KY (KIKEN YOCHI = PREDICT HAZARD) IN WORKING HABIT; ASSESSMENT OF ITS IMPLEMENTATION WAY AND EFFECTIVENESS IN MANUFACTURING FACTORY

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FACULTY OF ENGINEERING
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RESEARCH REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN ENGINEERING (SAFETY, HEALTH AND ENVIRONMENT)

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ABSTRACT

This research aims to know and analyze the application training of Occupational Health and Safety (OHS), focus on Kiken Yochi Training at a car manufacturing plant located at Serendah, Selangor. “Kiken Yochi” or KY is an act of predicting danger that is one of the key elements of safety. The study was conducted using research descriptive method that gives an overview of the programming of Kiken Yochi Training at Company A Manufacturing Sdn Bhd (Company A). Data obtained from direct observation to the field, conducting interviews to related parties and then do literary studies comparing data with prevailing laws and theories. As a prevention effort of work accident at Company A, Kiken Yochi Training Program is one of the activities being done for improving the hazard identification and risk assessment skills, so that workers can identify the dangers existing around workplace and then taking the correct measures. In order to be able achieving the effectiveness and efficiency in Kiken Yochi Training, several processes being implemented, i.e. identification of training needs, training program planning, development of training programs and evaluation of training programs. Results of the assessment on the implementation of KY activities, it has concluded to have achieved the target and objectives but there are still having room for improvement, and recommendation measures have been proposed.

Keywords: Kiken Yochi Training, KY, Hazard, Risk Assessment

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ABSTRAK

Penyelidikan ini bertujuan untuk mengetahui dan menganalisis latihan Kesihatan dan Keselamatan Pekerjaan (OHS), dengan memberi tumpuan kepada "*Kiken Yochi Training"* di sebuah kilang pembuatan kereta yang terletak di Serendah, Selangor. "*Kiken Yochi"* atau KY adalah tindakan meramal bahaya yang merupakan salah satu elemen penting dalam perihal keselamatan. Kajian ini dijalankan dengan menggunakan kaedah deskriptif penyelidikan yang memberikan gambaran mengenai pengaturcaraan "*Kiken Yochi Training*" di Syarikat A Manufacturing Sdn Bhd (Syarikat A). Data diperolehi dari pemerhatian langsung ke lapangan, melakukan wawancara kepada pihak yang berkaitan dan kemudian kajian sastera perbandingan data dengan undang-undang dan teori. Sebagai usaha pencegahan kemalangan kerja di Syarikat A, Program "*Kiken Yochi Training*" ini merupakan salah satu kegiatan yang dilakukan untuk meningkatkan kemahiran pengenalan bahaya dan penilaian risiko, agar para pekerja dapat mengenal pasti bahaya yang ada di tempat kerja dan kemudian mengambil tindakan yang tepat. Untuk dapat mencapai keberkesanan dan kecekapan dalam "*Kiken Yochi Training*", beberapa proses yang sedang dilaksanakan, iaitu mengenal pasti keperluan latihan, perancangan program latihan, pembangunan program latihan dan penilaian program latihan. Hasil penilaian mengenai pelaksanaan aktiviti KY dalam kajian ini, disimpulkan ia telah mencapai sasaran dan objektif tetapi masih ada ruang untuk penambah baikan, dan langkah-langkah cadangan telah dicadangkan.

Keywords: Latihan Ramal Bahaya, KY, Hazad, Penilaian Risiko

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I also would like to express my sincere gratitude to my supervisor Dr. Hanee Farzana Binti Hizaddin for her guidance and advice in making this project successful. Dr. Hanee Farzana Binti Hizaddin was supportive and motivates me to always be positive mindset.

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LIST OF SYMBOLS AND ABBREVIATIONS

OSH	:	Occupational Safety and Health
SAFETY	:	Company A Safety Policy
Gemba	:	Actual Working Place
KY	:	Kiken Yochi
KYT	:	Kiken Yochi Training
SHE	:	Safety Health and Environment Department
ILO	:	International Labor Organization
OSHA	:	Occupational Safety and Health Act 1994 (Act 514)
FTA	:	Foul-Tree Analysis
ETA	:	Event Tree Analysis
HAZOPS	:	Hazard and Operation Study model

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The development of industry today is in line with the progress of science increasingly sophisticated knowledge and technology. A wide range of products with a variety of uses have been generated. Innovation and invention has been succeeded in pushing industrialization and providing convenience for the workforce in doing its work, and has also succeeded in the opening up of new jobs (Syartini, 2010).

Every year thousands of accidents happen in that workplace causing the impact of casualties, material damage, and harassment production. Many causes of accidents in place of work, one of which is very weak System Occupational Safety and Health Management (Soehatman Ramli, 2010).

Occupational Safety and Health (OSH) is a part that inseparable from an integrated corporate management system, as well as production management and product quality. Therefore, OSH will always affect the results of production and quality as well as financial company as a whole. Thus, OSH should be applied in a manner together with the production management and quality of the desired results achieved. Success or failure of system implementation is highly dependent on commitment and responsibility of everyone in the company. Board interested in corporate profits, while the workforce is a very important source of information on what is there at workplace. To be able to meet the expectations that want achieved, it is necessary to improve the quality of knowledge and skills from all stakeholders. Increased knowledge and skills must be done through the organization of training or training systematically (Garavan, Costine, & Heraty, 1995).

One of the important training need to be organized in industry is Kiken Yochi (KY) Training, in order to produce skillfully and safe minded workforce. This training become indeed in much industries especially manufacturing industry e.g. car manufacturing factory.

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1.2 BACKGROUND OF THE STUDY

Company A Manufacturing Sdn Bhd – Serendah Plant is a company engaged in the manufacture industry components / assembly of four-wheeled vehicles of P brand as well metal processing equipment / workmanship with the amount of labor as many as 5000 people. The main product is My, Al, and Ax. For other products are fuel tank, dashboard, suspension and bumper.

Production process in outline consists of 6 stages, namely: process stamping (press), welding process, painting process, part painting process (resin shop), assembling process, and delivery process. In a job or activities carried out in the production process there is a potential danger, which the potential existence of such hazards may result the occurrence of accidents or incidents that have an impact on humans, equipment, materials, and environment. Company A is a company that has implemented safety. The Company has taken precautionary measures work accident, one of which is by organizing Kiken Yochi Training for all workers.

Based on the above background, the author will describe about the implementation of KY Training in Company A Manufacturing - Serendah Plant.

