

REPORTING PROCEDURE OF CONSTRUCTION ACCIDENTS IN SRI LANKA

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ABSTRACT

A cohesive and centralised recording system of occupational accidents is a significant element of construction industry of any country which requires an effective reporting procedure to feed information into it. It is a valuable management tool that can be used as an aid to risk assessment, to prevent deaths, injuries and ill health conditions, and to minimise costs for accidental losses. However, the absence of an effective reporting procedure will form shortfalls in management of occupational accidents. Sri Lanka is one of the countries that suffers from lack of an efficient recording system. It is revealed that ineffectiveness of existing accident reporting procedure is the main cause for this gap. Therefore, it created a necessity to study the existing reporting procedure of construction accidents in Sri Lanka with the aim of upgrading it by addressing its gaps. Accordingly, the research problem was approached through a document survey and an expert survey which followed by semi structured interviews. Ten experts who are involved in industrial health and safety management were interviewed. The findings revealed that safety representatives of most of the construction organisations reluctant to report to the Labour Department through the district factory inspecting engineer when incidents occur, due to unawareness of legal provisions and burden of paper work. Further, other organisations such as workmen's compensation department; insurance companies; hospitals and police stations, where construction accidents are reported, are not properly linked with the Labour Department. Therefore, Labour Department as the ultimate data storekeeper does not get steady flow of information from any party. Owing to this, seven strategies were established to lift up the adeptness of the existing reporting system through establishing proper links for efficient information feeding.

Keywords: Accident Reporting Procedure; Centralised Accident Recording System; Construction Accidents; Construction Industry.

1. INTRODUCTION

Safety at contemporary construction industry of Sri Lanka has become one of the complex issues due to its higher accident rate (De Silva and Wimalaratne, 2012). When compared with other industries, it is rendered that the construction industry is the most vulnerable with a reported number of annual accidents; in-between 750-900 (Amarasinghe, 2011). Among them 50-60 were fatal (Amarasinghe, 2011). Further, this annual figure represented a more than 30 percent of accidents which was about 13 times higher than in the other industries (Rameezdeen, *et al.*, 2003; De Silva and Wimalaratne, 2012). However, these statistics have not disclosed the real situation, as only less than 60 percent of accidents are reported (Amarasinghe, 2011). Therefore, it is clear that, in Sri Lanka the underreporting of construction accidents rate is high. There are many reasons contribute for the underreporting of accidents. Among them, International Labour Organization (ILO) shows the limited coverage of reporting procedures as one of the major reasons (ILO, 1996). Further ILO has highlighted that the proper collection, reporting and recording of data concerning occupational accidents are instrumental in prevention and to develop preventive measures of accidents (ILO, 1996). Accordingly, the research was focused on identifying the gaps in the existing reporting procedure of construction accidents in Sri Lanka with an intention of enhancing the procedure by addressing its gaps.

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2. OCCUPATIONAL ACCIDENTS AND CAUSES IN CONSTRUCTION INDUSTRY

The International Labour Organisation (ILO) (1996) has defined the term, “occupational accident” as an occurrence arising out of or in the course of work which results in fatal injury or non-fatal injury. It classifies these accidents under several categories based on the nature of the injury, bodily location of the injury, type of accident and the agency. As cited in Rameezdeen *et al.* (2003), Laufer and Ledbetter (1997) defined the occupational accident as, “an unplanned, not necessarily injurious or damaging event that interrupts or disrupts the completion of an activity”. Further their classification of the level of injury based on loss of working days has gained more popularity among others (Rameezdeen *et al.*, 2003).

