Study the Challenges on Outsourcing Health and Safety Responsibility in Logistics Industry

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ABSTRACT

This study mainly based on the Occupational Health and Safety related issues that are faced by the contractor workers. Based on the several business factors, most of the companies are now moving towards deploying workers from Manpower providing companies to carry out tasks on behalf of the company. Therefore, Contractor companies are recruiting wider range of people for different roles under contractor company carder. Since most of the contractor companies are not properly established with considering all minimum qualities of be an employer, they are striving for making maximum profit out of each contract they get. Therefore, contractor workers and their rights are the most neglected element in this business model.

Due to the nature of the employment, they do not have right access for close supervision and guidance by the competent personnel when they are conducting the high-risk activities. Hence contractor workers are the most prominent group of workers who get exposed to severe injuries at work.

The study was conducted to identify the root causes and contributory factors that can lead to accidents in the logistics sector. Since Logistics sector have many verticals, this study was mainly focused on the logistics fulfillment centers, distribution center and logistics hubs. The information in this report are taken from the 3 main logistics companies, under 15 different sites in with the range of about 50 contractor companies and with the participation of 2435 employees.

This study reveals that, there are several behavioral and organizational factors that contributes to various number of occupational accidents. Lack of competency, poor supervision, unclear work instructions, lack of worker motivations, less empowerment, poor risk perception capabilities and ignoring the contract worker rights were among the visible gaps throughout the study. Since contractor workers are deployed in many high-risk activities, fall prevention, high probability of people and moving machinery entanglement and ergonomics issues related to manual lifting are the most common issue in logistics industry.

Keywords: Challenges, Health and Safety, Logistic, Outsourcing

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DECLARATION OF THE CANDIDATE & SUPERVISOR

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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LIST OF ABBREVIATIONS

CM- Contract Management

COVID-19- Corona Virus Decease

CSM- Contractor Safety Management

FMCG- Fast Moving Consumer Goods

NIOSH - National Institute of Occupational Safety and Health

OH&S- Occupational Health and Safety

PPE – Personal Protective Equipment

SWP- Safe Work Procedure

UK- United Kingdom

CHAPTER 1 INTRODUCTION

1.1 Background

Unquestionably outsourcing is a great benefit to any organization. Based on the labor laws and the overhead of maintaining the employees, many organizations are looking on the opportunities to outsourced (Dainty et al., 2001). Companies are looking to replace the non-critical operations under contracted work categories based on the predefined work scopes. Companies had greater comfort in term of the human resource management and financial management. But contracting model started to change from non-critical operations to critical operation outsourcing by companies to get the human resource management and financial management benefits to the companies. Notwithstanding its benefits, outsourcing has an opposing impact on Occupational health and safety of the organization (Loosemore & Andonakis, 2007; Mayhew and Quinlan, 1997; Yung, 2009).

Since companies have begun to outsource their critical operations to contractors, managing OH&S of the workers has worsen. That has caused many cultural issues among the contracted workers due to lack of job security and the less financial benefits over permanent workers who work alongside them in the same site with same work scope (Bomel Limited, 2007). This has finally become a global issue in the labor market. Contractor companies who can manage the recruitment and labor coordination has entered into this business and has grown their channels aggressively. Even though contracted workers are working for different companies, they do not have any visible employer's representative on site to share their issues and concerns. More or less contractor companies are working as a virtual organization. This situation was foreseen by many countries and there were several proactive actions taken to mitigate this situation such as regulations. That is to bargain some actions against the factors accountable for the safety impacts of outsourcing (Manu et al., 2009). But unfortunately, there is no such impactful legal framework to safeguard the contractor's workers under the 1942 factories ordinance or under the 1985 shop and office act. Therefore, still the problem is growing in Sri Lanka without any solution for this important social issue.

Over several continents in the world, significant change has started on employment

classification over the traditional employer and employee relationship. There are several type of job categories such as temporary workers, seasonal workers, hourly workers, task specific workers and contract workers, created due to the corporate world requirement (Thorpe, Dainty & Hatfield, 2003)

Those areas driven by the market uncertainties, financial priorities, shareholder demands, regulatory changes, globalizations impact and the technological enhancements (Bielenski, 1999; Chiang, 2009). In the meantime, those categories giving vast flexibility for the companies to expand their thinking on business developments.

- Reduce labor cost that can give direct benefit for the production or service cost
- Less unionized activities that would work against the companies
- Task specific job focus
- Transferring the cost related to workers OH&S risk management
- Opportunity on Workman compensation cost avoidance
- High flexibility on the labor availability
- Ability to maintain high flexibility on changing the business model based on the market demands

(Wong and So, 2002).

When considering the logistics sector, over 70% of companies are small or medium scale organizations and a majority of them obtain work as contractors for larger group of companies. When looking at the financial benefits and the human resource management benefits out form the scope, contracting has lots of adverse effects such as unskilled or non-competent work crew, stick to the minimum legal wages, no bargaining power or union strength and very high job insecurity (Chiang, 2009). Companies are paying the contractors solely based on the pre-defined work scope under the contractual obligations. But there are several occupations that cannot operate as per the original plan due to various issues such as adverse environmental conditions, global pandemics such as COVID-19, etc. Contractors are faced with bankrupt situations in those type of

circumstance when they cannot performance the task as per the original plan. In that type of situations, very high adverse situations arise for contract workers.

Research by Harrison et al. (1989, 1993) in Australia on agriculture, transportation and telecommunication industry was identified that there is a link between outsourcing and high fatality rate among contracted workers. Following reports by Toscon (1994) and Blank in Sweden in Australia related outsourcing with negative OH&S consequences in construction, mining and agriculture. (Mayhew et al., 1997). There is similar situation which can be related to the logistics sector too.

1.2 Research Problem

There are significant challenges faced in managing the health and safety of contracted workers due to many reasons. In accordance with that, nowadays more concern has been raised to assign safety responsibilities to contractors instead of taking on the responsibility of safety by companies. Therefore, identifying the challenges with regard to outsourcing safety responsibilities has been a major need within the industries. As organizations, would like to have more flexibility, effectiveness, and productivity in terms of workforce employment, the number of outsource workers increases rapidly in modern organizations (Mitlacher, 2007; Slattery, Selvarajan, & Anderson, 2006).

When comparing contracted workers with permanent workers, the contract workers work arrangements are more on task based instead of making them onboard as an employee for that organizations. As a result contract workers feel the discrimination, high work stress, job insecurity, and isolation. Due to several competency factors, contracted workers are lack the risk perception. In meantime contractor companies are also neglecting their contract workers. Therefore, contracted workers are exposed to greater risk than the suitably monitored permanent workers (De Cuyper & De Witte, 2008).

Research available on the workers safety, mainly based permeant workers. On the other hand, very few researches had been done and completed on contract workers safety even in the developed countries (Mearns & Yule, 2009). Based on the level penetration of contracted working practices in the operational, manufacturing and service sector, this

need to consider as another key employment methodology even that is not appropriately taken into legal framework by the local regulations in Sri Lanka.

Therefore, this study is an attempt to conduct a systematic and comprehensive evaluation of the employee-organization relationship of contract workers in Sri Lanka. This research is focused on to measure the vulnerability of outsourced workers when compared permanent workers safety in the logistics sector. Since logistics sector have many verticals, this research is focused on logistics fulfillment centers, distribution centers and logistics hub operations. In this research, an attempt is made identify the risk faced in the logistics sector when considering the contracted work scopes.

1.3 Aim

The aim of this research is to identify the client challenges in outsourcing the responsibilities of health and safety to contracted companies in logistics industry in Sri Lanka.

1.4 Objectives

The main objectives of this project study are to:

1. Conduct literature review on outsourcing health and safety responsibility in logistics industry
2. Conduct situational analysis of outsourcing health and safety responsibility in logistics industry in Sri Lanka
3. Identify the challenges faced during outsourcing health and safety responsibility in logistics industry in Sri Lanka
4. Identify the strategies to minimize the challenges faced during outsourcing health and safety responsibility in logistics industry in Sri Lanka

1.5 Methodology

The methodology of this research is to understand the important stages of outsourcing services in logistics industry based on quantitative and qualitative approaches. Three key leaders in logistics industry in Sri Lanka were selected for the scope. The details

and incident statistics were collected from the company publications and annual reports. Further information was collected via structured focus group discussions from procurement and health and safety departments of logistics industries.

Information of contracted service providers was collected from individual unstructured interviews and questionnaires.

The information and data were analyzed based on the eight different factors that directly impacts on ensuing health and safety at ground level. Contributory factors related to managing of contractors and contract management were considered during collecting information and data.

Three main logistics companies within 15 sites and 50 service providers are considered as sample to analyze. The analysis is carried out using qualitative data analysis techniques and discussing common patterns of primary data.

Results from the data analysis are forwarded to the experts and discussed based on the key identified challengers in the research to validate and arrive at conclusions.

1.6 Scope and limitations

The study was conducted based on contractor companies that are related to logistics industry. The information and data consider in organizations that operates in Sri Lanka.

1.7 Structure of thesis

Chapter 1 - This chapter explains about the research study. It explains research problem, circumstantial of contracting, the objectives and significance of the study, limitation of the study and the structure of the research report.

Chapter 2 - The second chapter of the report consists of the literature review which on about the contractor safety and theoretical background about the research. These literature reviews were help to gain proper knowledge on the research problems and guidance.

Chapter 3 - This is about how the research is conducted. This chapter includes the project activities, the way that the project was conducted, data collection methods.

Chapter 4 - This chapter comprises the presentation and analysis of the data obtained through the questionnaire.

Chapter 5 - In this chapter, project reports are recapped of the entire research, research finding, overall conclusion of the project, problem identification and, finally the recommendations.

CHAPTER 2 LITERATURE REVIEW

2.1 The Role of Contractor

The contractor is a main stakeholder who is responsible to manage OH&S at sites. Outsourcing of the logistic works at the logistic site is conduct with the consent of the contractor. Therefore, the contractor has the responsibility to maintain OH&S of the workers. The contractor should take the control measures of human errors. The contractor should take some measures to reduce the human errors and prevent the accidents (Adeogun and Okafor, 2013). There are several reasons for human errors such as, safety measures taken do not reach to the designated position, unreasonable arrangement of the workplace design and the time of working and little or no attention given by the contractor of the physiological and psychological factors, lack of training, improper management of the system and the social environment (Belel & Mahmud, 2012).

The top most critical factors which lead to human errors are fatigue and work stress. This can be categorized into two segments such as engaging in the work which is non-interest and boring and the reduction of the sense of urgency and the education are highly affecting to cause the human errors. In order to increase the efficiency of the contractor, most of the time, the unrealistic targets are formulated (Blaikie, et al., 2014). Therefore, the contract workers do not receive a rest time. quantitatively and qualitatively overloading of the workers by the contractor is resulting for OH&S issues. When the work load of the contract workers increases, alertness and the focus of the worker decreases due to fatigue. Continued fatigue of the worker leads to human error which may cause serious of accidents. Therefore, the contractor has the responsibility to overcome such situations (Datta, 2000).

Device qualitative factor associate with the contractor effects on the OH&S issues. In some cases, the work type five to the contractor may not be suitable according to his capabilities and the interest. Contractor does not conduct the career adoptability examinations before the work. Therefore, the contracted workers under the contractor is facing the practical difficulties when they handle the work and the mistakes by the contracted workers then increased. It is causing the accidents (Chandrasekar, 2011).

When the jobs are arranging with related to the disease formation, it is important to consider about the avoiding of the positioning which are affecting on the health of the contracted workers. Further, the contractor should consider about the physical factors, physiological factors and the psychological factors when the staff is to be employed in the logistic industry (Tam et al., 2005).

It is the responsibility of the contractor to consider about the biological factor of the contracted workers. In 1986, there was an association named as Association of Professional Sleep Societies was formed to investigate the role of human sleep and the brain clocks and the relationship between the human errors. As for the Association of Professional Sleep Societies, the human errors occur due to the low alertness, low intention and delayed reactions due to active and the sleep related process. Due to the biological clock of the people, the alertness of people to night is lower than the alertness of people in daytime. Therefore, the wrong operations are leading to the accidents and it can easily cause the fatal accidents (Datta, 2000).