1.3 RESEARCH PROBLEM

The lackness of safety awareness is one the main factor to accident. In manufacturing industrial, safety is the crucial items needed. Workplace accidents need to be seriously addressed and promptly monitored as they will affect an organization financially in term of high cost to repair the machinery, and to provide medical treatment for injured workers, and also will jeopardize a company's reputation.

Based on the background of the above problem, the authors formulate problem as follows: " KY (Kiken Yochi = Predict Hazard) in working habit; Assessment of its implementation way and effectiveness in manufacturing factory. "

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1.4 OBJECTIVES OF THE RESEARCH

The purpose of doing research at Company A Sdn Bhd is to know and analyze the implementation of the Kiken Yochi Training program.

(a) To systematically review the literature in order to explore the usage and efficiency of Kiken Yochi in reducing workplace accidents.

(b) To analyze and conclude the effectiveness result of the implementation in the manufacturing industrial.

(c) To propose the further improvement, measure possible to be implemented in manufacturing industry

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CHAPTER 2: LITERATURE REVIEW

2.1 WORK PLACE

Work place is one of the important aspects in organizing work activities. According to DeJoy (1994), work place is a room or a field, closed or open, moving or permanent, where labor is employed or frequently entered by the workforce for the purposes of a business and where there are sources or sources danger.

Including workplace is all room, field, pages and its surroundings which are parts or ones associated with the workplace. Workplaces are spread over all economic activities, such as agriculture, industry, mining, transportation, public works, services and others (Van Biema & Greenwald, 1997)

The workplace strongly supports the existence of a job, place poor work can lower the degree of health and work power the employees. According to Laws Of Malaysia (Act 514), Occupational Safety And Health Act 1994 on Part IV - General Duties Of Employers And Self-Employed Persons, the management of the company has an obligation to provide space work that meets safety and health requirements.

2.2 POTENTIAL HAZARD

2.2.1 Understanding Hazards

The dangers of work are the factors in the relationship work that can bring accidents. The danger is said to be potential if these factors have not been brought up accident, while if the accident occurs then the danger is called a real danger (Reason, 2016).

Hazard is everything including situations or actions which has the potential to cause accidents or injury to humans, damage or other disturbance. Due to the presence of danger then it is necessary to control the effort so that the danger is not causing adverse consequences (Douglas & Wildavsky, 1983).

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2.2.2 Hazard Identification

Hazard identification is the cornerstone of the program accident prevention or risk control. Without getting to know danger, the risk cannot be determined so that prevention efforts and risk controls cannot be executed. Hazard identification provides various benefits including:

(a) Reduce chance of accident.

Hazard identification can reduce the chance of occurrence accident, because hazard identification is related to factor the cause of the accident. By doing hazard identification then various sources of danger that are the triggers of accidents can be known and then removed so that the possibility accidents can be suppressed.

According to Frank E Bird 1969, the risk of accidents is:

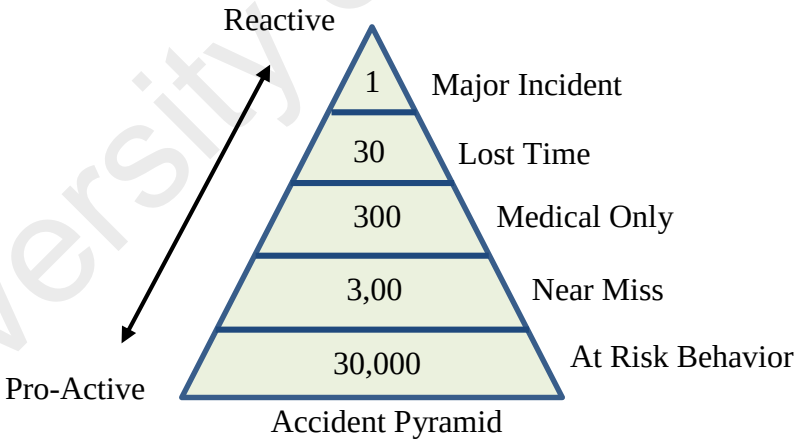

Figure 2.1: Accident Ratios According to Frank Bird, 1969

From the picture it can be explained that 1: 30: 300: 3,000: 30,000, which means for every 30,000 hazards or unsafe or insecure actions, will occur 1-time fatal accidents, 30 times serious accidents and 300 times accidents serious and 3000 minor accidents.

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Based on this ratio it can be seen that with reduce the source of the cause of the accident in which the pyramid is based, the possibility of an accident may occur lowered. It should therefore be tried to be identified all sources of danger are unsafe and not behaving safe at work.

(b) To provide understanding for all parties (employee management and other related parties) on potential hazards of the company's activities so as to improve vigilance in running the company's operations.

(c) As a foundation as well as input to determine strategy prevention and safeguards are appropriate and effective. With knowing the dangers that exist, management can determine the scale priority handling according to the level of risks so expected results will be more effective.

(d) Provide documented information about the source danger in the company to all parties in particular stakeholders. Thus, they can get an idea of the risks of a business going done (Radvanska, 2010).

2.2.3 Hazard Identification Requirements

Hazard identification must be done in a planned manner comprehensive. Many companies have identified danger, but the accident rate is still considered high. This indicates that the hazard identification process has not been done yet running effectively.

There are several things that support the success of the program identification of hazards include:

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(a) Hazard identification must be consistent and relevant to the activity company so it can work properly. It is very determining in choosing appropriate hazard identification techniques for the company. For companies with low risk properties, of course no need to identify hazards with that technique very comprehensive e.g. quantitative techniques.

(b) Hazard identification must be dynamic and always consider the latest technology and science. Many hazards are previously unknown but is currently a potential big. Therefore, in identifying the danger must be always considering the possibility of a new technique or prevention systems that have been developed.

(c) Involvement of all parties involved in the hazard identification process. The hazard identification process should involve or be done through consultation with related parties e.g. with workers. They most aware of the dangers of their respective work environment. They are also concerned with hazard control at work. Hazard identification is also based on input from others such as consumers or the surrounding community. Consumers usually know the various weaknesses and conditions harmful inherent in the services or products produced.

(d) Availability of methods, tools, references, data and documents for supporting hazard identification activities. One source information such as accident data ever happened either internal or external company.

(e) Access to regulation related to activity the company also includes industry and data such as guidelines Material Safety Data Sheet (MSDS).