Though the accidents are common for all industries, construction industry has recorded higher accident rates which result in absence from work, loss of productivity, permanent disabilities and even fatalities (Fung *et al.*, 2005). Therefore, construction sites are often labeled as unsafe, dangerous or hazardous places to work (Sherratt *et al.*, 2013). It is revealed that most of the severe construction accidents, injuries as well as economic losses have been occurred due to the negligence of safety in construction sites (Laufer, 1987). Further, human errors are highlighted as one of the main causes for construction accidents (Hinzeand, 2000). Ahamed, *et al.* (2011) discloses that 90% of occupational accidents are due to unsafe acts or unsafe behaviors of workers. These accidents were reported as operating without authority, working with moving machinery, working without personal protective equipment, wearing dangling clothes, unsafe lifting, carrying and placing, using hand instead of tools and unsafe handling of hazardous material (Ahamed, *et al.*, 2011). In a nut shell, Goh and Chua (2002) classified these causing factors of these accidents under three broad headings; immediate, underline and safety management system (SMS) (refer Table 1).

Table 1: Factors Affecting Construction Accidents

Immediate Factors	
Substandard Physical Conditions	Substandard Acts
1. Substandard plant/ machinery/ equipment/ tools	1. Extraneous Acts
2. Substandard construction material	2. Improper equipment usage
3. Substandard structures/parts of structure	3. Inappropriate response to emergency
4. Substandard work environment	4. Omission of basic safety measures
5. Other substandard physical condition	5. Spatial error
	6. Improper work procedure
	7. Other substandard acts
Underlying Factors	
Job Factors	Personal Factors
1. Factors related to designers	1. Lack of knowledge/skill
2. Factors related to operatives	2. Mental/psychological factors
3. Factors related to project management/ corporate	3. Improper motivation
4. Factors related to site management	4. Physical/physiological factors
5. job factors	5. Other personal factors
SMS Failures	
Inadequate: (A) System, (B) Standards or (C) Compliance in one of the following elements	
1. Safety policy	9. Safety inspections
2. Safe work practices	10. Maintenance regime for all machinery and equipment
3. Safety training	11. Hazard analysis
4. Group meetings	12. The control of movements and use of hazardous substances and chemicals
5. Incident investigation and analysis	13. Emergency preparedness
6. In-house safety rules and regulations	14. Occupational health program
7. Safety promotion	
8. Evaluation, selection and control of sub-contractor	

Source: Goh and Chua (2002)

Among these causing factors, lack of safety at construction sites, lack of safety awareness programs for workers, negligence of workers and limited legislation requirements for health and safety of the workers at the construction sites are considered as main reasons for the construction accidents in Sri Lanka (Somasundaraswaran, *et al.*, 2005).

3. PROFILE OF CONSTRUCTION ACCIDENTS IN SRI LANKA

The figures of occupational accidents are published annually in many countries but reliable data are available only in a limited number of countries (Hämäläinen, *et al.*, 2006). In most of the countries, only less than 20 percent of construction accidents are reported (ILO, 2003). Statistics of accidents in developing countries including Sri Lanka are also not based on proper accident recording and notification systems as proper records are not available (Hämäläinen, *et al.*, 2006).

However, in recent years (during 2009 to 2012), based on the available statistics at the Industrial Safety (IS) Division of the Labour Department in Sri Lanka, the reported fatal and non -fatal accident are high as indicated in other countries (refer Table 2). Among these accidents, it is revealed that in 2012, 30% of the accidents are from construction industry though it was about 25% in the period of 2004. Further, it was found that the number of fatal accidents in the Sri Lankan construction industry is the largest contributor to fatal accidents followed by mining and quarrying (Rameezdeen *et al.*, 2003).

Table 2: Profile of Construction and All Other Industrial Accidents (2009-2012)

Year		2009	2010	2011	2012
Construction and All Other Industries	Fatal	76	64	60	80
	Non-Fatal	1449	1456	1313	1319
	Total	1525	1520	1373	1399

4. UNDERREPORTING OF CONSTRUCTION ACCIDENTS

As mentioned, the data shown in Table 2 do not denote the true number of construction accidents due to the underestimation error. Such underestimation occurs when organisations fail to record employee injuries and illnesses (organisational-level under-reporting) and report to the authorised bodies or when employees fail to report injuries and illnesses occurring at the workplace (individual-level under-reporting) to the relevant officers (Probst and Estrada, 2010). Accordingly, organisational level and individual level underreporting are originated mainly due to lack of awareness of legal reporting requirements, penalties for poor record keeping infrequently levied on firms, and burden of completing the relevant paperwork posing to firms, etc. (Lim, 2007).