When taking into consideration about the logistic industry in Sri Lanka,, on site work hours are extended to mid night and the contracted worker force is expected to go to their residencies and to return to work in the following morning. In that scenario, the workers do not get sufficient sleep and rest time prior to their next shift and that can cause accidents. Further, the lodging facilities provided to them are with the minimum facilities. Hence, the physiological and the psychological factors were also considered as issues. Therefore, it is the responsibility of the contractor to consider these important factors when the workers are employed to the site (Diugwu and Egila, 2002).

The contractor should be able to understand the environmental factors that can impact on the OH&S conditions of the contracted workers. The intensity of noise, poor lighting at the site, high temperature, high humidity, unventilated places and the places exposed to dust and position can cause health issues. Further, these factors are differently affecting on the psychology and the physiology of the contracted workers. Hence that, there is a more frequency of causing accidents by the contracted workers. Therefore, the contractor should pay attention these factors (Dodo, 2014).

The contractor should understand about the family environment factors of the contracted workers as well. In some cases, there are old employees and child employees. In most of the times, the contracted workers working at the sites have family burden to bear up. Such family issues result in lack of concentration at the workplace. Therefore, the accidents can happen. Hence, the contractor should understand the family issues of the contracted workers and necessary precautions should be taken to improve the mental wellbeing of the contracted workers to overcome OH&S issues at the logistic site (Ezenwa, 2001).

Poor decision making may result in to create an unsafe condition in logistic site. When the contractor's side is not capable enough to manage the value of decision making, when there is an imperfect system of decision making it is difficult to create a good safety culture atmosphere at the logistic site (Fargione, et al., 2008). Hence that, the labors at the logistic industry do not feel safety in deep and their safety consciousness is relatively low. It can be seen that the safety training has not reached to the designated position. Most of the contractors do not follow the regulations in establishing the training programs and the appraisal systems. Further, the contractors do not insist on the principle of duty after training. Therefore, the contracted workers are having a low level of operation skills and the knowledge on safety technical and the safety consciousness. In Sri Lankan logistic industry, the contracted worker contractors are supposed to provide contracted worker to companies with the minimum cost. Therefore, the contractors cut the overhead for OH&S which is negatively affecting on the OH&S practices at the site (Gambatese, et al., 2008).

The contractor has the responsibility to handle the safety training or the operation skill training in an effective manner. In most cases, the worker of the contractor does not take the right attitude for safety training and make the best use of the knowledge of safety given to maximize the of safety of self and others around them. There are several wrong safety managements in OH&S. Most of the contract companies have only made the safety work as a slogan and they have taken the interest of the other parties. However, there is no actual safety practices at the sites. The contracted worker contracting companies always consider about the benefits they can receive out of the project. Hence, the safety management at the site is in a poor standard and e safety systems are not

followed perfectly by them (Gunningham, 2008). Further, the enforcement of the safety systems is at a low level. At the same time, the quality of the safety management of the staff of the contracting companies are at a primitive level. Few of the first liner managers of the contracting companies have the direct duties to safety management. However, most of the staff of the contracting companies do not have the direct duties to safety management. Basically, the staff of the contracting companies do not study about the safety operations. Therefore, there is an issue of giving commands to the ground workers to manage safety at the workplace. In most of the contracting companies, the responsibility of safety management is unclear. Various aspects of the safety practices at the workplace have no responsible person to respond. There is the lack of operational accountability of the safety management systems of the contract companies. Therefore, it is the responsibility of the Contractor to take necessary actions to overcome these issues related to safety management at the site and at the workplace (Hamid, et al., 2008).

2.2 Contracted worker vs Permanent worker

Sri Lankan logistic industry has employed different categories of contracted workers such as skilled contracted workers, unskilled contracted workers, contracted workers and direct contracted workers. The skilled contracted workers and unskilled contracted workers show different level of accident rates due to their experience in the industry. At the same time, the contracted worker and the Permanent workers too indicate different level of accident rates (Hasan, 2011). The contracted workers are the workers who are outsourced by the contractor. Therefore, the bond between the contractor and the sub-contractor contracted worker is weak. At the same time, the responsibility of the contracted worker towards the safety practice at the site is also less. Due to that, the contracted workers show negligence of the safety practices at the sites which has impacted on the increase of the accident rate. However, the direct contracted workers are working under the contractor. The direct contracted workers have the experience on the site. The direct contracted workers have a direct relationship to the contractor. Therefore, the contractor shows special attention to the work of direct contracted worker. Due to that, the accidents that occur for Permanent workers are less than the

contracted worker. However, all the contracted workers should be provided equal training on OH&S in order to enhance site safety (Idoro, 2008).

2.3 Accident Rate of Contracted worker vs Permanent worker

According to the analysis done of logistics industry, the human factors such as worker's age, experience of the workers, job dissatisfaction, job uncertainty, under payment and work overload are affecting to cause the accidents in the industry (Idubor and Oisamoje, 2013).

In Sri Lanka, the retirement age of the employees are different for the private sector and public sector. In the public sector, the retirement age is 60 and in private sector, the retirement age is 55. The employees who are older with many years' experience on the job has the ability to identify the hazardous situations in an effective manner when compared with the young employees (ILO, 2006). Therefore, the long-term experiences employees who are considered as the skilled employees are having a low level of risk of exposing to accidents. The age is having a relationship between the injuries at work. The investigations have disclosed that there is a significant difference between the accidents taking place for the younger employees and the older employees. The rate of injuries for the younger employees are higher than the rate of injuries for the middle age employees. The employees in the age group of 28 to 47 have faced the highest level of accidents. Therefore, the frequency of accidents happening to the younger employees is higher than the frequency of accidents happening to the older employees (Islam, 2016).

According to a survey, there is a relationship between the accidents rate and the age of workers. The findings have proved that the younger employees are more likely to have the accidents rather than the older employees. Therefore, a conclusion can be made that the younger employees with less experience in the working environment cause more accidental damages rather than the older employees (Kalejaiye, 2013). The older workers show low accident rate because of the high experience of them, maturity at work and the mindfulness of workplace hazards. At the same time, it can be said that the older workers are having high accident rate due to growing carelessness at workplace, deteriorating reflexes, hearing and vision. When the older workers have less accident rate, the younger workers have high accident rate because of reckless and

dangerous jobs they are carry out at logistic sites. At the same time, it can be said that the younger workers have less accident rate because they are less exposed to the dangerous jobs (Islam, 2016).

According to the data collected in Bureau of Contracted worker Statistics Data System, the young workers show low accidents rate whereas older workers show high rate of accidents. The accident rate of workers drops steadily after age of 64. The positive effect of experience at the workplace encourages the training for new workers and reduce the accidents at the workplace (ILO, 2016).

Experience of the workers has a relationship between the work injuries. The experience is representing the amount of time that the worker engaged in the workplace. The total experience of a skilled or an unskilled labor in the logistic industry is the total job experience which he has gained in the industry. Hence, it can be argued that the experience is having a positive relationship with injury. The employees with higher experience in the industry are generally assigned to jobs which require skills, potential risk and responsibility. There is a strong relationship between the job experience and the accident rate. Therefore, the skilled contracted workers and unskilled contracted workers in the logistic industry have different accident rates. According to previous studies it was identified that the unskilled contracted workers have a high accident rate compared to skilled contracted workers (Idubor and Oisamoje, 2013).

2.4 OH&S Management Practices of Contractors

As for above, there are various reasons for OH&S issues in logistic sites. The low level of responsibilities fulfilled by the Contract is one of the major reasons for OH&S issues. Therefore, OH&S management practices are vital for the Contractor to overcome OH&S challenges. Under OH&S management practices of Contractor, taking the measures to manage the human errors is an important factor (Idoro, 2008).

Improving staff safety knowledge and skills is one of the main management practices of the Contractor to be done in order to overcome OH&S issues. It is a fundamental for the contractor to promote the independent security capabilities and safety consciousness for the employee. Training and education are essential for an organization.

Implementation of various training methods on OH&S is supportive to improve knowledge and practices of OH&S of the workers. The training methods can be categorized according to different levels of workers (Hasan, 2011). Further, flexible methods can be adopted to improve safety education. The operation skills of the employees should be improved through safety knowledge education. It is helps staff to master operation procedures. However, educating about safety and improving operational skills on safety is a long-term process. Therefore, effective training should be given for the employees to enhance the safety awareness level. In Sri Lanka logistic industry, this gap of educational learning on OH&S can be identified. Therefore, the Contractor should adhere into OH&S management practices (Hamid, et al., 2008).

The Contractor can establish different reward systems, standards for the safety operation procedure that can be linked with the production, the salary of staff, the performances and promotions. The objective of offering the rewards and punishments is to improve the OH&S performances while creating a safe organizational culture (Gunningham, 2008).

Leadership has a very important role to play in safety management. At the same time, leadership should be critical in safety management. When the leadership adhere and follow safety at workplace, it makes employees aware of safety at the workplace. Therefore, the managers at the contractor's companies should take the initiatives to adopt to solid OH&S practices, in usual work place, the managers should follow OH&S practices while taking the measures to overcome OH&S issues. It is helps to guide the employees towards safety practices while overcoming human errors which otherwise can lead to accidents at the workplace (Gambatese, et al., 2008).

Creating a safe culture is a management action of contractor which can be taken to the enhance OH&S at workplace. A favorable safety organizational culture should be created while investing on the safety facilities. The safety production activities should be conducted at the workplace in order to create a safe culture (Fargione, et al., 2008).

Workers' enthusiasm on safety should be promoted by the contractor. Paying attention to psychological activities of employees, development of education mode for employees, and consider about the lives of employees and create a pleasant mood every

day for employees is important. Further, the contractor should pay attention on safe psychology. Employees should be trained to improve elementary knowledge of safety and security of the psychological quality. The employees should make to engage in normal state of mind and with emotional stability (Ezenwa, 2001).

In contracting companies, the employer had taken measures to protect health of employees. There are different projects conducted by the contracting companies based on the personality and the physiological quality of employees. The body check test is conducted to identify the suitable health condition of the labors to work in logistics sites based on the nature of the operation, such as fertilizer operation, pesticide operation or general Fast-Moving Consumer Goods (FMCG) operations. The labors who climb heights must be checked for their blood pressure and heart diseases. The workers who are in powder form material packing or doing value added services must be tested for respiratory diseases. Testing on health conditions of labors is important to overcome OH&S issues at the workplace (Dodo, 2014).

A reasonable design of the workplace to guarantee a good work environment is another management practice of the contractor to manage OH&S at the workplace. “5S management” which came from Japanese companies have been implemented at workplaces to manage OH&S. Improvement of efficiency, quality, safety and cleaning of workplace are the fundamental activities to be done under this management system. It is supportive to provide a safe and comfortable working environment (Diugwu and Egila, 2012).

Another OH&S management practice of the contractor at workplace is the protection of workers exposing to biological hazards. The contractor should take measures to prevent the workers expose to biological hazards. When the protections are not reasonably practicable, it is important to take measures to reduce the risk to an acceptable level. Implementation of control measures is helpful in introducing the risk of exposure to biological agents and hazards. The operation skills of employees should be improved through safety knowledge education. It is helpful for staff mastering of operation procedures. Learning about safety is supportive to enhance the safety awareness (Datta, 2000).

Personal training is important to enhance the OH&S practices at the workplace. Providing adequate training to employees should be done by the contractor and it is an important method of preventing the infection diseases among the workers. Learning about safety is supportive to enhance the safety awareness. However, education of safety and improvement of operation skills on safety is a long-term process. Therefore, effective training should be given for the employees to enhance the safety awareness level. In Sri Lankan logistic industry, this gap of educational learning on OH&S can be identified. Therefore, the contractor should adhere into OH&S management practices (Tam et al., 2005).

The control measures should be taken on training and awareness programs, close supervision and providing workers with Personal Protective Equipment (PPE) are helpful to overcome OH&S issues at the workplaces. The contractor should allocate overheads for OH&S management at the workplace and at logistic site which are important to enhance OH&S performances while overcoming the injuries and accidents taking place at workplace (Chandrasekar, 2011).