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2.2.4 Types of hazards

There are many things that can cause that event disadvantageous. The incident does not just happen without any cause. In the workplace there is a source of danger that can threaten safety and health of the workforce. The source of events that can result in workplace accidents are as the following:

2.2.4.1 Building, Equipment and Installation

Hazards from building, equipment and installation needs to get attention. Construction of buildings must be sturdy and fulfill qualification. The design of the room and workplace should be ensuring safety and health. Installation should be meet the safety requirements of both design and construction. Before operation should be done trial or experimental to ensure safety and also be operated by the person experts in the field to meet the specified standards. Equipment includes machinery and equipment or other means of use. This element is the main cause of the incident. Equipment maintenance is not just time consuming but also based on the conditions of its parts. Without regular maintenance, the state of the machine turned into a cause danger. The equipment that can cause various hazards such as: fire, stings, electricity, explosions and injuries should be properly used as well equipped with protective and safety equipment (Reason & Hobbs, 2017).

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2.2.4.2 Material

Each material has a danger with that level vary according to the nature of the hazard, including:

(a) Flammable.

(b) Generates energy.

(c) Easily explode.

(d) Causes damage to the skin and tissues.

(e) Causes cancer.

(f) Causes abnormalities in the fetus.

(g) Toxic and radioactive (Wilrich et al., 2012)

2.2.4.3 Process

The hazards of the production process vary greatly depending of the technology used. Process used in industry is dangerous and there is also less dangerous. The danger that often arises in the production process among others: dust, smoke, heat, noise, and mechanical such as pinched, cut, scraped, and crushed material.

2.2.4.4 Man, and Working Method

Including workers and management, the main cause most accidents that occur lie in employees, which cover:

(a) Less passionate employees.

(b) Less skilled.

(c) Are disturbed emotions (Bronstein, 2008).

Improper work practices can be dangerous to the workers, others, and the environment. Improper works which often occurs e.g. lift and transporting, if done in the wrong way can result in injury, and the most common is injury to the spine (Ropeik & Gray, 2002).

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2.2.4.5 Work environment

The dangers of the work environment can be categorized above various types of hazards that can lead to various health and occupational diseases and decline productivity and work efficiency. The dangers are:

(a) Physical Factor: This danger arises from the physical state in environment, include: Lighting, air temperature, humidity, rapid propagation of air, sound, mechanical vibration, radiation and air pressure.

(b) Chemical Factor: This danger can come from a material used or production which includes: gas, steam, dust, fog, smoke, liquids and solids.

(c) Biological Factors: This danger can come from animal classes and plants. For example: viruses, fungi, and parasites.

(d) Physiological Factors: This danger comes from nonconformities between machine construction with the size of the workforce may cause additional workload. For example: position work that is not appropriate, machine construction is not ergonomic.

(e) Psychological Mental Factors: Dangers that come from psychological workforce that includes work atmosphere, work that monotonous, non-conformity of employment between workers and superiors with subordinates (Fourie, 2004).

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2.3 WORK ACCIDENT

2.3.1 Understanding Accidents

Accidents are unexpected events and are not desirable. Unexpected here, because there is no element deliberate, moreover in the form of planning. Not desirable here because the accident was accompanied by material loss or suffering victims of accidents (Reason, 2016).

Work accident is accident related with a working relationship with the company. Working relationship here can be means that the accident occurred because of work or at the time of doing the job. Sometimes accidents caused work expanded scope so as to include also accidents labor on the way (Leveson, 2004).

Work accident is an event that is clearly not desirable and often unexpectedly can be incurring loss of time, property or property or otherwise casualties occurring within an industrial or working process associated with it. Thus, occupational accidents contain elements as follows:

2.3.1.1 Unexpectedly, because behind the accident there is no element of intent and planning.

2.3.1.2 Not desirable or expected, because of each event accidents will always be accompanied by both physical and mental harm.

2.3.1.3 Always cause loss and damage, which at least is causing disruption to work processes (Farooqui, 2011).

In the book "Accident Prevention" by Heinrich, Petersen, Roos, and Hazlett (1980) proposed a causal theory of accident which came to be known as "Domino Theory". From that theory illustrated that the incidence of an accident or injury caused by 5 causal factors that are sequential and standing parallel between one factor with another. These five factors are:

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2.3.1.4 Domino Work Site, examples of the causes are:

(a) Management control is lacking.

(b) Minimum work standards.

(c) Does not meet the standards.

(d) Faulty equipment or non-working place covers.

2.3.1.5 Domino Mistakes People, examples of the causes are:

(a) Skills and knowledge are minimal.

(b) Physical or mental problems.

(c) Minimal motivation or misplacement.

(d) Less attention.

2.3.1.6 Domino Actions and Unsafe Conditions, examples of causes are:

(a) Does not follow approved work methods.

(b) Take a shortcut.

(c) Remove or not use equipment work safety.

2.3.1.7 Domino Accidents, examples of the causes are:

(a) Unexpected events.

(b) Due to contact with dangerous machinery or electricity.

(c) Fall.

(d) Be hit by a falling machine or material, and so on.

2.3.1.8 Domino Injury

(a) Workers' tap

i. Pain and suffering.

ii. Loss of income.

iii. Loss of quality of life

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(b) Against the employer

iv. Factory damage.

v. Payment of compensation.

vi. Production loss.

vii. Possible control process.

Heinrich further explained, that to prevent the occurrence of an accident is enough to remove one of the cards dominoes or break the chain of dominoes. Based on the theory of the Heinrich, Bird and Germain (1986) modifies the domino theory by reflecting into direct management relationships with cause-and-effect losses accident. The cause of loss model involves 5 factors in a sequence. These five factors are:

2.3.1.9 Lack of Supervision

These factors include among others unavailability of program, program standard and non-fulfillment standard.

2.3.1.10 The Basic Cause Source

These factors include personal and factors work.

2.3.1.11 Cause of Contact

These factors include actions and conditions not in accordance with the standards.

2.3.1.12 Incidents

This happens because of contact with energy or hazardous materials.

2.3.1.13 Loss

Due to a sequence of previous factors will result loss in man himself, property and production process. (Salminen, Saari, Saarela, & Räsänen, 1992).