Under the Factories Ordinance of Sri Lanka, it is compulsory for all factories to report all occupational accidents and injuries caused to workers and if it causes loss of three days, to the Labour Department. Further, all organisations are required to send a report of accidents time to time. However, this is not acclaimed by all organisations due to many reasons. Among them, a lack of an institutional mechanism to ensure accountability and to make the surveillance system was highlighted. Therefore, one of the Labour Department's key challenges is lack of reporting of workplace injuries to them (Sunday Times, 06th October 2013).

5. BENEFITS OF REPORTING AND RECORDING OF CONSTRUCTION ACCIDENTS

Operations are unsuccessful without adequate recordkeeping, which enables to learn from past experience and make corrections for future operations (Department of Industrial Relations, State of California, 2005). Therefore, the Department of Industrial Relations, State of California trot out the importance of record keeping of accidents at work. It reveals that records of accidents, work-related injuries, illnesses and property losses serve as a valuable purpose which affords an efficient means to review the current safety and health activities for better control of operations, and to plan future improvements (Department of Industrial Relations, State of California, 2005). Oregon State University

(2009) states that accident records supply information to identify trends to help control conditions and acts that contribute to accidents and managers can use them as an indicator of the financial impact of unsafe behaviour and the need for loss control efforts and information can be combined with medical and disability cost figures to reflect the direct cost of occupational accidents. Further, Health and Safety Authority, Dublin (2006) says keeping records will help safety representatives to check whether remedial measures have been implemented and to monitor the effectiveness of such measures.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995, UK, as cited in Scottish Centre for Healthy Working Lives (2014) shows that with the information provided through recording and reporting, the enforcing authorities are able to help and provide advice on how to reduce injury, and ill health in the workplace. Such surveillance data can also be used to put forward an evidence-based rationale for the introduction of new legislation and/or guidance.

6. RESEARCH METHODOLOGY

A comprehensive literature review was carried out relevant to the research objectives with the aim of identifying the construction accidents and their causes, profile of construction accidents of Sri Lanka, reasons for underreporting of construction accidents and importance of an effective accident reporting procedure for construction industry.

A pre study survey was carried out to document the existing accident reporting procedure used in Sri Lanka. Further an expert survey was carried out to validate the documented reporting procedure and to explore its prevailing gaps. Ten experts who are expertised in the area of occupational safety and health were selected for this task and in-depth interviews were conducted. The professional experience of these experts were ranged from ten years to over twenty five years and hold managerial level positions in the industry. Further four most experienced experts were again interviewed to identify enhancing strategies to proposed recommendations to address the shortfalls in the existing system.

7. EXISTING REPORTING PROCEDURE OF CONSTRUCTION ACCIDENTS IN SRI LANKA

In the existing reporting procedure (refer Figure 1), if an accident arises in a construction site, the flow of reporting procedure from the workplace to the Department of Labour can be demonstrated and depicted as follows:

- 1) If there is a victim who suffered from an injury, hospitalisation of him/her immediately relies with the safety representatives of the site.
- 2) Immediately after the hospitalisation, the records of the accident should be kept in internal documents of the workplace. Keeping internal records of accidents will help safety representatives to develop prompt arrangements to prevent recurrence of similar kind of accidents and to monitor the effectiveness of such measures. Therefore, internal records are maintained as an accident prevention strategy of most construction organisations.
- 3) The Section 61(Notification of Accidents) of Factories Ordinance No. 45 of 1942, as last amended by the Factories Amendment Law No. 12 of 1976, describes that, “where any accident occurs in a factory (i.e. in a workplace) which (a) causes loss of life to a person employed in that factory; or (b) disables any such person for more than three days from earning full wages at the work at which he was employed; or (c) makes any such person unconscious as a result of heat, exhaustion, electric shock or inhalation of irrespirable or poisonous fumes or gases, etc., written notice of the accident, in such form and accompanied by such particulars as may be prescribed, shall forthwith be sent by the occupier or manager or the superintendent (in the case of an estate factory) to the District Factory Inspecting Engineer (DFIE)” who is appointed for the respective district.

