety matters and are advised to train higher ups. The participants are often the unit head and create a tremendous enthusiasm among workmen if workmen trainers are rotated and participants have to pass a test after the training. Safety gets a big boost through such bottoms up approach and practices puts safety in the fore front.

In the past, many a Safety Manager joined hands with the Training departments "try and develop" sustainable training modules. At one point of time, when it was found that even audio visual aids failed to create an impact due to monotony, the trainers thought of applying real life

simulation of the injuries and in some cases even accidents. There is a famous saying which says "Yesterday's near-miss can result in an accident today. It could be you……think about it". In order to have long term impact on the minds of trainees they are shown models of the victim of the accidents.

Almost all companies conduct induction training either for the new entrants or for the floating workers. A simple module is made on do's and don'ts, use of PPE, Electrical safety, work permit etc. One of the

most effective manners of registering these trainings are presentations through visuals, models etc. This gave birth to Safety Park where actual models are kept and all essential items on safety are brought out through visuals (not a film) / posters.

Sustainability of Safety promotion is a very big challenge for most of the concerns as methods adopted become ineffective after

prolonged use. Workmen are designated as safety ambassadors in many an organizations and these workmen are identified by special badges, helmet etc. and act as management's representative for safety communication, reporting of unsafe situation/unsafe acts. They also enjoy the power to attend special meetings and plan and execute identified unsafe situation. The workmen empowerment work wonders in sustaining safety promotion.

360 degree feedback too is very effective in improvement of safety culture. Lots of contract employees are engaged during plant turn around and maximum safety procedure violation is reported on these floating population. Actual workings of these workers are filmed during the turn around and selective unsafe acts are then segregated from the shoot to prepare clippings. These are shown to the contract employees to make them aware of their failings with excellent result.

Engineering practice

Confined space working is very critical particularly when the same is handling inflammable material during normal operation. Illumination is provided through hand lamp and to avoid triggering of fire the same is provided through a 24volt power source. Since the illumination is not very bright workers often resort to 230 volt source increasing safety hazard. In order to provide a better solution LED lamps are now made available which operates on a lower voltage yet provide a much brighter illumination.

Welding inside a confined space is very tedious and beside safety hazards poses health peril as well due to generation of obnoxious gas. Prolonged work inside a confined space produces fatigue and lead to accidents many a times. The situation is overcome through deployment of dehumidifier in which the gases from the confined area is extracted through long chutes and fresh cool air is introduced continuously akin to air conditioning. Controlled environment in the confined space not only removes health and safety hazard but improves productivity to a large extent.

Most of the roofs of fixed roof tanks are vulnerable due to corrosion and erosion. However plant personnel have to walk on the tank roof to attend breather valves, tank gauging equipment and gauging the tank level. Incidents of tank roof collapse and fall of persons from tank roofs to bottom of tank insides have occurred. In order to avoid such recurrence permanent structures were provided on the tank roof to attend the particular equipment. Plant personnel can now reach the equipment walking on the pathway/structure and not on the tank roof.

Hot job monitoring is a tricky issue for any

chemical plant dealing with inflammable materials. For a large plant scheduled periodic monitoring becomes difficult as the work area is scattered all over the plant. Special software has been developed to map the location of the hot job area and it is now possible to pinpoint the location from any corner of the plant.

During metal plate cutting using acetylene gas cylinder the gas back fires causing accidents. Such phenomenon are arrested using flash back arrestor paving way for safe work.

Automated rock breaking equipment is a common site in a power plant for reducing the size of coke or in mines to reduce the size of ores for transportation through conveyor belt. Elimination of manual work reduces the risk potential. Automated silo cleaning (Cardex method) is now practiced to eliminate manual cleaning.

Painting or repair work of tall structures / chimneys /high rise building is associated with the risk of fall. As such space climber i.e. automated climbing equipment with platform are common sites to avoid the accidents. Fall arrestors are also used as an additional protection. People do use wind speed monitors at high altitude work for fixing the schedule.

Electrocution during excavation work is a common phenomenon and the same are avoided through portable power detectors to identify the presence of live cable underground.