2.5 Reasons for Creating a Contracted Culture

The theoretical framework for the safety culture is generally underdeveloped and it is the reason to speak less on the safety culture in the logistic industry. Further, the link between the safety culture and the organizational culture is weak. Therefore, there is no widely accepted safety culture or there is no proper way of defining safety culture of the organization. Therefore, there is a vague nature for the safety culture of the organization and it is not easy to make changes. One of the easiest ways of introduce the safety culture to the organization is by making a more general concepts to the organizational culture. The safety culture can be understood as part of the organizational culture which can influence the attitudes and behaviors of the workers and the impact level of the organizational safety (Belel & Mahmud, 2012).

The organizational culture is a pattern of shared basic assumptions among the group and solved issues are external adopted while integrated internally. At the same time, the basic assumptions of the organizational culture are not readily observable and they are

unconscious and therefore, it is difficult to measure them. The organizational culture is believed to be the sources of values and the actions. The assumptions in developing the organizational culture should be understood. However, basic assumptions in developing the organizational culture is not an easy task. There are two cultural layers which are core. Accessible and visible. The organizational culture can be changed intentionally (Blaikie, et al., 2013). The right circumstances and the right initiatives are affecting on the changes making on the organizational culture. Reduction of anxiety through stabilizing force is helpful for people to act, think and feel the situation. The sense of culture is a learned defense mechanism against the change and uncertainty. Therefore, cultural change is important to motivate the changes. The cultural changes can be supportive in creating the contracted safety culture at workplace (Belel & Mahmud, 2012). If the cultural changes are not taking place effectively, it is negatively affecting on the satisfaction level of employees and there will be issues associate with the basic assumptions of the organizational culture. A deep organizational cultural change requires to have a double loop learning rather than having a single loop learning. Having a single loop learning is only change the outer layer of the culture. Maintaining a health and safety culture is a system of sharing the values and beliefs while making important health and safety practices at workplace. Safety attitudes at the organization are important to be managed from the top level to the bottom level of the management which has a direct impact on creating a contracted OH&S organizational culture (Adeogun and Okafor, 2013).

2.6 Challenges on Subcontracting Safety Roles

There are several issues come up in the process of subcontracting the safety roles in the logistic industry. The outsourcing of the contractors in Sri Lankan logistic industry is having a high rate of accidents. Further, it has identified that the most of the accidents occur among the outsourced workers. The first reason for the high rate of accidents that cause in outsourcing is the poor safety culture among the contract employees and the employers. Hence that, development of a subcontracting safety culture is important to overcome the accidents that cause in outsourcing the logistic works (Belel & Mahmud, 2012).

The second reason to outsource safety issues is the task-oriented approach in the logistic industry. It is difficult to overcome the task-oriented nature of the logistic industry. Hence, workers in the logistic industry have to work hard to complete the tasks rather than following safety practices. It leads to increase the accident rate in logistic industry. Therefore, changing the task-oriented approach of the logistic industry is important in overcoming the challenges on subcontracting safety roles (Blaikie, et al., 2012).

Another challenge on subcontracting safety roles in the logistic industry is the poor skill and competency level of the contracted worker working in the logistic industry of Sri Lanka. Consider about the logistic industry of Sri Lanka, the skilled contracted worker rate is less than the unskilled contracted worker rate. As for the above description, the accident rate of the unskilled contracted worker is higher than the accident rate of unskilled contracted worker. Therefore, reducing the poor skill level and increasing the competency level are important in developing a safety subcontracting culture in the logistic industry of Sri Lanka (Datta, 2000)

Improper tools and equipment usage by contractor is another challenge in creating a contracted safety culture. Most of the contractors in the logistic industry are using the substandard tools and equipment which can cause the injuries. Proper standardization of the tools and equipment usage in the logistic industry is important increasing a contracted safety culture in the logistic industry (Chandrasekar, 2011).

Further, the PPE is using in the logistic industry of Sri Lanka is not efficient and not sufficient enough to overcome the accidents. Hence that, most of the contracted workers working in the logistic industry are facing the injuries. This is a challenge in creating a subcontracting safety culture in the logistic industry. When it is to create a subcontracting safety culture in the logistic industry, it is important to provide suitable and sufficient PPE for the contracted workers of the logistic industry (Tam et al., 2005).

Conducting job observations is important to enhance the performances of the workers in the logistic industry. When the job observations are conducting effectively, it is supportive to identify the OH&S issues in the logistic sites. However, improper conduct of the job observations in most of the logistic sites of Sri Lanka has affected negatively

on OH&S performances. This is a major challenge in creating OH&S culture at the workplace (Datta, 2000).

In Sri Lanka, there is a least focus on conducting skill development programs for skilled and unskilled employees of the logistic industry. Training is important to be handled in the logistic industry in order to enhance the performances of the employees. Training is no only supportive to enhance the skills of the workers. The training is important to improve the knowledge level of the workers. Therefore, conducting effective training programs is important to improve OH&S performances of the workers. However, having a culture which is not focusing on the skill development programs is a challenge in creating a subcontracting safety culture in the logistic industry. Therefore, overcoming this challenge is important in order to develop a subcontracting safety culture in the logistic industry of Sri Lanka (Diugwu and Egila, 2012).

Though OH&S practices are important to overcome the accident rate in the logistic industry, the government bodies have less focus on the OH&S practices in the logistic industry. The standard documents related to OH&S practices of the logistic industry in Sri Lanka are old publications and they have not updated as per the new environmental conditions in the logistic industry. It clearly indicates that there is no proper focus of governmental authorities on OH&S practices. Hence, development of the subcontracting safety culture in the logistic industry is difficult (Gunningham, 2008).

The employment rate of the young workers in logistic industry of Sri Lanka is high. There are positive outcomes as well as negative outcomes of employing the younger workers in the logistic industry. The young workers have the strength to complete the tasks effectively. The performance level of young workers are higher than the performance level of the older workers. Therefore, the young workers can handle the work pressure during day or night. At the same time, young workers lack work experience. Therefore, young workers lack knowledge about the activity and about the work environment. As a result, they tend to get more prone to accidents (Hasan, 2011). The accident rate of the young workers are higher than older workers. According to a survey, there is a relationship between the accidents rate and the age of workers. The findings have proved that the younger employees are more likely to have the accidents

rather than the older employees. Therefore, a conclusion can be made that the younger employees with less experience in the working environment cause more accidents and damage to property when compared to older employees. The older workers show less accident rate due to the fact that they are more experienced, their maturity and their mindfulness of workplace hazards. At the same time, it can be said that the older workers are having high accident rate due to growing the carelessness at workplace, over confidence, declining reflexes, hearing and vision. When the older workers have less accident rate, the younger workers have high accident rate because of reckless and dangerous jobs they are conducting at the logistic sites. At the same time, it can be said that the younger workers have less accident rate because they are less exposure to the dangerous jobs (Idoro, 2008).

The job uncertainty is another challenge faced when creating a subcontracting safety culture in the logistic industry. With the Covid 19 impact, the uncertainty of jobs in the logistic industry has increased further (Daily News, 2020). Hence, the employers care less about OH&S. The overheads that the employers have allocated for OH&S is less in order to maintain the loss they have to bear due to job uncertainties. However, this is a challenge in creating a subcontracting safety culture in the logistic industry (Idubor and Oisamoje, 2012).

There are unskilled workers and the contract workers who are less paid when compared to the permanent workers. The contract workers have less responsibility towards the management of the logistic site safety. When they are not paid appropriately, they are not motivated to manage OH&S at the logistic site. Hence, the accident rate of contract workers are increasing which is creating a challenge in subcontracting the safety culture in the logistic site. Therefore, overcoming the payment disparity between the contracted worker s and the Permanent workers in the logistic industry is important to overcome the challenge in creating a subcontracting safety culture (ILO, 2006).

The logistic industry of Sri Lanka has poor working conditions due to improper technology usage, improper logistic technique usage, improper site management and inspection and improper adherence to OH&S practices. Hence, it is a challenge to develop a better safety culture in the logistic industry of Sri Lanka. There is an improper

tools and equipment usage in the logistic industry of Sri Lanka which is creating safety issues. Overcoming this challenge is important in creating safety culture (Islam, 2016).

Further, it is a challenge in developing a subcontracting safety culture in the logistic industry of Sri Lanka due to poor welfare practices and medical facilities. Hence, improvement of the welfare facilities and the medical facilities in the logistic industry is important in enhancing the health and safety culture in the logistic industry of Sri Lanka (Kalejaiye, 2013).

CHAPTER 3 - RESEARCH METHODOLOGY

3.1 Introduction

This research aims to study the challenges on outsourcing health and safety responsibility in logistics industry. This chapter presents the research methodology adopted in this study to achieve the aforementioned aim and objectives. Qualitative and quantitative approaches were used in the research methodology. This chapter examined the study setting, research approach and research process. Data collection and analysis methods are elaborated at the end of this chapter.

3.2 Study Setting

This study is focused on challenges of outsourcing health and safety responsibility in logistics industry, which are undertaken by large scale logistic companies in Sri Lanka.

3.3 Research Approach

Research approaches are defined in three categories, which includes: (a) quantitative, (b) qualitative and (c) mixed method approach (McCusker & Gunaydin, 2015). Each and every research approach has its own advantages and disadvantages.

Quantitative research is defined the method of collecting numerical information which allows to use mathematical, statistical or any other computational approach to analyze and interpret the information by using collected data (Muijs, 2010). Possibility to deal with larger sample sizes within relatively lesser time period for data collection are few advantages of quantitative research (Rahman, 2017; McCusker & Gunaydin, 2015).

Pathak and Kalra (2013) stated that qualitative research approach involves gathering and analyzing non-numerical information. Qualitative research approaches are currently employed in a variety of research sectors to understand human experience on a variety of research questions. Most common methods of qualitative research consisted of focus group discussions, interviews, surveys and recording observations of what a researcher

has observed or heard. Ability to record feelings and perceptions, eliciting deeper insights into designing, and understanding are main advantages of qualitative research while small sample size and time-consuming nature are some of the main disadvantages (Rahman, 2017; McCusker & Gunaydin, 2015).

In the 'Mixed method' research approach, researchers collect and analyses both quantitative and qualitative information (Schoonenboom & Johnson, 2017). The mixed methods approach is suitable for research designs where quantitative or qualitative methods alone could not answer the research question. Advantages and disadvantages of mixed methods have been already discussed in the above section, separately as quantitative and qualitative components.

This research study has focused on collecting both qualitative and quantitative data. It has collected data related to the creation of a subcontracting culture while identifying the challenges related to health and safety responsibilities of service providers. Further, the primary data related to the contractor safety management modules and comparison of the modules specific to countries have been explored under the study. Statistical data have been collected from the publications and the annual reports of three key leading logistics companies of Sri Lanka. Further, structured focus group discussions among the management staff of Procurement and Health and Safety Departments of logistic industries have been conducted to collect qualitative and primary data. Individual unstructured interviews and questionnaires was conducted among the contracted services providers to collect primary data. Exploratory research design as applied under the study to collect data, analyze data and develop the conclusions effectively.

3.4 Research Process

Research process consists mainly of seven sections as demonstrated in Figure 3.1. These sections include identification of the research problem, establish aim and objectives, define scopes and limitations, comprehensive literature review, Step 1 - preliminary survey, Step 2 - questionnaire survey and Step 03 - expert interviews and offer conclusions and recommendations.