Accordingly, if an accident categorises under one of the above conditions, the employer is liable to send the notice of accident via “Form 10” to the DFIE who is appointed for that particular district. Further, the Section 92(01) of same ordinance prescribes that a “general register” known as “Form 11” should be maintained to record every accident which reported with Form 10. Further a copy of this general register is required to send to the DFIE once in six months.

- 4) If the injury is caused to the workman while he is working in the course of his employment and if it is resulted in the total or partial disablement of the workman for a period exceeding three days, only then the commissioner for workmen's compensation is informed. (Workmen Compensation Ordinances Nos.19 of 1934). The commissioner for workmen's compensation should be informed via "Form Q". In addition to the Form Q, the insurance company is informed, when the organisation claims the insurance coverage.
- 5) When a victim is made an insurance claim, the insurance company and the commissioner for workmen's compensation work closely in order to release the compensation by the insurance company.
- 6) The insurance company is further, bound to provide information of such construction accidents to the Department of Labour.
- 7) If the victim is hospitalised, it is the medical officer's responsibility to keep records of the patient in the hospital itself and inform the police post of the hospital or nearest police station via a note. Afterwards, the police can start their investigations on the incident.
- 8) The section 61 of the factories Ordinance further describes that "where any accident causing disablement is notified, and after notification thereof results in the death of the person disabled, notice in writing of the death shall be sent to the DFIE by the occupier or manager or the superintendent (in the case of an estate factory) as soon as the death comes to his knowledge". Accordingly, when the death comes to the employer's knowledge, DFIE is informed by the employer via a "notice of death", and when the city coroner is informed by the hospital, the post-mortem is carried out and report will be provided.