Lock out /tag out (LOTO) to prevent accidental switching on electrical power when maintenance crew is still at work adopted by many a concerns. However the same concept is extended to a process pipe line to prevent accidental operation of valves which are not to be disturbed during normal operation.

Colour coding

Colour coding is an excellent tool to segregate work area when safe and hazardous works are carried out under the same roof. The same technique is applied to demarcate same road for pedestrian and vehicle movement.

Colour coding of helmet is used to identify the permanent working personnel /visitors/ company and contract workmen/ officers etc.

Mining safety

In the mining space, some industries have introduced the concept of load centre, where individual items of electrical switchgear are integrated into one unit, reducing the potential of accidents by maintenance friendliness, eliminating exposed cable susceptible to damage, reducing material handling and chances of accidents in confined space.

Conclusion

There are several acts and regulations prevalent in our country to strengthen and monitor the occupational health and safety standard of the workplace. But mere compliance with the regulatory norms within the premises will not serve the purpose of strengthen the occupational health and safety system in the organization.

Occupational health and safety is not only limited to the scope of prevention and control the specific occupational health and safety hazards. Industries are now putting more focus on continuous monitoring of occupational health and safety system in the way of routine identification and assessment of hazard and risks, strengthening the hazard communication system at the workforce level, workers awareness build up etc. to ensure a safe and healthy workplace. There are several organizations who are continuously giving their effort in R&D in order to develop and implement the OHS measures. However, it does not reflect the mass scenario.

Therefore it is the time for industries to reframe their thought towards the development of occupational health and safety in order to strengthen the basis of sustainable development.

Acknowledgment

We are sincerely expressing our deep gratitude to the following organizations for sharing their OHS best practices and innovative occupational health and safety ideas in order to enrich our effort to make this report:

1) ACC Limited
2) Bhilai Engineering Corporation Limited
3) Cognizant Technology Solutions
4) Ellenbarrie Industrial Gases Limited
5) Exide Industries Limited
6) ITC Limited
7) JMS Mining Services Private Limited
8) Mine line Private Limited
9) RSB Transmissions (I) Limited
10) Schneider Electric Corporation
11) Tata Steel Limited
12) Tata Steel Processing and Distribution Limited
13) The Tinplate Company of India Limited

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With access to a wealth of intellectual capital, Verde delivers Assessment, Consulting, Training, and Conformity Assurance services in the areas like Occupational Health & Safety, Environment Protection, Corporate Social Responsibility, Sustainability, Management Systems and Human Capital Development.

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We are uniquely placed to offer advisory and assurance services free from commercial constraints and to finding ways to improve business performances.

Our clients range from local businesses to Fortune 500 multinational companies with whom we partner to offer independent services that help to reduce risk, streamline processes and operate in a more sustainable manner.

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Assessment: Assessment is the mode by which we help our customers to identify the gaps in their system against a particular standard and requirement. This helps them to meet compliance and facilitate improvement.

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We have been working with clients around the world and in diverse industry sectors to help them to understand and manage their environmental, health, safety, risk and social impacts. The key sectors we serve include Oil & Gas, Mining, Power, Manufacturing, Agri-Business, Food & Beverages, Chemical and Financial Institutions. All face critical sustainability challenges and our clients trust us to assist them operate more sustainably which has a positive impact on our planet.

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About us

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has over 7200 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 100,000 enterprises from around 242 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

The CII theme of 'Accelerating Growth, Creating Employment' for 2014-15 aims to strengthen a growth process that meets the aspirations of today's India. During the year, CII will specially focus on economic growth, education, skill development, manufacturing, investments, ease of doing business, export competitiveness, legal and regulatory architecture, labour law reforms and entrepreneurship as growth enablers.

With 64 offices, including 9 Centres of Excellence, in India, and 7 overseas offices in Australia, China, Egypt, France, Singapore, UK, and USA, as well as institutional partnerships with 312 counterpart organizations in 106 countries, CII serves as a reference point for Indian industry and the international business community.

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