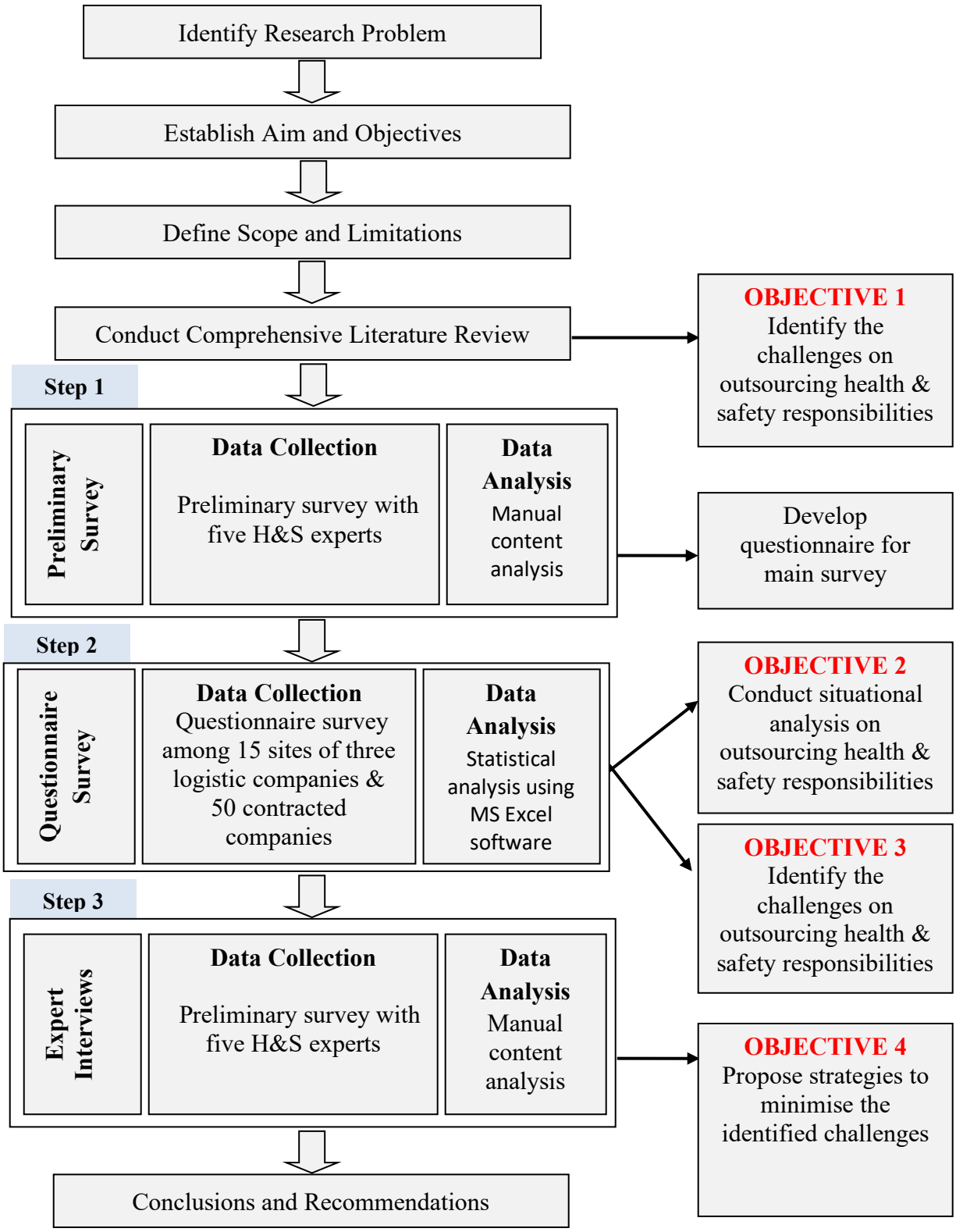


Figure 3.1: Research Process

3.4.1 Literature review

A comprehensive literature review was carried out by reviewing journal papers, conference articles, books, official reports and web sites to identify the challenges on outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka. The first objective was achieved as a result of the literature review.

3.4.2 Data collection method

This research followed three steps for data collection as mentioned below.

3.4.2.1 Step 1 - Preliminary survey

Based on the literature findings and the researcher's experience in working as the OH&S expert in logistic industry, a questionnaire for data collection was developed (refer Appendix 1). This questionnaire was developed to examine situations of outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka. The preliminary survey has then circulated among five OH&S experts in logistic industry to obtain their insights and recommendations in order to refine and further develop the questionnaire to suit to the Sri Lankan logistic industry.

3.4.2.2 Step 2 - Questionnaire survey

Following the comments and recommendations from the experts, the questionnaire survey was refined and further developed to reflect the recommendations provided by the experts (refer Appendix 2). This questionnaire included general information about the logistic company, current health and safety situation of logistic companies and the outsourcing health & safety responsibilities to contracted companies in logistics industry. This final questionnaire was then distributed among among15 sites of three logistic companies & 60 contracted companies. Fifty out of sixty returned the filled questionnaires back to the researcher.

3.4.2.3 Step 3 - Expert interviews

Questionnaire survey findings in Step 2, that is the challenges faced in on outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka were circulated among five OH&S experts to identify the strategies to overcome those challenges during Step 3 of this study. OH&S experts who contributed during Step 1 were involved in Step 3 data collection.

3.5 Study Population and Sampling Method

The current study consisted with five H&S experts, 15 sites of three logistic companies & 50 contracted companies to identify the challenges on outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka. Purposive sampling technique was used in selecting the sample for data collection.

3.6 Data Analysis

Data analysis means the researchers convert collected data into meaningful information (Mertens, 2017). After collecting the data, data analysis was carried out in three steps as follows.

3.6.1 Step 1 - Preliminary survey data analysis

Data collected through the preliminary survey were analyzed using manual content analysis. The questionnaire survey instrument was further refined and finalized based on the preliminary survey findings.

3.6.2 Step 2 - Questionnaire survey data analysis

MS Excel software was used for analysis the data collected through the questionnaire survey. Further, percentages were calculated and bar charts and pie charts were used to graphically present the collected categorical data. Moreover, tables were also used to demonstrate counts and percentages. The present situation outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka and the

challenges faced by them as the result of outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka

3.6.3 Step 3 - Expert interview

The date collected through the expert interviews were analyzed using manual content analysis and as the results of analysis, the strategies to overcome challenges which had faced on outsourcing health and safety responsibility in logistics industry

3.7 Chapter Summary

This chapter explained the research methodology which is used for the study. Furthermore, it explained the steps involved in the process of the study in order to accomplish the aim. To achieve the objectives of the research, mixed-method research approach was chosen and data collection was carried out under three steps. Preliminary survey, questionnaire survey and expert interviews were used to collect data in three stages respectively and statistical analysis and content analysis were identified as the methods to analyse the data collected during three steps.

CHAPTER 4: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

In this chapter is presented research findings which were collected through structured focused discussions, interviews and questionnaires. The main intention of the research findings were to identify the relationships and the correlations between the outsourcing culture of health and safety for service providers in the logistic industry and the susceptibility of the accidents. The trends of the accidents that are causing to the contracted workers in the logistic industry have been analyzed with reference to age of contracted workers, education level of contracted workers, health and safety related knowledge and the behavioral factors of labors.

4.2 Accident Analysis of Outsource Contracted workers and Permanent workers

According to the data collected from three leading logistic companies which are known as A, B and C under the research study, the injuries took place for outsourced contracted workers and Permanent workers are in different percentages. Table 4.1 given below represents the percentage of the outsource employees who were injured during the operation at logistic sites of these three companies.

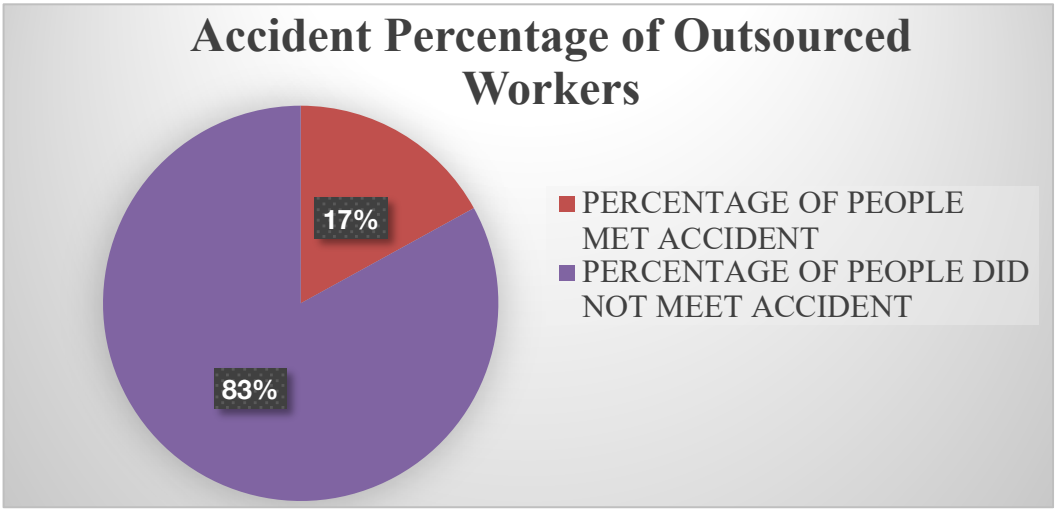
Table 4.1: Accident Statistics 2020 of Outsource Contracted worker at Logistic Sites

No	Site	Fatal	Permanent disablements	Lost time injury/ Medical Treatment incidents	Minor first aid/	Total	Total Workers	Accident %
Logistic Company A								
1	Site A1	0	0	3	18	21	182	12%
2	Site A2	0	0	0	6	6	42	14%
3	Site A3	0	2	19	22	41	587	7%
4	Site A4	0	1	8	38	47	402	12%
5	Site A5	0	0	2	12	14	38	37%
Logistic Company B								

6	Site B1	0	0	1	4	5	15	33%
7	Site B2	0	0	5	20	25	85	29%
8	Site B3	0	1	5	26	32	209	15%
9	Site B4	1	1	4	18	24	56	43%
10	Site B5	0	0	6	31	37	101	37%
Logistic Company C								
11	Site C1	0	0	12	31	43	201	21%
12	Site C2	0	2	12	16	30	107	28%
13	Site C3	0	0	10	13	23	105	22%
14	Site C4	0	1	15	29	45	182	25%
15	Site C5	0	0	10	22	32	123	26%
	Total	1	8	112	306	425	2435	17%

The above table indicated that only one outsource contracted worker has met with a fatal accident. However, 8 outsourced contracted workers have met with accidents coursing permanent disabilities. Further, 112 outsource contracted workers have met with the accidents causing lost time injuries and 306 outsourced contracted workers have met with minor first aid treatment industries.

Figure 4.1 given below indicates the percentage of outsourced contracted worker met with accidents and the percentage of outsourced contracted worker did not met with



accidents in 2020.

Figure 4.1: Accident percentage of outsource contracted workers in 2020

According figure 4.1 and table4.1, considerable number of outsourced contracted workers have met with accidents. 17% of total outsourced contracted workers of all three companies of A, B and C have met with accidents. It is important to manage the rate of accidents.

Table 4.2: Accident rate 2020 of outsourced contracted worker

	Logistic Company A	Logistic Company B	Logistic Company C
Accident rate %	10.31	26.39	24.09

When comparing the logistics company A, B & C, Company C outsourced contracted worker accident rate is significantly high compare to the other 2 companies.

Table 4.3: Accident Statistics 2020 of Permanent worker at Logistic Sites of Company A, B and C

No	Site	Fatal	Permanent disablements	Lost time injury/ Medical Treatment incidents	Minor first aid/	Total	Total Workers	Accident %
Logistic Company A								
1	Site A1	0	0	1	2	3	35	9%
2	Site A2	0	0	0	0	0	3	0%
3	Site A3	0	0	1	5	6	84	7%
4	Site A4	0	0	0	2	2	40	5%
5	Site A5	0	0	0	0	0	3	0%
Logistic Company B								

6	Site B1	0	0	0	0	0	4	0%
7	Site B2	0	0	0	1	1	5	20%
8	Site B3	0	0	1	1	2	22	9%
9	Site B4	0	0	0	1	1	10	10%
10	Site B5	0	0	0	1	1	15	7%
Logistic Company C								
11	Site C1	0	0	0	2	2	30	7%
12	Site C2	0	0	0	2	2	25	8%
13	Site C3	0	0	0	1	1	27	4%
14	Site C4	0	0	1	2	3	35	9%
15	Site C5	0	0	1	1	2	15	13%
	Total	0	0	5	21	26	353	7%

According to Table 4.3, no any Permanent worker has met with fatal accidents and there are no any Permanent workers have met with accidents coursing permanent disabilities. Further, 5 Permanent workers have met with the accidents causing lost time injuries and 21 Permanent workers have met with minor first aid treatment industries. Considering about the number of outsourced contracted workers met with the accidents at logistic sites and the number of Permanent workers met with accidents, it can be seen that there is a huge difference between the number of outsourced contracted workers and Permanent workers met with accidents. It is indicating that the outsourced contracted workers parentage of causing accidents is higher than the percentage of Permanent workers meeting with accidents.