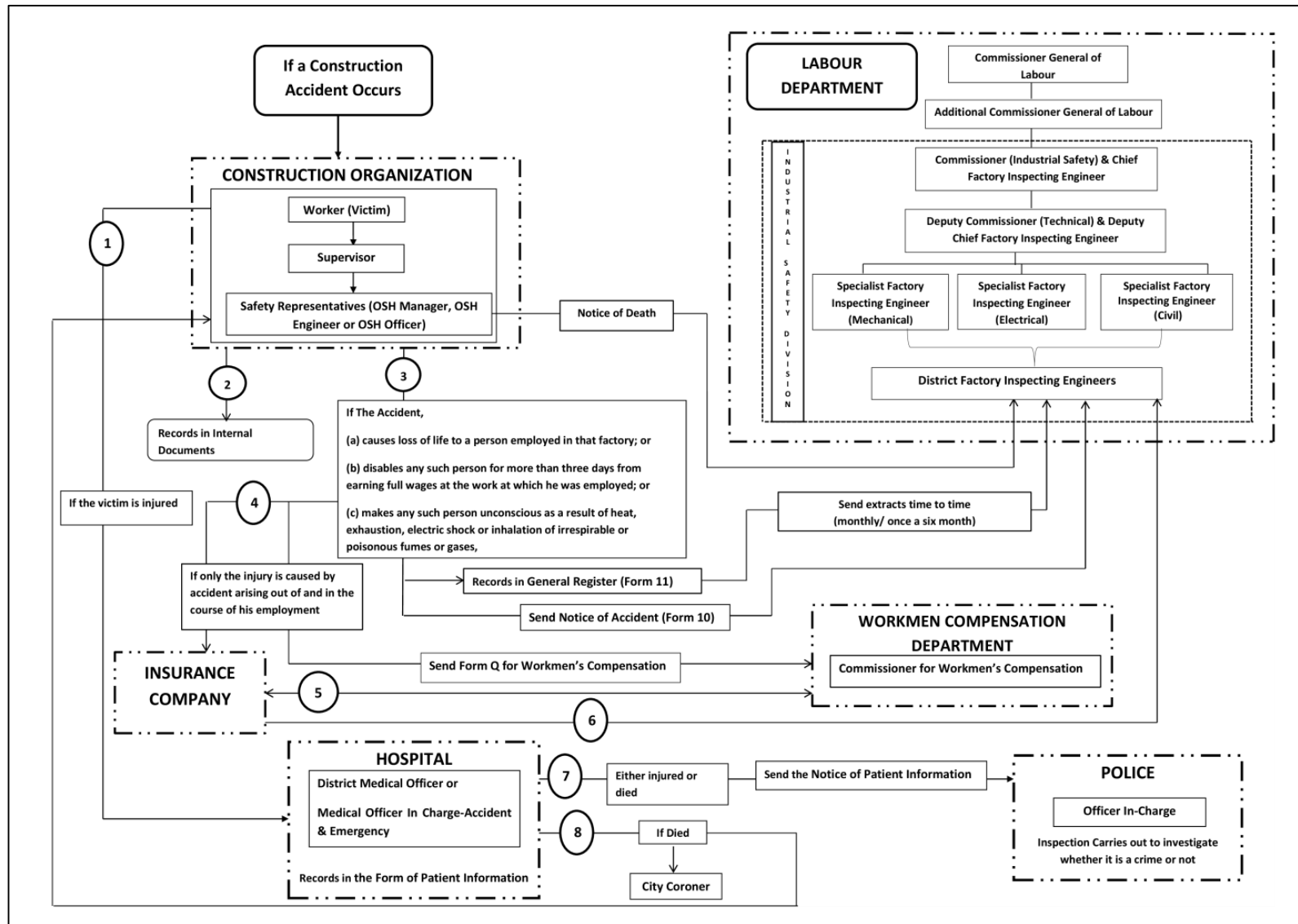


Figure 1: Existing Reporting Procedure of Construction Accidents in Sri Lanka

8. GAPS IDENTIFIED IN THE EXISTING REPORTING PROCEDURE

Eight numbers of gaps which are prevailing in the existing accident reporting procedure were identified and discussed under the following headings. They can be also made known as barriers for maintaining an effective and centralised recording system for construction accidents.

- **Gap 1: Lack of Reporting and Recording Systems at Organisational Level**

Lack of a systematic approach for reporting and recording of accidents within the organisational/site level is the substance gap in the existing reporting procedure. Lack of knowledge, awareness, systems, management commitments and other facilities were identified as main shortfalls at this level. Additionally, a strong leadership towards inculcating OSH was identified as a deliberating need. However, shortages in qualified safety representatives in the construction industry could hamper producing these leaderships.

- **Gap 2: Lack of Reporting to Department of Labour**

Due to the inattention, lack of awareness of legal reporting requirements and burden of completing paperwork, most of the safety representatives of the sites and workers do not persuade to report accidents occurred in the sites via notice of accident form (Form 10) to the respective DFIEs. They consider that involvement of the department of labour would create additional distress to them. Further, it was revealed unavailability of a stringent monitoring procedure for following up the law has debilitated the need of reporting. However, the construction organisations who have already obtained and who are being implementing OSHAS 18001, track this practice as it has been mandated by OSHAS 18001.

- **Gap 3: Lack of Reporting of Minor Accidents (less than three working days from earning full wages at the work)**

As per the Factories Ordinance No. 45 of 1942, it is compulsory for all factories to report accidents and injuries caused to a worker if the worker is absent for three working days due to an OSH incident. Therefore, the accidents that categorise under “less than three working days from earning full wages at the work” are not reported to any authorised body as there is no legal requirement in the law. However, most of the organisations maintain internal documents for recording of all type of these accidents including “near misses” as a strategy to prevent recurrence of same incident.