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Accidents that occur have certain sequences. This sequence theory is often known as the domino theory. In this theory explained that the accident occurred because there are supporting factors previous. Factors in the order of accidents are presented on figure 2.2:

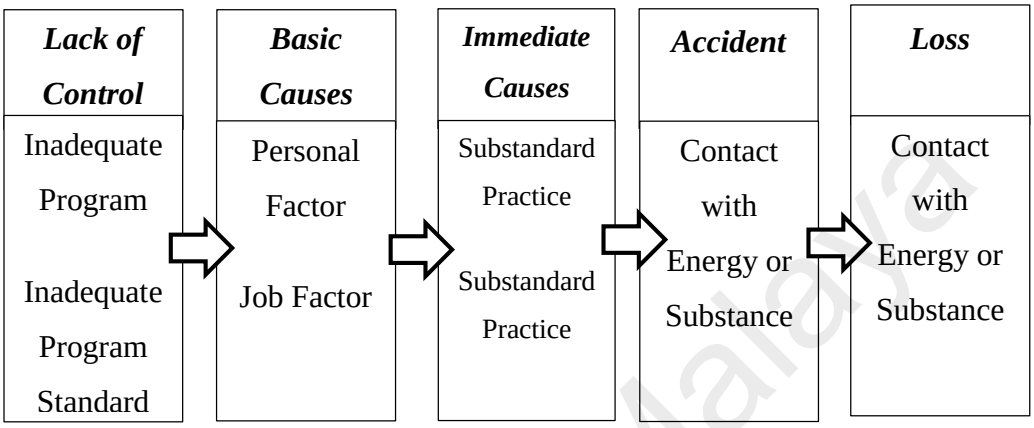

Figure 2.2: The Domino Theory Order (Frank Bird, 1990)

The causes of the accident include:

2.3.1.14 Lack of Leadership Control

When the cause of the accident is searched until the underlying cause it will lead to the management functions of Planning, Organizing, Actuating and Controlling. Control is a very important management function. Without control, the series of accidents will begin and will trigger the factors subsequent causes resulting in losses. Without strong controls, causes of accidents and securities will initiate and trigger sustained contributing factors accident. Lack of control can be caused by factors:

(a) Lack of programs.

(b) Lack of standards on the company.

(c) Insufficient knowledge of program standards.

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2.3.1.15 Basic Causes

The basic cause is considered the root cause, the real cause, indirect causes and supporting causes. The root cause helps explain why there are less standard condition. The basic cause is divided into two, namely:

(a) Human factors (Personal Factor)

i Lack of physical and mental ability.

ii Lack of knowledge.

iii Lack of skill.

iv Physical and mental stress.

v Lack of motivation.

(b) Job Factor

i Leadership and supervision are less precise.

ii Insufficient engineering.

iii Maintenance is inadequate.

iv Inadequate tool and equipment.

v The standard is inadequate.

vi Purchase is inadequate.

vii Misuse of authority.

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2.3.1.16 The immediate cause

The immediate cause of the accident is something that directly causes the contact. The immediate cause of it in the form:

(a) Unsafe acts, i.e. violations of ordinances safe work that is likely to be an accident, include:

i Running equipment that is not his job.

ii Running a machine / equipment that exceeds speed.

iii Remove the safety device.

iv Using damaged equipment.

v Not wearing PPE.

(b) Unsafe Condition, which is a condition beyond the standard which is likely to be an accident, including:

i Protector or barrier is not safe.

ii Personal protective equipment is not feasible.

iii Equipment, machinery, defective materials.

iv The warning system is not working.

v Cleanliness, work arrangement is not feasible.

vi Noise.

vii Radiation exposure.

viii Temperature is too high or low.

ix Less or excessive lighting.

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2.3.2 Factors That Cause Work Accidents

Potential hazards that can lead to workplace accidents can come from various activities in the implementation operation or also comes from outside the work process. Potential hazards at work that are at risk of causing the occurrence workplace accidents are among others caused by various factors:

2.3.2.1 Component Failure, among others derived from:

(a) Design of factory components including equipment / machinery and tasks that are not appropriate to the needs of usage.

(b) Failure of a mechanical nature.

(c) Failure of control system.

(d) Failure of the provided security system.

(e) Operational failure of the equipment used, and etc.

2.3.2.2 Conditions that deviate from a job, which can happen due to:

(a) Failure of monitoring.

(b) Failure of supply of raw materials.

(c) Failure in the use of raw materials.

(d) Failure in shut-down and start-up procedures.

(e) The occurrence of the formation of intermediate materials, waste materials and waste which is dangerous, and others.

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2.3.2.3 Human and organizational errors, such as:

(a) Operator / human error.

(b) Security system error.

(c) Mistakes in mixing hazardous production materials.

(d) Communication error.

(e) Errors or deficiencies in remedial efforts and maintenance tools.

(f) Doing unlawful work or not in accordance with safe working procedures, and others.

2.3.2.4 The influence of accidents from outside, namely the occurrence of accidents in an industry due to other accidents that occur outside the factory, as:

(a) Accidents at the time of transportation of the product.

(b) Accidents at refueling stations.

(c) Accidents at nearby factories, and others.

2.3.2.5 Accidents due to sabotage, which can be done by people outside or inside the factory, usually this will be difficult to overcome or prevented, but this factor is very small frequency compared to other causal factors.

Factors that causing accidents should be investigated and found, in order further corrective actions may be directed to the cause of the accident, so the loss and damage can be minimized and similar accidents do not reoccur. With knowing and identifying the cause of the accident, it will can be made a planning and preventive measures both in an effort to provide protection to the workforce (Kjellén, 2000).

2.3.3 Classification of Work Accidents

According to the International Labor Organization (ILO), the industrial accident can be classified by type of accident, cause agent or work object, type of injury and body location who was injured. Classification of industrial accidents in outline can be explained as follows:

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2.3.3.1 Classification by accident type

(a) Fall.

(b) Override or fall of work object.

(c) Stumble objects or objects, bump into objects, squeezed between two objects.

(d) Forced movements or excessive stretching of muscles.

(e) Exposure to hazardous materials or radiation.

2.3.3.2 Classification according to the causative agent

(a) Machines, such as; drives except electric motors, transmission machinery, production machinery, machinery mining, and agricultural machinery.

(b) Lifting and hauling equipment, such as forklifts, conveyances trains, conveyances other than trains, conveyances in waters, conveyance in the air.

(c) Other equipment, such as; pressure vessel, furnace / kitchen foundries, electrical installations including electric motors, tools electric hand, tool, ladder, scaffold.

(d) Hazardous materials and radiation, such as; easy explosive materials, dust, gas, liquids, chemicals, radiation.

(e) Work environment, such as; hot pressure and cold pressure, high noise intensity, vibration, underground space.

2.3.3.3 Classification by type of wound and injury

(a) Fracture.

(b) Sprained / dislocated / dislocated.

(c) Muscle and muscle cramps.

(d) Brain stroke and other internal wounds.