Figure 4.2 given below indicates the percentage of Permanent worker met with accidents in 2020.

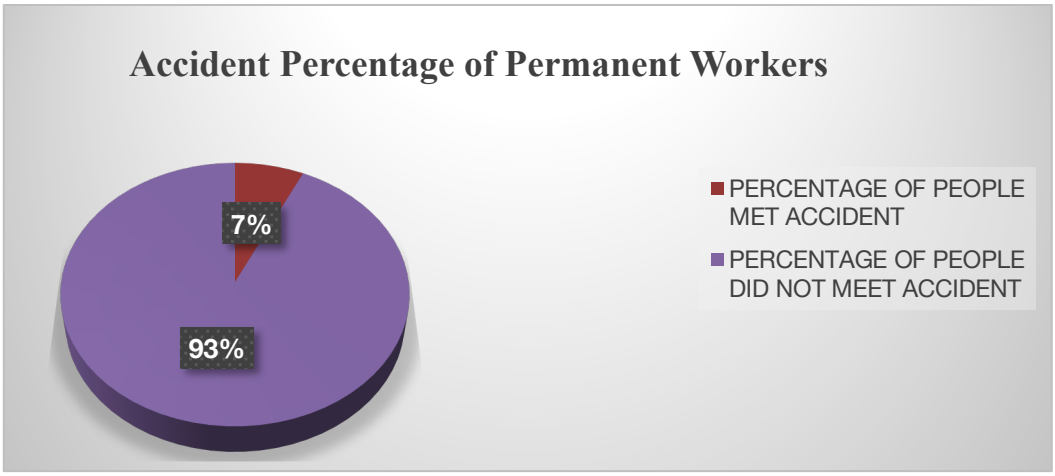


Figure 4.2: Accident Percentage of Permanent workers in 2020

According to the figure 4.2, only 7% of the total Permanent workers working in all logistic sites of A, B and C companies have met with accidents. It is less than the percentage of outsourced contracted workers who met with accidents at same logistic sites.

Table 4.4: Accident rate 2020 of Permanent Workers at Logistic Sites of Company A, B and C

	Logistic Company A	Logistic Company B	Logistic Company C
Accident rate %	6.67	8.93	7.58

When comparing the Logistics company A, B &C, Company A Permanent employees accident rate is low compare to the other 2 companies.

When considering the accident rate of all 3 organizations, Logistics Company C demonstrate high accident rate compare to the other 2 companies. When the percentage of accidents of outsourced contracted workers and non-accidents for outsourced contracted workers is taken as a ratio it can be expressed as 5:1. When the percentage of accidents of Permanent workers and non-accidents for Permanent workers is taken as a ratio it can be expressed as 13:1. It can be seen that the rate of accidents causing to

outsourced contracted worker is higher than the rate of accidents causing to Permanent workers.

4.3 Accident categories based on permanent and outsourced workers

Based on data collected from structured focus discussions and interviews as well as from the publications and annual reports of logistic companies, following categories of accidents of outsource contracted workers can be identified.

Table 4.5: Accident Statistics of Outsourced Contracted workers Based on Logistic Sites of A, B and C Companies

No	Site	Working at height related	Moving machinery related	Ergonomics related	Others	Total
Logistic Company A						
1	Site A1	12	4	6	2	24
2	Site A2	2	2	1	1	6
3	Site A3	22	20	2	3	47
4	Site A4	14	25	5	5	49
5	Site A5	7	4	1	2	14
Logistic Company B						
6	Site B1	1	1	2	1	5
7	Site B2	13	5	4	4	26
8	Site B3	15	8	6	5	34
9	Site B4	13	9	1	2	25
10	Site B5	19	9	5	5	38
Logistic Company C						
11	Site C1	23	10	9	3	45

12	Site C2	23	2	1	6	32
13	Site C3	9	6	8	1	24
14	Site C4	29	10	8	1	48
15	Site C5	9	15	4	6	34
Total		211	130	63	47	451
Percentage		47%	29%	14%	10%	

The percentage of the accidents related to outsource contracted workers can be shown in the figure 4.3 given below.

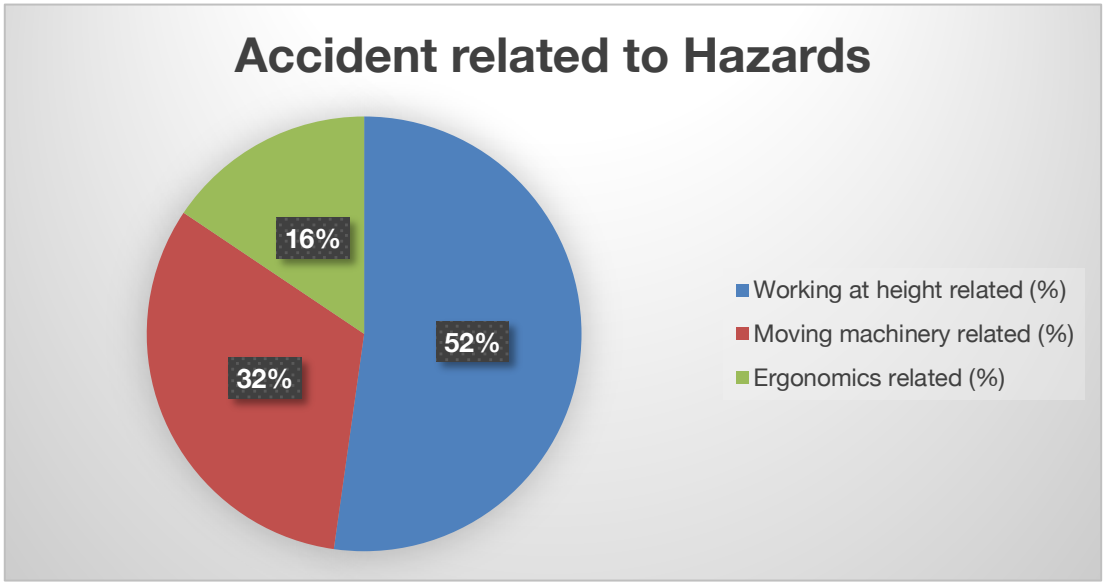


Figure 4.3: Categories of Accidents Related to Outsourced Contracted workers

According to the Table 4.5 and the Figure 4.3, it can be seen that highest percentage of accidents caused to outsourced contracted workers are related to working at height. The percentage of accidents related to working at heights is 47%. Next, the highest percentages of accidents of outsourced contracted workers were related to moving machinery hazards. The percentage of accidents with related to Moving machinery hazards is 29%. 14% of the accidents for outsourced contracted workers are related to ergonomics. 10% of the accidents are related to other type of accidents.

In order to overcome these types of hazardous accidents, it is important to focus on giving training for outsource contracted workers to work in logistic sites.

The supervisory service at the logistic sites is important to overcome the accidents causing for outsource contracted workers as well as for Permanent workers. Hence that, identification of the managerial staff at each of the logistic site of three logistic companies is important. Table 4.6 given below is a comparison of the managerial staff and the contracted workers for permanent staff and outsource staff at each of the logistic sites of three logistic companies.

Table 4.6 - Accident Rate of All Employees (Permanent and Outsourced) Based On Logistic Sites of A, B and C Companies

	Logistic Company A	Logistic Company B	Logistic Company C
Working at Height accident rate %	40.71	47.66	50.82
Moving Machinery accident rate %	39.29	25	23.5
Ergonomics accident rate %	10.71	14.06	16.39
Other accident rate %	9.29	13.28	9.29

Working at height risk is a significant risk in all 3 logistics companies. More than 50% of its accidents are from working at height related accidents in Logistics three Companies.

Table 4.7 - Comparison of Managerial Staff and Contracted workers of Logistic Sites of A, B and C Companies

No.	Location	Permanent			Outsourced		
		Managerial	Workers	Total	Managerial	Workers	Total
Logistic Company A							

1	Site A1	4	31	35	10	172	182
2	Site A2	1	2	3	4	38	42
3	Site A3	22	62	84	9	578	587
4	Site A4	10	30	40	8	394	402
5	Site A5	1	2	3	3	35	38
Logistic Company B							
6	Site B1	1	3	4	1	14	15
7	Site B2	2	3	5	3	82	85
8	Site B3	6	16	22	5	204	209
9	Site B4	3	7	10	2	54	56
10	Site B5	3	12	15	4	97	101
Logistic Company C							
11	Site C1	8	22	30	5	196	201
12	Site C2	5	20	25	6	101	107
13	Site C3	5	22	27	3	102	105
14	Site C4	9	26	35	6	176	182
15	Site C5	3	12	15	3	120	123
	Total	83	270	353	72	2363	2435

Table 4.8: Comparison of Managerial Staff and Contracted workers of Logistic Sites of A, B and C Companies

	Logistic Company A	Logistic Company B	Logistic Company C
Outsourced workers: Managerial Vs workers ratio	1:36	1:30	1:30
Permanent employees:	1:3.3	1:2.7	1:3.4

Managerial Vs Workers ration			

According to the Table 4.7 and Table 4.8, it can be seen that the supervisory service receiving for outsource employees is less than that of permanent employees. That is identified as one of the major reasons to reduce the accidents among permanent employees. Having supervision of management is important to guide the employees. Therefore, it is important to increase the management staff for outsource employees. Further, the management staff should train the employees to work in safe manner.

4.4 Education qualification of permanent and outsourced supervisors

Education qualifications of supervisors are important when they are guiding the employees. If the supervisors do not have proper knowledge on occupational safety health, they will not be able to guide the employees to work safely.

Table 4.9: Education Level of Supervisors at Logistic Sites

	Permanent Supervisors	Percentage	Outsourced Supervisors	Percentage
Bachelor's Degree	28	37%	3	6%
GCE (AL)	37	49%	26	49%
GCE(OL)	8	11%	9	17%
Grade 8	2	3%	15	28%
Total	75		53	

As per the Table 4.9, the education level of the permanent supervisors is higher than the education level of outsourced supervisors. Having a higher education level is indicating that the supervisors have better knowledge to manage occupational health and safety. Supervisors should have better education level to guide the employees to overcome hazardous situations. It is evident that, the low level of education of the outsource

supervisors has negatively affected on guiding the outsource employees at logistic sites. That is resulted to increase the hazardous accidents among outsource employees of logistic industry. Therefore, it is important to get better education qualifications by supervisors though they are permanent employees or outsource employees.

The education level of the employees has an impact on the hazardous accidents occurring in logistic sites. Therefore, investigation of the education level of the employees of service providers at logistic sites is important.

Table given below show the education level of the outsource employees of service providers at logistic sites.

Table 4.10: Education Level of the Outsourced Employees of Service Providers at Logistic Sites

No	Education level	Number of employees	Percentage
1	Grade 8	1320	54%
2	GCE OL	870	36%
3	GCE AL	230	9%
4	Bachelor's Degree	15	1%

Table 4.11: Education Level Percentage of the Outsource Employees of Service Providers at Logistic Company A, B and C

	Logistic Company A	Logistic Company B	Logistic Company C
Education-Grade 8 %	41.56%	51.07%	59.32%
Education- GCE OL	43.51%	36.65%	32.95%
Education- GCE AL	13.20%	11.11%	7.67%
Education- bachelor's degree	1.73%	1.17%	0.07%

According to the above table, it is evident that the education level of outsource employees is low. Only four participants out of fifty participants have university degrees. Most of the employees have only Grade 8 education qualification. The employees with Grade 8 qualifications are categorized as un skilled employees. The knowledge level of the unskilled employees is limited with related to occupational health and safety. Further, most of the unskilled employees have faced the hazardous accidents. It is indicating that the education level of the employees is important to overcome the hazardous accidents at logistic sites.