- **Gap 4: Unavailability of a Centralised Recording System**

It was observed that, instituting a centralised recording system is a burning need to formalize a precise and efficient reporting procedure which is considered as one of the main causes for under reporting. However, lack of staff, infrastructure, lack of integration between relevant authorities/departments and capital for devising and maintaining such centralised recording system were highlighted as indeed de-motivators. Further bureaucracy of the existing administration system in relevant authorises/departments would create a hindrance to execute a cohesive and centralized recording system.

- **Gap 5: Poor Relationship between the Department of Workmen Compensation and Department of Labour**

If a personal injury is caused to a worker by accident arising due to his employment and if it is resulted in the total or partial disablement of the workman for a period exceeding three days, the employer has the responsibility to pay compensation for the victim in accordance with “Commissioner Workmen Compensation” ordinance (Workmen Compensation Ordinances Nos.19 of 1934). Therefore, almost all the accidents which have brought personal injury for a workman for a period exceeding more than three days are informed to the workmen compensation department. However, due to no legal provisions to disseminate information within the system, there is no avenue created to share those information with the IS division of the department of labour.

- **Gap 6: Poor Relationship between Insurance Companies and Department of Labour**

Most of the employers have insured their employees against the liability of workmen's compensation. Therefore, in a case of an accident which is described under above points (refer Figure 1), the employer informs insurance company simultaneously to workmen's compensation department in order to claim the compensation for the victim or victims. Even though the insurance companies should have an information flow between them and the workmen's compensation department, they are not bound to maintain a proper affiliation with the department of labour during such information sharing.

- **Gap 7: Poor Relationship between Hospitals and Department of Labour**

As it is clearly mentioned in the law, a medical officer is bound to inform the chief inspecting engineer of the department of labour only if he identifies a serious occupational disease which has arisen due to the employment in construction industry (Factories Ordinance No. 45 of 1942). Except that, there is no direct informing procedure of the victims to the department of labour, and thus not often practising. However, medical officers inform the police post or nearest police station upon a serious accident when the victim is hospitalised, even with no prescribed form or procedure to report. The experts reveal that less staff for administrative work of hospitals may be the main reason for poor record keeping and reporting to department of labour.

- **Gap 8: Poor Relationship between Police and Department of Labour**

Figure 1 demonstrates that if a victim is hospitalised and are at critical stage, the police should be informed by the hospital and then investigations will be proceed. Under these situations, the police however not liaise with the department of labour to make a record of the incident. Thus, department of labour may not get an opportunity to investigate it.

9. STRATEGIES TO MITIGATE IDENTIFIED GAPS

Seven probable strategies to mitigate the gaps identified in Section 7 were compiled through findings of the expert survey and discuss in this section.

- **Strategy 1: Establishment of Independent Division to Maintain a Centralised Occupational Accident Recording System**

Establishing an independent division for collecting required data and maintaining a recording system is vital to eliminate all the gaps identified in the existing system. This division should have the authority to compile information of the department of labour, department of compensation, hospitals, police and insurance agencies. Further, it can be formalised to conducting risk management programmes, awareness programmes and develop guidelines related to accident prevention and accident reporting to enhance safety management.

- **Strategy 2: Employing Qualified Safety Representatives for Construction Organisations**

Employing qualified safety representatives is essential in construction organisations/sites to enhance safety management to and thus to eliminate the first two gaps in the reporting procedure. Safety representatives can be Health, Safety and Environment (HSE) officers, Occupational, Safety and Health (OSH) Engineers or OSH Managers. In Sri Lanka, basic qualifications of safety representatives are not defined and therefore, in most of the construction sites, not properly qualified officers are engaged. Therefore, it is recommended defining qualifications that should be required to appoint qualified safety representatives. In line with this, sufficient educational programmes should be introduced to produce qualified people in this arena.

- **Strategy 3: Introducing Prescribed Information Sheets for Accident Reporting**

Other than the existing forms such as Form 10, Form 11 and Form Q for reporting accidents, a similar set of forms can be introduced to the (1) hospitals, (2) police stations or hospital police posts, (3) workmanship compensation department and (4) insurance companies for reporting to the IS division of the labour department or to the proposed independent division (if it forms). As such, five information flow paths can be created to a centralized reporting system.