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(e) Amputation and enucleating.

(f) Scratched lesions and other external injuries.

(g) Bruises and cracks.

(h) Burns.

(i) Acute poisoning.

(j) Shortness of breath.

(k) Effect of electric current.

(l) The effects of exposure to radiation.

(m) Injuries to the many parts of the body.

2.3.3.4 Classification according to the location of the injured part of the body

(a) Head; neck; body; arm; feet; various body parts.

(b) Common injury (Fadilah, Ardyanto, Widati, & Mufti) .

2.4 ACCIDENT PREVENTION

The principle of preventing accidents is actually very simple i.e. by eliminating the cause of the so-called accident factor unsafe and unsafe conditions. But in practice it is not as easy as imagined because it involves various elements interconnected from direct causes, underlying causes and background behind (Reason, 2016).

Occupational accident prevention in general is an attempt to looking for the cause of an accident and not looking for who wrong. By knowing the cause of the accident then able to draw up precautionary plan, which it represents OSH program, and it is essentially a formulation of a strategies on how to eliminate or control potential hazards which is already known.

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To make the OSH program in the framework of accident prevention work, several stages that must be understood and passed:

2.4.1 Identification of Problems and Unsafe Conditions.

Awareness of potential hazards in a workplace is a first and foremost step in prevention efforts accidents effectively and efficiently. Data obtained from the results identification will be very useful in planning and implement a further accident prevention effort. The identification of this problem includes:

2.4.1.1 Introduction of occupations that contain the risk of occurrence accident.

2.4.1.2 Introduction of components of equipment and hazardous materials used in the work process.

2.4.1.3 Location of job implementation.

2.4.1.4 The nature and condition of the workforce handling.

2.4.1.5 Management's attention to accidents.

2.4.1.6 Available prevention and control facilities and equipment.

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2.4.2 Accident Model.

Accident model showing how an accident can happen. To discover the causes of accidents, known various accident models as follows:

2.4.2.1 The usual accident model, which simply describes possible causes of accidents, i.e. for example someone somewhere that poses a potential danger.

2.4.2.2 Foul-Tree Analysis (FTA) model analysis, i.e. a method for identifying a combination of equipment failure and human error, using the "Top-Down" procedure that starts from the accident.

2.4.2.3 Event Tree Analysis (ETA) model, i.e. a technique for identifying and evaluating potential accidents that may occur as a result of failure or disorder or commonly called the beginning of the incident.

2.4.2.4 Hazops model (Hazard and Operation Study), which is a method used to know, recognize and identify all potential hazards in an implementation operation of a production process.

2.4.3 Accident Investigation (accident analysis).

Accident investigation or accident analysis is an effort are made to more thoroughly know the causes and the occurrence of accidents. This analysis can be used various methods, such as methods; Hazan (Hazard Analysis) method. With this method will be predicted the occurrence of an accident, cause of the accident and how much the accident will be happened.

2.4.4 The Principles of Accident Prevention.

The principles of accident prevention are the principles about the cause of the accident that must be known to determine the causes of an accident, which is known 3 (three) principles are:

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2.4.4.1 Complicated Principle (Complex) is the existence of several independent causes or unrelated to one another in combination will cause an accident.

2.4.4.2 Meaning Principle (Important), that is the main cause factor (most important) in the event of an accident.

2.4.4.3 The sequence order, which is the sequence of various causes causing an accident.

2.4.5 Planning and Implementation

Accident prevention efforts should be done immediately after through the stages of problem identification, modeling and methods of accident analysis as well as understanding the principle of accident preventive benefits (Hollnagel, 2016).

2.5 LOSSES

Losses due to accidents are categorized as direct losses (direct cost) and indirect cost (indirect cost). Loss direct e.g. injury to labor and damage to facilities production. Indirect losses are losses that are not visible so often referred to as a hidden loss (hidden cost) such as loss due to cessation of production process, decline production, claims or compensation, social impact, image and trust consumer. Broadly speaking the accident loss is divided into two, which are:

2.5.1 Direct Losses

2.5.1.1 Medical Expenses and Compensation

The accident resulted in injury, either mild injury, weight, disability or death. This injury will be resulting in not being able to perform their duties properly thus affecting productivity. In case of accident, the company must pay for medical expenses and accident allowances in accordance with the prevailing regulations.

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2.5.1.2 Damage Facilities of Production

Another direct loss is damage to facilities production due to accidents such as fire, blasting, and damage. Companies need to pay for repairs. Many entrepreneurs are lulled by insurance coverage of its organizational assets. But in reality, no insurance will pay for all losses incurred, because there are things which is not included in the scope of insurance, such as loss cessation of production, loss of market opportunity or customer. Therefore, even if an asset is insured, it does not matter that its security efforts are no longer required. Precisely with a good level of security will lower the risk level which in turn can lower the insurance premium (Jerry & Richmond, 2012).

2.5.2 Indirect Losses

2.5.2.1 Hours Loss

In the event of an accident, the activity will certainly stop while to assist injured victims, prevention incident, damage repair or incident investigation. Losses of working hours lost due to accidents amount large enough to affect productivity.

2.5.2.2 Production Loss

Accidents also bring harm to the process production due to damage or injury to workers. Company cannot run production temporarily so it loses opportunities for profit.

2.5.2.3 Social Losses

Accidents can have a bad social impact against the immediate relatives of the victims, as well as the surrounding social environment. When a worker gets accidents, his family will suffer. If the victim does not able to work or die, then the family will lose sources of life, displaced families that can cause misery. Being covered more widely, accidents also carry impact on the surrounding environment. In case of disaster such as leakage, blasting or fires surrounding communities will panic, or may be a victim.

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2.5.2.4 Consumer Image and Confidence

Accidents create a negative image for the organization because it is considered not to care about safety, unsafe or destructive environment. The image of the organization is very important and decisive progress of a business. To build an image or company image, organization requires a long and heavy struggle. However, this image can be damaged in an instant if it occurs disaster or accident even more if the impact is widespread. As consequently society will leave even probably will boycotting every product (Meel et al., 2007).

2.6 OCCUPATIONAL SAFETY AND HEALTH (OSH)

Occupational Safety and Health that has been popular with OSH designation, today its implementation has spread widely in almost every industry sector. Occupational Safety and Health (OSH) philosophically defined as "Efforts and thoughts for guarantee the unity and perfection of both physical and spiritual self-people in general and labour in particular along with the results his work in order to lead to a just, prosperous society, and prosperous". In scientific OSH is defined as "Science and its technical and technological application to prevent it against the appearance of occupational accidents and occupational diseases of any occupation". And from a legal science point of view, OSH defined as "A safeguard for every workforce and others who enter the workplace are always in a state the healthy and safe and the sources of the production process can run safely, efficiently and productively "(Reese, 2015).