Table 4.12: Education Level of the Permanent Employees of Service Providers at Logistic Sites

No	Education level	Number of employees	Percentage
1	Grade 8	46	13%
2	GCE OL	103	29%
3	GCE AL	118	33%
4	Bachelor's Degree	86	24%

According to the Table 4.12, many of the permanent employees have a university degree. The permanent employees with the university degree are identified as skilled employees who have the knowledge to perform the tasks effectively while overcoming the hazardous works. Further, the unskilled contracted worker under the permanent staff is low. Moreover, the hazardous situations faced by the permanent staff are also low. At the same time, the skilled employees of the permanent employees have faced hazardous accidents in minimum level. This is indicating that the education level has an impact on the health and safety behaviors of the employees.

Table 4.13: Education Level Percentage of the Outsource Employees of Service Providers at Logistic Company A, B and C

	Logistic Company A	Logistic Company B	Logistic Company C
Education-Grade 8	9.23%	11.02%	20.00%
Education- GCE OL	16.92%	29.66%	43.81%
Education- GCE AL	40.00%	32.20%	26.67%
Education- bachelor's degree	33.85%	27.12%	9.52%

It was revealed that the education level of the permanent employees is higher than the education level of the outsource employees. The accidents caused by outsource employees is higher than the accidents caused by permanent employees. Therefore, it is a challenge which should be overcome by the management of logistic industry when the health and safety responsibility is outsourced. Improvement of the education level of the outsource employees is important to overcome the challenge.

When there is a better education level, the employees are educated on the hazardous situations and the precautions that should be taken to overcome the hazardous situations. It is indicating that the education level of the employees have a positive impact on the outsourcing of health and safety responsibilities at logistic industry.

The knowledge and education is two different things. Employees with university degrees may not have the knowledge on site health and safety. Therefore, such employees may face hazardous accidents rather than unskilled employees who only have Grade 8 education qualification. Therefore, understanding the knowledge of the outsource employees on occupational health and safety and the knowledge of the permanent employees on occupational health and safety is important.

Table given below explains the knowledge of outsource employees on occupational health and safety.

Table 4.14: Knowledge of Outsourced Employees on Occupational Safety Health

	Knowledge area	Aware	Not aware	Percentage of awareness
1	Risk Identification	18	32	36%
2	Basic Fire fighting	8	42	16%
3	Importance of investigate accidents	12	38	24%
4	Ladder Safety	6	44	12%
5	OH&S responsibility	5	45	10%
6	Safe use of Power tools usage	24	26	48%
7	Working on or near moving machinery safety	9	41	18%
8	Environmental concerns	8	42	16%
9	Electrical safety	3	47	6%
10	Spill prevention	10	40	20%

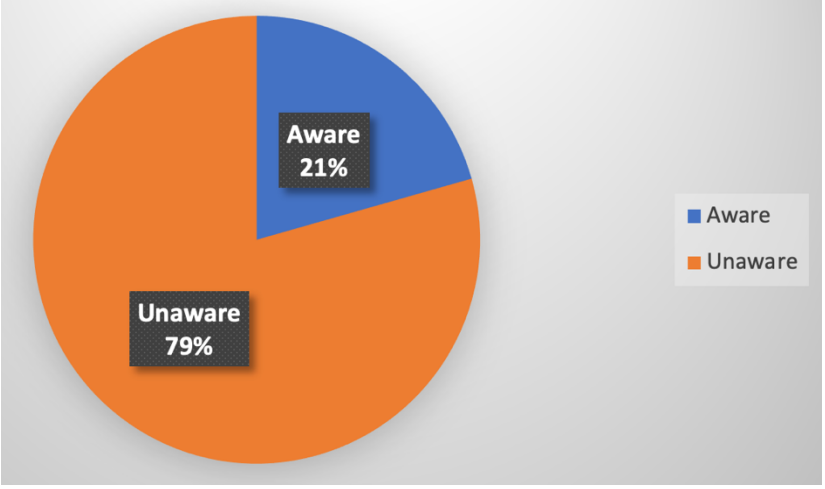


Figure 4.4: Knowledge of Outsource Employees on Occupational Health and Safety

	Logistic Company A	Logistic Company B	Logistic Company C
Risk identification	16.00%	12.00%	8.00%
Basic fire fighting	8.00%	4.00%	4.00%
Importance of incident investigation	14.00%	6.00%	4.00%
Ladder safety	4.00%	6.00%	2.00%
OHS responsibilities	4.00%	4.00%	2.00%
Safe use of power tool usage	14.00%	24.00%	10.00%
Working on or near moving machinery safety	10.00%	4.00%	4.00%
Environmental concerns	8.00%	2.00%	6.00%
Electrical safety	4.00%	2.00%	0.00%
Spill prevention	8.00%	6.00%	6.00%

When look at the knowledge of outsource employees on occupational health and safety, it can be seen that the knowledge level is lower. There is a weakness associate with the knowledge improvement on occupational health and safety. Both the education level and the knowledge level of outsource employees on occupational health and safety is low. When there is lack of knowledge on occupational health and safety, outsource employees are unable to overcome the hazardous accidents when they work in logistic

sites. That is one of the main reasons which have affected in increasing the number of outsource employees facing the hazardous accidents at logistic sites.

Table 4.16: - Knowledge of Permanent Employees on Occupational Safety and Health

No.	Knowledge area	Aware	Not aware	Percentage awareness
1	Risk Identification	35	15	70%
2	Basic Fire fighting	36	14	72%
3	Importance of investigate accidents	39	11	78%
4	Ladder Safety	40	10	80%
5	OH&S responsibility	41	9	82%
6	Safe use of Power tools usage	35	15	70%
7	Working on or near moving machinery safety	36	14	72%
8	Environmental concerns	39	11	78%
9	Electrical safety	40	10	80%
10	Spill prevention	41	9	82%

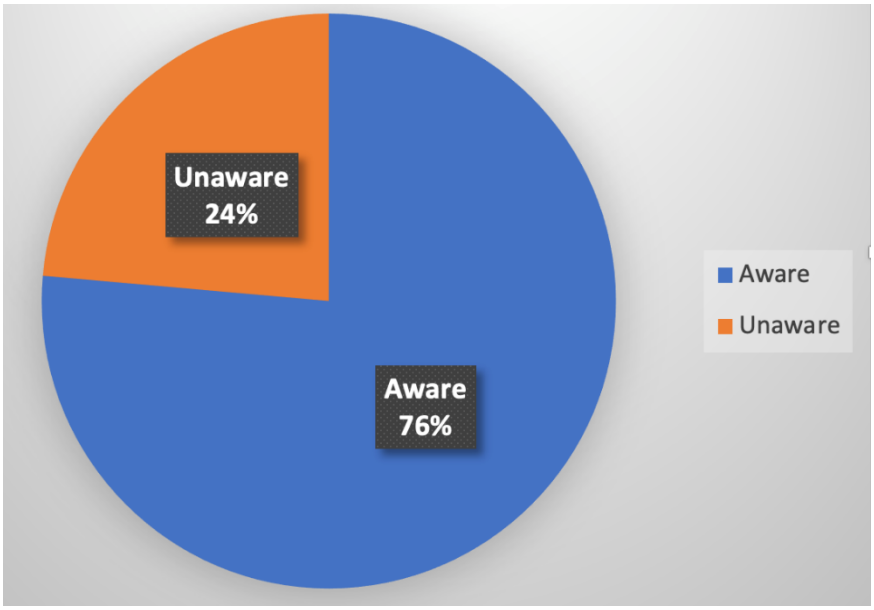


Figure 4.5: Knowledge of permanent employees on occupational health and safety

Table 4.17: Knowledge of Permanent Employees on Occupational Safety and Health at Logistics Company A, B and C

	Logistic Company A	Logistic Company B	Logistic Company C
Risk identification	42.00%	20.00%	8.00%
Basic fire fighting	36.00%	26.00%	10.00%
Importance of incident investigation	42.00%	24.00%	12.00%
Ladder safety	44.00%	26.00%	10.00%
OHS responsibilities	46.00%	14.00%	22.00%
Safe use of power tool usage	18.00%	24.00%	28.00%
Working on or near moving machinery safety	34.00%	20.00%	18.00%
Environmental concerns	16.00%	36.00%	26.00%
Electrical safety	36.00%	32.00%	12.00%
Spill prevention	34.00%	40.00%	8.00%

According Table 4.17, it can be identified that the knowledge level of permanent employees on occupational health and safety is high. It is an evident to show that the permanent employees have a high rate of accidents at logistic sites.

When compare the above two tables, it can be identified that the knowledge level of outsource employees on occupational health and safety is lower than the knowledge of permanent employees on occupational health and safety. However, improvement of the knowledge level of employees is important. If there are no proper training programs conducting by service providers, it will be difficult to improve the knowledge of outsource employees as well as permanent employees on occupational health and safety. Therefore, training programs with related to occupational health and safety should be handled to improve the knowledge of employees.

4.5 Commitment to OH&S by Management teams of Permanent and Contract

Commitment to OH&S is important to improve the OH&S practices at the logistic sites.

Table 4.18- Commitment on OH&S by Contractor Management

No.	Safety culture index measurement	Yes	No
1	Hazard reporting mechanism	4	16
2	Proactive safety interventions by Leaders	0	20
3	Incident investigation depth	6	14
4	Emeregency response capabilities	10	10
5	OH&S Training calendar	3	17
6	Safety Auditing practices	4	16
7	Worker involvement on OH&S	2	18
	Total	29	111

Table 4.19: Commitment on OH&S by Contractors at Logistics Company A,B and C

	Logistic Company A	Logistic Company B	Logistic Company C
Hazard reporting mechanism	10%	5%	5%
Proactive safety interventions by Leaders	0%	0%	0%
Incident investigation depth	20%	10%	0%
Emergency response capabilities	30%	10%	10%
H&S Training calendar	10%	5%	0%
Safety Auditing practices	5%	10%	5%
Worker involvement on H&S	5%	5%	0%

Table 4.20: Commitment on OH&S by Permanent Management

No.	Safety culture index measurement	Yes	No
1	Hazard reporting mechanism	8	2
2	Proactive safety interventions by Leaders	10	0
3	Incident investigation depth	7	3
4	Emergency response capabilities	9	1
5	OH&S Training calendar	6	4
6	Safety Auditing practices	8	2
7	Worker involvement on OH&S	8	2
	Total	56	14

Table 4.21: Commitment on OH&S by Permanent Management at Logistics Company A, B and C

Commitment	**Logistic Company A**	**Logistic Company B**	**Logistic Company C**

Hazard reporting mechanism	50%	20%	10%
Proactive safety interventions by Leaders	50%	30%	20%
Incident investigation depth	20%	40%	10%
Emergency response capabilities	30%	40%	20%
H&S Training colander	30%	20%	10%
Safety Auditing practices	30%	30%	20%
Worker involvement on H&S	40%	30%	10%

When compare the commitment of outsource employee to OH&S and the commitment of permanent employees to OH&S, it can be seen that the commitment of permanent employee to OH&S is higher than the commitment of outsource employees to OH&S. Only 21% of the outsource employees have shown a commitment to OH&S whereas 80% of the permanent employees have shown commitment to OH&S.

It was visible that logistics company C demonstrate high accident rate on outsourced workers compare to the logistics company A and B. In mean time company C having the less educational workforce in their operations. In meantime that is reflecting on the Table 16 with the lack of capacity and capabilities on risk identification and relevant safety related control measures in logistics company C. As overall reflections, poor safety culture index measurement can visible on the logistics company C, under the seven major areas on organizational OH&S culture elements.

4.6 Behavioral Factors Contribute Accidents

There are several factors which have been considered as the behavioral factors contributing towards the accidents at logistic sites. Poor supervision, poor training, safety culture, poor perception of risks and risk taking are those behavioral factors which were considered under the study. Given below are the answers received from the respondents of the study of random 50 outsourced workers.