When the form is introduced, the responsible officials of the organisations are bound to send them to the relevant authorities and thus 5th, 6th, 7th and 8th gaps would be effectively eliminated.

Having establishing these forms, to avoid the repetition of the same information feed by different forms from different organisations, an identical reference number for each victim can be used by all organisations. For instance, it was suggested that it is better to use National Identity Card number as the reference number. On the other hand when the same information comes through five flows, it can be used as a tracking mechanism for under reporting of accidents by relevant bodies and directs to take legal actions against those particular bodies.

Instead of introducing these forms, it was suggested to introduce an online portal which can save time, cost and manpower required to maintain the proposed centralised system. It is an easy option to go for as sufficient technology is available in Sri Lanka.

- **Strategy 4: Awareness Programmes on Accident Records and Reporting**

The awareness programmes on safety and health of workers are conducted frequently. However, the awareness programmes on legal provisions and importance of documentation of accidents are not seen as important aspect. It was identified that some of the staff who work as safety representatives even do not aware the legal provisions. Therefore, awareness programmes should be increased in order to mitigate the first two gaps of not recording and reporting the accidents.

- **Strategy 5: Decree to Implement the SLS OSHAS 18001 Standard**

The Institute for Construction Training and Development (ICTAD) as the governing body of construction industry in Sri Lanka, can decree to implement the SLS OSHAS 18001 for all grades of construction companies in Sri Lanka. SLS OSHAS 18001 is particular on documentation. Therefore, it will lead every construction organisation to document each and every aspect of health and safety of construction sites mitigating the first and second gaps of poor recording and reporting of construction accidents.

- **Strategy 6: Continuous Monitoring on Notification of Accidents**

Introduction and availability of legal provisions do not persuade the people to follow them up. A strict monitoring process should be there in order to encourage the following up the law. This can be promoted through creating stringent legal provisions. However, this is not possible with existing human resource capacities, financial capacities and with other amenities provided to relevant authorities. On the other hand, introducing promotional schemes, safety excellence awarding systems can motivate organizations towards better reporting.

- **Strategy 7: Encourage Construction Organisations to Apply for OSH Excellence Award**

National Institute of Occupational Safety and Health of Sri Lanka in collaboration with Ministry of Labour and Labour Relations offers awards for organisations who excel in occupational health and safety. This would be a strategic movement to motivate construction organisations to follow OSH guidelines and practices and eventually to fill the first two gaps in the prevailing under-reporting condition. Further, such a promoted OSH culture will reduce risks of occupational accidents.

10. SUMMARY

It is vital to have an effective accident reporting and recording system for construction industry in Sri Lanka. Since the accident rate of construction industry is getting high, it is a responsibility of the authorised bodies to working closing together to reduce the situation. Having said that, availability of reliable data of accidents are important. However, with lack of effective accident reporting procedure and a centralised recording system for industrial accidents, consolidating a reliable data source has become a difficult task. Therefore, the construction industry in Sri Lanka suffer with information shortages.

The research makes it clear that there are prevailing gaps in the existing accident reporting procedure, which creates inefficient recording system. These gaps are discussed as eight barriers. Therefore, further study focuses to find out probable suggestions that can be adopted to mitigate them. Establishment of another institution under Department of Labour to maintain a centralised industrial accident recording

system, appoint qualified safety representatives for each construction site of construction organisations, continuous monitoring of following up the legal provision on notification of accidents, introduction of a prescribed information sheet for all organisations who are involved in a case of an industrial accident and after an accident or development of an online portal, increase the awareness programmes on importance of maintaining records and reporting of industrial accidents, decree to implement the SLS OSHAS 18001, for occupational health and safety management systems and encourage the construction organisations to apply for OSH excellence awards were found as strategies to mitigate the gaps in existing accident reporting and recording procedure of Sri Lanka. These proposed strategies can be considered in establishing a centralised recording system for construction industry to enhancing its image of OSH.

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