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2.7 TRAINING

OHS training is a process of learning more emphasizes practice rather than the theory of a person that work or a group of work units by using adult learning approach (andragogy) aimed at improve skills and skills in OSH field. Training as a system at least consists of 5 (five) processes as an integral sub-system, the five systems are:

2.7.1 The process of identifying training needs

2.7.2 Training planning process

2.7.3 Training development process

2.7.4 The process of organizing training

2.7.5 Training evaluation and reporting process

Training will work well if implemented by following the whole integrated process. Beginning training program should be developed through the process of identifying needs. From the results of the identification of future needs, it will be formulated training planning that includes the determination of training objectives with goals of changing aspects of cognitive, effective, and psychomotor behaviour training participants.

After the training objectives are formulated correctly, the next strategies should be designed and developed to achieve the goals that have been set. The training program's strategies include; selection of participants, specific goal and objectives, determination type of training, scheduling, determination of trainers or instructors, tools and infrastructure, cost budget, evaluation and reporting of the organization training. Then after the training program is organized, the training is ready to be implemented (Blanchard, 1999).

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OHS training is not an inexpensive alternative to being able to move or remove the hazard from the source. However, OHS training is an integral part of OHS performance management company strategy. OHS training is required for company policy implementation and work procedures, to maintain and use OHS information systems and so that the training management is a key tool in preventing accidents and illnesses work at work. In addition, the quality of OHS training requires sacrifice cost, time and commitment together. Without that approach structured, training will not be effective even become counterproductive (Zimolong & Elke, 2006).

2.8 KIKEN YOCHI (KY)

Kiken Yochi（危険予知）comes from Japanese. Kiken in the Japanese language means danger or hazard. The danger here is meant to be a potentially potential condition for the occurrence of accidents / losses. Yochi in Japanese means predict, so Kiken Yochi means an activity in the form of predicting the dangers that exist around, so that danger can be identified and can be immediately addressed to the level which is more secure.

KY started in Japan in 1974 as a technique for prevention of occupational disease and since late 1970s it become widely to the entire industrial world. KY skill important for the worker in enabling them to know hazard, which will raise awareness and their understanding of what they can do to be more careful and proactive in preventing the hazard from being an incident. It can also increase productivity and processes to ultimately reduce costs.

The most common KY practice being done is Four Round (4R) Method. This method is performed in small working group. Table 2.1 summarize the 4R Method:

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Table 2.1: Basic of Kiken Yochi procedure practice using 4R Method

ROUND	4R EXERCISE PREDICTING HAZARDS	PROCEDURE EXERCISE PREDICTING HAZARDS
1R	What hazards are hidden? (Hazard Identification)	Through discussion, each member try to find hidden dangers on the picture / illustration situation. Discuss what causes and problems will arise.
2R	Select the most unwanted danger (Hazard Selection)	If the hazard found is not desirable give a sign (O). Having considered the most unwanted danger allocate the mark ◎ and give the line. Next point and confirm together.
3R	What Corrective Actions to be taken? (Set Corrective Action)	Consider how to eliminate and reduce ◎ marked hazards and set necessary corrective actions.
4R	Affirm the correct corrective action to follow up (Confirmation)	Focus on the OHS requirements to be applied and mark (X). Then set each group's goals / targets. Confirm with point and calling (pointing and calling)

Figure 2.3 explains more clearly about 4R Method in Kiken Yochi with the illustration of job handling trolley as an example:

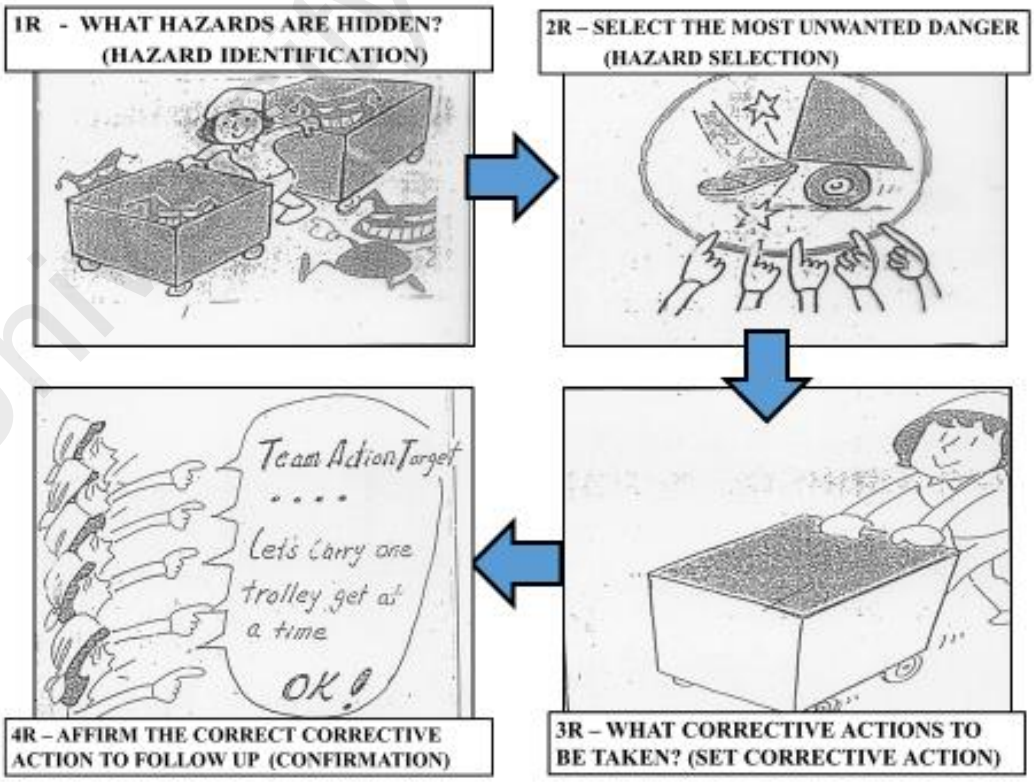

Figure 2.3: 4 Round Method in Kiken Yochi

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2.8.1 The Importance of KY Training

2.8.1.1 Techniques for confirming safety.

KYT is a system that collects information about the hazards, discusses it, shares, resolves it, and sets a point of hazards and targets of action. By doing that, it will expressly appeal to the subconscious, greatly appreciates the vulnerability to the danger. It can be said that it is a method to enhance the capability to solve problems.