Table 4.22: Impact of Behavioral Factors on Accidents

Behavioral factor	Always	Random	Rare
Supervision	35	10	5
Risk taking behavior	38	10	2
Time pressure	36	11	3
Competency	37	12	1
Safety culture	35	10	5
Risk Perception	38	10	2
Alcohol and Drugs	36	11	3
Stress	37	12	1

According to the responses received from the respondents, every factor is contributing towards the amount of accidents at logistic sites. As for the responses less, training is on occupational health and safety is mainly affecting to occur accidents at logistic sites. Therefore, it is important to give better employee training to improve occupational health and safety. It has also mentioned that risk taking behavior of the employees are mainly affecting to cause the accidents at logistic sites. Moreover, unsatisfactory safety culture at logistic sites and the working time pressure are affecting on the amount of accidents. Further, the respondents have mentioned that the stress of employees and lack of supervision at logistic sites lead to accidents. At the same time, risk perception and alcohol and drug consumption by employees also effect on the amount of accidents. Hence, overcoming all these factors is important to reduce the accidents taking place at logistic sites.

The table given below indicates the experience of the selected outsource employees at logistic sites.

Table 4.23 - Experience of Outsourced Employees

No	Less than 1 year	More than 01y and less than 2 y	More than 3 Y and less than 5 y	More than 05 Y and less than 10 y	More than 10 Y and less than 20 y
	402	1321	402	203	107
Percentage	17%	54%	17%	8%	4%

As Table 4.23, most of the outsourced employees working at logistic sites have less experience. When the employees have less experience of work, they do not have more knowledge on occupational health and safety practices. It is another reason for the high percentage of accidents causing for outsource employees. However, improving the experience of outsource employees is also a challenge. Overcoming this challenge is important in reducing the rate of hazardous accidents taking place at logistic sites.

Table 4.24- Experience of Permanent Employees

No	Less than 1 year	More than 01 Y and less than 5 y	More than 01 Y and more than 5 y	More than 05 Y and less than 10 y	More than 10 Y and less than 20 y
	82	109	92	49	21
Percentage	23%	31%	26%	14%	6%

Consider about the experience of permanent employees working at logistic sites, their experience is higher than the outsource employees. Most of the permanent employees have the experience between one to five years. Further, 10 respondents out of 50 respondents have the experience more than 5 years. It is indicating that the experience of the employees is affecting on the accident rate. The permanent employees of the logistic sites have faced less accidents compared with outsource employees. Hence that,

improvement of the experience of outsource employees is important to overcome the accidents taking place in logistic sites. It will be supportive in creating outsourcing culture to give the occupational health and safety responsibility in the logistic industry.

The age limit of the employees is also affecting on the health and safety responsibilities. For an example, the younger employees do not care about health and safety practices when they work in the sites. Therefore, the younger workers meet with accidents more than elder workers. At the same time, the younger workers have less experience in the industry. Therefore, they have low level of fulfilling health and safety responsibilities at the logistic sites compared with the older workers. However, this can be the other sides. The older workers are having a low level of physical fitness compared with the younger workers. Therefore, there is more frequency for older workers to meet with hazardous accidents when it compares with the younger workers.

Table 4.25: Comparison of Age Limit of Employees and Accidents

No	Site	Age less than 22	Between 23 and 45	Age more than 46	Total	Total Workers
Logistic Company A						
1	Site A1	2	1	1	4	217
2	Site A2	0	0	0	0	45
3	Site A3	10	9	3	22	671
4	Site A4	4	4	1	9	442
5	Site A5	1	0	1	2	41
Logistic Company B						
6	Site B1	0	1	0	1	19
7	Site B2	4	0	1	5	90

8	Site B3	4	2	1	7	231
9	Site B4	5	1	0	6	66
10	Site B5	2	2	2	6	116
Logistic Company C						
11	Site C1	8	3	1	12	231
12	Site C2	2	10	2	14	132
13	Site C3	5	2	3	10	132
14	Site C4	16	1	0	17	217
15	Site C5	4	6	1	11	138
	Total	67	42	17	126	2788
	Percentage	53%	33%	13%		

According to the above table, most of the accidents are in the age group of less than 22 years. This is indicating that the experience of those employees are mainly affecting to occur more accidents. Therefore, employing younger employees with better level of knowledge and competencies are important.

4.7 Equipment and Power Tool Inspection

Equipment and power tool inspection is important to improve the OH&S at logistic industry. According to the responses received from the respondents, outsource employees have low equipment and power tool inspection and permanent employees have high equipment and power tool inspection.

Table 4.26: Commitment on OH&S by Permanent Management

	Standard/ Legal requirements	Internal inspection mechanism	Tool condition

Forklift	Load test certificate by competent person	No tool inspections	Acceptable
Pallet truck	No certification	No tool inspections	Partially damaged
Heat gun	Double insulated	No tool inspections	Not Acceptable
Drill machines	With CE mark	No tool inspections	Fair
Scissor lift	No load test certificate	No tool inspections	Fair

That has been a major reason to increase the accident rate for outsource employees. All these facts should be considered when creating outsource culture at logistic industry.

4.8 Challenges faced in outsourcing health and safety responsibility in logistics industry in Sri Lanka

The last question raised during Step 2 is rate what extent following challenges are affected to logistic companies when outsourcing health and safety responsibilities to contracted companies. Table 4.27 presents the summary of respondent's feedback on challenges faced on outsourcing health and safety responsibilities to contracted companies in logistics industry in Sri Lanka

Table 4.27: The summary of respondent's feedback on challenges

No	Factor	The level of significant of the factor		
		High	Medium	Low
1	Lack of knowledge	X		
2	Lack of commitment of management	X		

3	Lack of work experience	X		
4	Lack of involvement of workers on OH&S	X		
5	No proper assignment of OH&S responsibilities	X		
6	Negative attitude		X	
7	Inadequate of resources		X	
8	Lack of enforcement of legal bodies		X	
9	High contracted worker turnover			X
10	Safety culture of logistic companies			X
11	Communication barriers			X

In this study was revealed that lots of challenges are faced in outsourcing health and safety responsibilities in logistics industry in Sri Lanka. Among lack of knowledge, lack of commitment of management, lack of work experience, lack of involvement of workers on OH&S and no proper assignment of OH&S responsibilities are identified as key challenges faced in outsourcing health and safety responsibility in logistics industry in Sri Lanka.

Negative attitude, inadequate resources and lack of enforcement of legal bodies are identified as medium level challenges and high labor turnover, safety culture of logistic companies and communication barriers are identified as low-level challenges when outsourcing health and safety responsibility in logistics industry in Sri Lanka.

4.9 Validation of Strategies to Minimize the Challenges Faced in Outsourcing Health and Safety Responsibility in Logistics Industry in Sri Lanka.

Table 4.28: Validation of Strategies by Experts

No.	The Challenge	The Strategy	Respondent(s)				
			R1	R2	R3	R4	R5
1	Lack of knowledge	Structured induction program	X	X	X	X	

		OHS competency mapping		X	X		X
2	Lack of commitment of management	Structured contractor pre-qualification process		X		X	X
		Standard evaluation of financial stability and task capabilities of the contractor company	X			X	
3	Lack of work experience	Trade skill and wage standard	X	X	X	X	X
4	Lack of involvement of workers on OH&S	Continuous effort and study management commitment	X	X	X	X	X
		Safety engagement activities such as safety quiz competitions, safety poster competitions		X		X	
5	No proper assignment of OH&S responsibilities	Defining the role and responsibilities	X	X	X	X	X
		Officially communicate during the hiring time and the refresher sessions		X		X	

To validate the finding, finding were forwarded to the experts and discussed based on the key identified challengers in the research. As per the above table, results are validated after the feedback from the 5 experts as shown in the above table and discussed below.

4.9.1 Lack of knowledge

Structured induction program and the OHS competency mapping are the primary strategy to tackle the lack of awareness of OHS of outsourced workers. For Competency mapping, training need analysis plays a major role and finally that needs to convert into

the training calendar for OHS. That mapping is required to cover both permanent and contracted employees, but main emphasis need to put on to the outsourced workers. In meantime, it is required to agree on mandatory OHS training at the initial contract offering time to get the clearer commitment on the knowledge enhancement of outsourced workers.

4.9.2 Lack of commitment of management

Management commitment of the contractor workers is realistic to get via the structured contractor pre-qualification process. Management commitment on the OHS is required to evaluate prior to hire the contractor company just like standard evaluation of financial stability and task capabilities of the contractor company.

4.9.3 Lack of work experience

Since worker experience plays a major role, outsourced employees hiring is required to be structured like permanent employees. Job interview needs to base on the trade skill and the risk perception capabilities of the outsourced employees. There is no standard across logistics industry about the salary and the experience relationship. Therefore, trade skill and wage standard are a strong strategy to uplift the trade skills in logistics industry. But that need to be driven with common understanding of all the key logistics organizations.

4.9.4 Lack of involvement of workers on OH&S

Continuous effort and study management commitment is required to get the right sprite of employee engagement for OHS. Outsourced employees are a critical factor in this. Because they do not feel as employees of that organization. Therefore, safety engagement activities such as safety quiz competitions, safety poster competitions, opportunity to present things at tailgate meetings gives greater opportunities to build the strong involvement of the outsourced workers.

4.9.5 No proper assignment of OH&S responsibilities

Defining the role and responsibilities are primary requirement of any management system. Therefore, clear role and responsibilities is an essential element of the OHS management. Roles and responsibilities are required to be clear of all the parties including logistics company, permanent employees, contractor company and all the outsourced employees including their workers and supervisors. Those responsibilities needs to be officially communicate during the hiring time and the refresher sessions are essential to maintain the steady focus.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is presents for the conclusions which were derived from the data analysis outcomes pertaining to the aim and objectives of the study. In addition, it will also present the recommendations to overcome challenges when outsourcing health & safety responsibility in logistics industry in Sri Lanka

5.2 Conclusions

An Overview of Research

The contractor is a main stakeholder who is responsible to manage OH&S at sites. Outsourcing of the logistic works at the logistic site is conducting with the consent of the contractor. Based on the contracted worker laws and the overhead of maintaining the employees, many organizations are looking on the opportunities to outsource. There are several type of job categories such as temporary workers, seasonal workers, hourly workers, task specific workers and contract workers, generated due to the corporate world requirement When keep the financial benefits and the human resource management benefits out from the scope, contracting has lots of adverse effects such as unskilled or non-competent work crew, stick with the minimum legal wage, no bargaining power or union strength and very high job insecurity. Lot of challenges are faced when outsourcing health and safety responsibilities to contracted companies and expected outcomes of outsourcing health and safety responsibilities to contracted companies cannot gain if these challenges are not addressed successfully. The aim of the study was to identify the challenges on outsourcing health and safety responsibilities to contracted companies in logistics industry in Sri Lanka, study the challenges faced in outsourcing health and safety responsibilities to contracted companies and propose strategies to overcome the identified challenges. Revisiting the objectives, the situational analysis was conducted on outsourcing health and safety responsibility in logistics industry in Sri Lanka, identified the challenges when outsourcing health and safety responsibilities and proposed strategies to overcome the challenges.

In order to achieve the aim and objectives, a mixed method research approach was undertaken. The research process was initiated with the background study and then focused on the comprehensive literature review. Afterwards, data collection process of the research was carried out in three steps namely, preliminary survey, questionnaire survey and expert interviews. During Step 1, the questionnaire for the preliminary survey was developed using literature review and the researchers own experience as working as the OH&S expert in the logistic industry. Five OH&S experts were selected as the experts for Step 1 data collection. The preliminary questionnaire was sent to the experts. According to the comments received from the panel the questionnaire was further refined and developed.

In Step 2, the developed questionnaire was sent to 15 sites of three logistic companies & 60 contracted companies Identified the challenges on outsourcing health & safety responsibilities to contracted companies in logistics industry in Sri Lanka and 50 completed questionnaires were collected. It was expected to gather information to conduct situational analysis of outsourcing health & safety responsibilities to contracted companies in logistics industry and investigate the challenges faced outsourcing health & safety responsibilities to contracted companies in logistics industry. The statistical data analysis was carried out using MS Excel software and hence, the second and third objectives of the research was achieved.

Finally, during the Step 3, 05 expert interviews were conducted to identify strategies to overcome the challenges faced when outsourcing health & safety responsibilities to contracted companies in logistics industry. The collected data through expert interviews were analyzed using manual content analysis and accordingly the fourth objective of the research was achieved.

Research Outcome

The outcomes of this study revealed the situational analysis of outsourcing health and safety responsibilities in logistic companies, the challenges which are faced in outsourcing health and safety responsibilities in logistic companies and the strategies for overcoming identified challenges in logistic companies. The conclusions of the

research derived from literature review and 3 phases of data collection are presented under each objective below.

Objective 1: Conduct literature review on outsourcing health and safety responsibility in logistics industry

The contractor is a main stakeholder who is responsible to manage OH&S at sites. Outsourcing of the logistic works at the logistic site is conducting with the consent of the contractor. Therefore, the contractor has the responsibility to maintain OH&S of the workers. The contractor should take the control measures of human errors. The contractor should take some measures to reduce the human errors and prevent the accidents. It was revealed that several challenges were identified as a result of outsourcing health and safety responsibilities. Among lack of knowledge, poor safety culture, lack of commitment of management, lack of work experience, lack of involvement of workers on OH&S and no proper assignment of OH&S responsibilities are identified as key challenges faced in outsourcing health and safety responsibility in logistics industry.

Objective 2: Conduct situational analysis of outsourcing health and safety responsibility in logistics industry in Sri Lanka

It was observed that significant gap between the performance of health and safety of logistic companies and outsourced companies. Higher accident rate was recorded in outsourced companies by comparison to the logistic companies' further level of education of outsource employee is considerable low. Moreover, Considerable knowledge gap was observed of outsourced employees on occupational safety. Especially top management commitment toward health and safety management is very poor of contracted companies and level of experience is low of employee in contracted companies.

Objective 3: Investigate the challenges faced in outsourcing health & safety responsibility in logistics industry in Sri Lanka

Outsourcing of the logistic works at the logistic site is conducting with the consent of the contractor. Therefore, the contractor has the responsibility to maintain OH&S of the workers. The contractor should take the control measures of human errors. The contractor should take some measures to reduce the human errors and prevent the accidents. Lots of challenges are faced in outsourcing health and safety responsibilities in logistics industry in Sri Lanka. Among lack of knowledge, lack of commitment of management, lack of work experience, lack of involvement of workers on OH&S and no proper assignment of OH&S responsibilities are identified as key challenges faced in outsourcing health and safety responsibility in logistics industry in Sri Lanka.

Negative attitude, inadequate resources and lack of enforcement of legal bodies are identified as medium level challenges and high labor turnover, safety culture of logistic companies and communication barriers are identified as low-level challenges when outsourcing health and safety responsibility in logistics industry in Sri Lanka.

Objective 4: Propose strategies to minimize the challenges faced in outsourcing health & safety responsibility in logistics industry in Sri Lanka

Finally, the study recommended strategies to overcome the identified challenges. It is suggested to introduce structured induction program and the OHS competency mapping to tackle the lack of awareness of OHS of outsourced workers. Further it is suggested to evaluate prior to hire the contractor company just like standard evaluation of financial stability and task capabilities of the contractor company. Moreover, practicing job interviews based on the trade skill and the risk precipitation capabilities of the outsourced employees is a key strategy for overcome these challenges. Continuous effort and study of management commitment is required to get the right sprite of employee engagement for OHS. Therefore, safety engagement activities such as safety quiz competitions, safety poster competitions, opportunity to present things at tailgate meetings gives greater opportunities to build the strong involvement of the outsourced workers. Further defining the role and responsibilities are primary requirement of any

management system. These responsibilities need to be officially communicated during the hiring time and the refresher sessions are essential to maintain the steady focus.

5.3 Recommendations

Consider about the outcomes of the study, it is clear that the outsource workers performances are important to the logistic industry of Sri Lanka. As for the literature review, outsource workers face accidents higher than the permanent workers. Further, management of occupational health and safety is also becoming complex. Therefore, it is important to make the recommendations to overcome the complex nature of the management of occupational health and safety and reduce the risk for the logistic industry of Sri Lanka.

By considering the above conclusions, following recommendations can be made to overcome high rate of health and safety issues among the outsource employees in the logistic industry.

The first recommendation is to improve the commitment of outsource workers to improve occupational health and safety. As for the outcomes of the study, commitment of permanent employee to OH&S is higher than the commitment of outsource employees to OH&S. Only 21% of the outsource employees have shown a commitment to OH&S whereas 80% of the permanent employees have shown commitment to OH&S. It is important to look at the failures behind unsafe behaviors of the outsource employees. The outsource employees should be provided with the opportunities to overcome the health and safety issues. Outsource employees should be given the opportunities to attend health and safety meetings on regular basis as well as to represent the health and safety management meetings. Further, the topics related to health and safety should be started to discuss in the team meetings and the management meetings. Moreover, the outsource employees should provide the opportunities to have an active involvement in investigating the accidents and health related issues. These practices will be supportive to get a better commitment of outsource employees to enhance health and safety practices at logistic industry and reduce the accidents. It is important to demonstrate the leadership that is supportive in improving health and safety behaviors

of outsource employees. Improving the health and safety behaviors of outsource employees is important. There is insufficient training receiving by the outsource workers. Therefore, it is important to give sufficient training for outsource workers to improve health and safety practices at logistic sites.

The second recommendation is to conduct better training and awareness programs for outsource workers. The experience and the skills of outsource workers are supportive to reduce the accidents. However, the results of the data analysis show that the outsource workers have low level of experience as well as skill. Therefore, the outsource workers are meeting with accidents rather than permanent workers. Therefore, conducting training programs to improve knowledge and skills of outsource workers on occupational health and safety is important. Basic occupational health and safety training programs should be conducted among the outsource workers. It will be supportive to make them aware of the occupational health and safety practices. Occupational health and safety practices that should be practiced by the workers from the beginning of their job and specific training on occupational health and safety should be given to outsource employees. Every new employee of the service providing companies should be given the training on occupational health and safety. New employees should be given the education on the occupational health and safety policies and the objectives of practicing occupational health and safety at workplace, significant hazardous situations that should be avoided at the workplace, specific occupational health and safety practices, location of the medical facilities, location of the fire fighting facilities, emergency plans and the information related to occupational health and safety representatives.

Moreover, it is recommended to give specific occupational health and safety training for the outsource employees. It will be supportive to overcome the accident rate.

5.4 Further Studies

In this study it has focused on the challenges faced on occupational health and safety of outsourced employees in the logistic industry of Sri Lanka Hence it is recommended to carry out further research on the following aspects:

1. Investigate the safety climate of outsourced companies in the logistic industry of Sri Lanka

2. Investigate the work accidents of outsourced companies in the logistic industry of Sri Lanka

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Appendices

Annex 1: Contractor Company information on OHS Management

Contractor questionnaire

Name of Company
(Service Provider) .....

Address .....

.....

Type of work .....

.....

.....

Previous Contracts .....

ORGANIZATION DETAILS **(Please Provide Copy of the Organizational Chart if Available):**	
Key Roles:	**Number:**
Directors / Proprietor	
Managers	
Frontline Managers /Supervisors	
Employees	
Sub-Contractors	

General OHS Systems

a. **OHS Policy**	Yes/No

Does your organization have a written health and safety policy?							
Does your organization have a written training policy?							
Does your organization have a written drug and alcohol policy?							
Does your organization have a written consequence management policy?							
Are these policies included and explained in an employee induction document?							
b. **OHS Responsibilities**							
Has your company been practiced OH&S responsibilities which have been mentioned in the country law? (List of act/ordinance see in below)							
Who has received this awareness?							
Management							
Supervisors							
Employees							
c. **Selection of sub-contractors**							Yes/No
Does your organization have a process to determine the OHS capacity of sub-contractors?							
Agreement with the sub-contractors?							
Is the OHS performance of sub-contractors monitored as work is being undertaken?							
d. **Health monitoring**							
Does your organization have a system in place to monitor the health of employees with regard to any hazards they may be exposed to?							
If "yes", what is the frequency of your health-monitoring program?							
(please cross on the frequency in months)	6	12	18	24			
e. Insurance							
Do you have public liability insurance?							
Do you have professional indemnity insurance?							
Do you have product liability insurance?							

Do you have motor vehicle insurance?			
Do you have employers' liability insurance?			
f. Plant and equipment			
When using plant and equipment either owned by you, or from any other party (leased, hired, borrowed etc) do you have systems in place to ensure that:			
All plant is fitted with safety equipment as prescribed by local legislations ie machine guards			
Plant and equipment is fit to be used for the purpose you intend?			
Your employees who are to operate the plant and equipment are trained in its safe use?			
Your employees have the correct licenses and/or certificates to operate the plant and equipment?			
g. Incident Management and Investigation			Yes/No
Has your organization been prosecuted for an OHS breach or Injury to an employee?			
Has your organization a mechanism for incident reporting?			
Is it covering Investigation and corrective action process?			
h. Personal Protective Equipment (PPE)			
Has your organization assessed the jobs/tasks that require PPE?			
Does your organization provide/supply PPE to all staff as required?			
Does the PPE provided comply with the acceptable Standard?			
Have your employees been trained in its correct use, maintenance & storage?			
i. Safe Work Methods			
Has your organization safe working methods/procedures, for critical aspect of following;			
Critical aspect	**Yes/No**	Critical aspect	**Yes/No**
Work at heights		Work with hazardous materials (chemicals)	

Work In a confined space		Repetitive moving activities	
Isolation and lockout of mechanical plant including vehicles		Vehicle and traffic management	
Manual lifting		Working Near water	
Electrical Safety		Machine Guarding	
Other – Please explain			

j. Hazard identification and Management	**Yes/ No**
Does your organization have a process to systematically identify and control significant hazards in the place of work?	
Does your organization have a system to record & review hazards & controls?	
Does your organization have a system to ensure the safety of anyone lawfully in or in the Vicinity of the workplace?	
k. Emergency preparedness and response	
Does your organization have emergency response procedures to deal with work-site Emergencies?	

Will your organization have certified first-aiders on site who can respond in the event of an emergency?	

Full name of representative .....

Signature .....

Date: .....

Annex 2: Understanding on OH&S by workers

1. To ensure safe operation, you should have:

    a. Sufficient safety Training

    b. Sufficient experience

    c Proper tool

    d. All above

2. When you are conducting repetitive moving task, you should:

    a. Arrange work activity at 120cm height

    b. Take rest in-between your task

    c. Work on standing position all the time

    d. All of the above

3. How could you prevent accident while working near moving machinery

    a, Wear PPE all the time

b. Keep Safe distance with machine

c. Check the machine operator experiences

d. All above

4. What is the responsibility to erasure the safety at site?

a. Report all hazards observed

b. Wear required PPE all the time

c. Work according to the Work permit or work Instructions

d. All of the above

5. When you observe any unsafe condition, you should do this as your first action:

a. Trying to control the hazard before any accident happen

b. Give call to manager and inform

c. Report Hazard to safety manager

d. Just Walk pass if it is not in your department

6. When you are using Ladder, you should:

a. Always need to keep hold the ladder by assistant

b. Ladder have to use with 3 main point contacts

c. Ladder have strength to hold 2 well build people. So can accommodate 2 people simultaneously

d. Only One person could climb at once

7. What is the importance of incident investigation after an incident?

a. To take corrective actions

b. To take Preventive actions

c. To apply consequence management for workers who responsible for accident

d. Only a and b

8. Tools are essential element in operations. Before use tool, you should:

a. Visual inspection before use

b. Check Safety information on tool

c. Check the safety devices availability

d. All of the above

9. In case of a Fire, what you should do?

a. Evacuate from the area

b. Use First-aid fire extinguisher

c. Put Water

d. Follow the given guidelines

10. Why Housekeeping is important at all the time?

a. To reduce slip and trip

b. To reduce the environmental risk

c. To reduce fire risk

d. All of the above