2.8.1.2 Input danger information into subconscious.

Human beings go through a certain learning process since their birth. As a result, human beings are mostly customs, judged unconsciously, and the body is made to move naturally. Humans are deeply dominated by subconscious mind. It is important to send information on danger under consciousness, to make it a new habit by devoting it to subconscious mind, to make it aware of it naturally and make it a new habit required points.

2.8.1.3 Actualization by finger pointing to points of danger and action targets.

Once consciousness and customs are planted, it will not quite disappear. And if ones believe that erroneous knowledge is correct, the body responds unconsciously accordingly. In the case of KYT, it is the point of danger and behavioural goal that professional friends who knows about in the workplace kneaded and kneaded in the kneading, there is nothing more correct than this.

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CHAPTER 3: RESEARCH METHODOLOGY

The method used in this research is descriptive method namely a research method that is done with the main purpose for creating a description or description of a situation objectively. In this case the author writes about the description of the implementation of Training OSH especially Kiken Yochi Training at an automotive manufacturing plant locate at Serendah, Selangor (referred to Company A). The main business of the plant is production of vehicles. The plant was commissioned in February 1993 and has production capacity of 300,000 units per annum.

3.1 OBJECTS AND SCOPE OF RESEARCH

As the object of research is the implementation of Kiken Yochi Training program conducted at Company A plant that includes the identification of training needs, training program planning, training program development, training and evaluation of training programs. The scope of research on the implementation of Kiken Yochi Training as an effort to prevent accidents at work Company A plant.

3.2 DATA SOURCE

In conducting the research, the authors use the data as follows:

3.2.1 Primary Data

Data is obtained directly by observation directly to the field and interview with related parties.

3.2.2 Secondary Data

Data obtained indirectly from the document company on occupational safety and health and reading literature related to occupational safety and health.

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3.3 DATA COLLECTION TECHNIQUE

Data collection techniques are as follows:

3.3.1 Direct observation

Observations are made directly to the field with knowing things related to the holding of Kiken Yochi Training.

3.3.2 Interview

Conducting question and answer directly to related parties regarding the implementation of Kiken Yochi Training.

3.3.3 Library Studies

To obtain secondary data is done by reading the existing literature and the laws relating to the material field practice.

3.4 IMPLEMENTATION

3.4.1 Preparation Stage

At this stage:

3.4.1.1 Application for the permission of field work practice at Company A.

3.4.1.2 Read and study related literature occupational Health and Safety.

3.4.2 Implementation Phase

The implementation phase includes:

3.4.2.1 General explanation of the company where field work practice is held.

3.4.2.2 Observation based on interview.

3.4.2.3 Direct observation of environmental conditions at the company.

3.4.2.4 Search complement data through company archives and books reference.

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3.4.3 Data Processing Stage

The data obtained is arranged in such a way that it can be used as report writing.

3.5 DATA ANALYSIS

Data analysis performed including descriptive analysis, that is with describes explicitly the implementation of the Kiken Yochi Training at Company A plant and subsequently compared with government regulation issued Department of Occupational Safety and Health (DOSH) Malaysia.

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CHAPTER 4: RESULT AND DISCUSSION

4.1 RESULT

Company A Sdn Bhd is a company engaged in industry manufacture of components or assembly of motor vehicles of brand P as well as metal processing equipment or workmanship. Product the main is the assembly of cars My, Al, Ax and Bz. For Other products are fuel tank, dashboard, suspension and bumper.

Production process at Company A Serendah Plant outline consists of 6 stages, namely: the stamping process (press), welding process (body), painting process, part painting process (resin shop), assembling process, and delivery process. In a job or activities carried out in the production process there is a potential hazard, which is where the potential existence of such hazards may result accidents or incidents affecting people, equipment, material, and environment.

To prevent the occurrence of accidents or incidents then all the potential hazards present in the company should be identified. So that the first step to eliminate or control potential hazards is to identify potential or recognize potential presence danger in the company.

Identification of potential hazards is an important aspect of the effort prevention of work accident, therefore Company A Serendah Plant organizes training to improve the ability to guess the danger of all workers is by organizing Kiken Yochi Training (KY Training).

Kiken Yochi comes from Japanese. Yochi in Japanese means guessing. Predict here means to identify the situation that is all around. Kiken in Japanese means danger. Danger here is intended to be a potential condition for its occurrence accident / loss, so Kiken

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Yochi means an activity in the sense of the dangers that exist around, so such hazards can be identified and can be immediately addressed to a level which is more secure.

From the above explanation, Kiken Yochi Training can be interpreted training to develop skills, sharpen and sharpen feelings and insights to recognize the source of danger or the things that are dangerous around. To achieve effectiveness and efficiency, in the implementation KY Training there are several processes as shown in figure 4.1:

Figure 4.1: Kiken Yochi Training Process Flow

4.1.1 Identification of Training Needs

The Company has a Safety and Health Policy (SAFETY) whose one of the goals is growing and developing a culture of "Predicting Hazards". For achieving that goal is one of the efforts undertaken company is to organize the program Kiken Yochi Training. In addition to meeting the objectives of the SAFETY policy, KY Training program is identified as one of the programs training held due to there are sources of danger in workplace when the potential danger is left to be causing work accidents, lack of knowledge and workers' skills to recognize potential hazards place of work, and is one of the implementation of OSHMS is about skills development and ability.

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4.1.2 Training Program Planning

The training organizer makes the training program planning which will be held for the smooth implementation of the training. Planning includes:

4.1.2.1 Determination of objectives and benefits of KY Training, as for its purpose are as follows:

(a) Sharpen the safety sense and alertness towards things that are not safe.

(b) Improving the ability to recognize the surrounding hazards.

(c) Training to anticipate problems that will arise.

(d) Ensure that every job can be done safely and healthy.

After making the goal of KY Training, next is to determine the benefits gained from the organization training, the benefits of training implementation are:

(e) Avoiding the occurrence of human error (Human Error).

(f) Increase the things that might happen by making precautionary concepts.

(g) Reduce the level of risks and dangers that will arise with making improvements.

4.1.2.2 Goals setting

In the planning process, the training is determined by the target training. It is intended that the training is organized accordingly with the need to improve skills in OSH field. For KY Training target is the whole manpower in all shop and in each session training is 10-20 participants from every shop. The objective of this training is prioritized for workers who have not reached the target level KY, i.e. level 3.

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4.1.2.3 Time schedule of Training Program

Each training will be scheduled and held follow implementation target. For KY Training implementation target is started in Feb 2013 and completed in July 2013 for the amount participants were 2566 people. Implementation of KY Training done every week on Wednesdays, and implemented simultaneously throughout the shop starting at 17:00 - 20:00. Figure 4.1 shows the training schedule plan of Assembly shop:

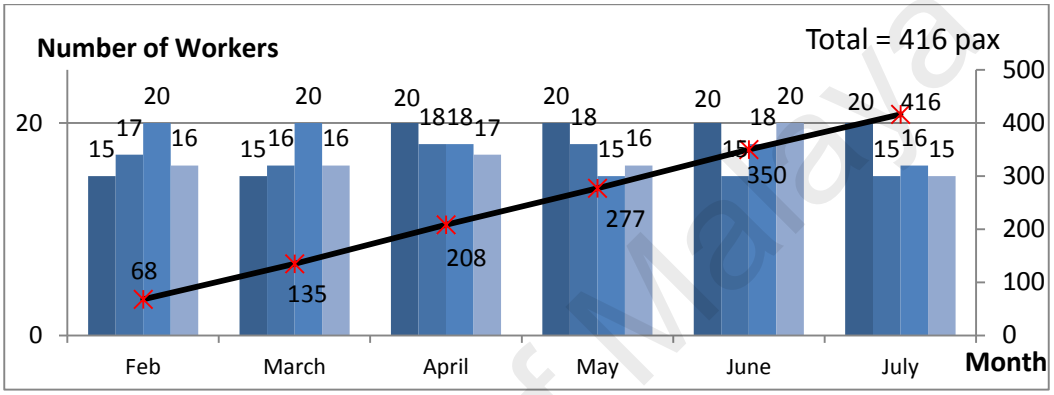

Figure 4.2: Assembly Shop monthly training plan

4.1.2.4 Responsible Training Program

The person in charge of the training program is the Safety, Health & Environment (SHE) Department as the whole party training in the company. To ensure all training materials according to the identification then the trainer is appointed by SHE Dept. accordingly with the material to be trained. Responsible person as well forming an organizing team with their respective assignments to clarify their respective responsibilities and duties.

4.1.2.5 Documentation and monitoring of training programs

At the time of the training being carried out, the documentation in the form of data collection of trained people and types training (KY Training) which is in the form of attendance sheet as well documentation in the form of photos. In KY Training, documentation is done by giving attendance sheet to all participants, then the sheet are

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gathered to secretariat section to be documented and collected participants who have attended training. With this data collection will be makes it easy to determine the next trainee. After it is monitored once a month to find out whether training has been effective and efficient.

4.1.3 Development of Training Program

The development of training programs in the company is managed by SHE Dept. For KY Training, the training development is conducted by internal company because of objectives and related material training program is a specific problem in the company. The organizers developed the KY Training program by creating training methods. Methods created for development that is:

4.1.3.1 In class, which includes: KY theory, observation by video, and discussion in group.

4.1.3.2 In Location (Gemba), which includes: observation in Gemba and discussion in group.

4.1.3.3 KY Ability Assessment

4.1.4 Training Implementation

In order for the training can run according to what expected, then the organizers do a good preparation about things related to training, such as:

4.1.4.1 Establishment of an organizing team

The person responsible is SHE Department to form a team training provider, with their respective duties. Monitoring of the training is conducted by the secretariat which covers the suitability of the schedule, the delivery of the material by trainers, and the readiness of training infrastructure facilities.

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4.1.4.2 Determination and selection of trainers

In the implementation of KY Training, the selected trainers namely Safety Officer from each shop, because Safety Officer more knowing what to tell or what potential danger which is often in the workplace (every shop).

4.1.4.3 Preparation of facilities and infrastructure

For smoothness in training, then all facilities and infrastructure needed in training activities must be prepared first. Facilities and infrastructure needed in the implementation of KY Training are:

(a) Training place - The training places are determined by the trainers in each shop that includes a place for in class training and venue for in location training (Gemba).

(b) Video Recording of the production process - A video recording of the production process is made by Safety Officer of each shop. This video recording will be aired at the time of in class training which is in the recording there is a potential danger, then the participant will do identification of the hazards present in the video recording.

(c) Computer, pointers and snacks.

4.1.4.4 Preparation of training materials for participants.

Training materials are made by SHE secretariat. For KY Training, the materials contain ways recognize the dangers that exist in the workplace. For training materials, in detail can be seen in appendix A.

4.1.4.5 Determination and selection of participants

In KY Training, all participants were selected from all the production shop. Office staff not include in the specific KY Training. Number of workers from each shop is shown by Figure 4.2:

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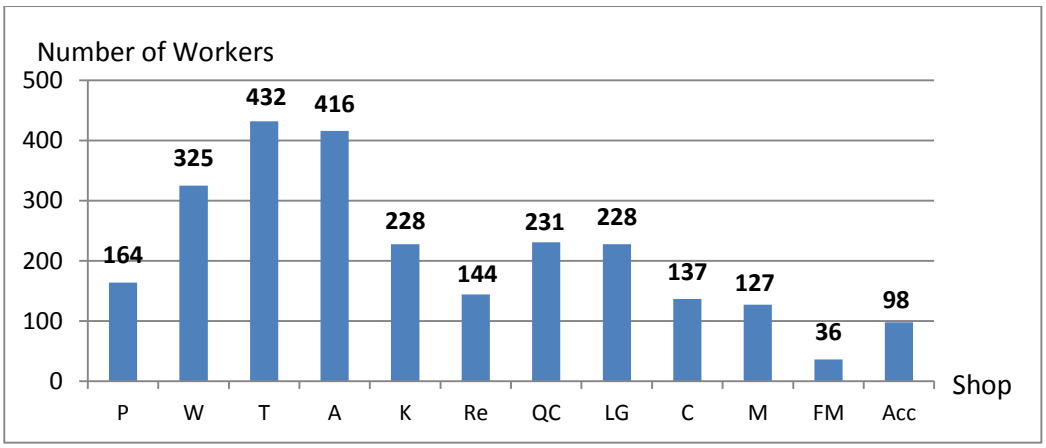

Figure 4.3: Training participants by each shop

4.1.5 Evaluation of Training Program

Evaluation activities are a way of knowing efficiency and effectiveness of KY Training. Evaluation activities from the implementation of KY Training program is as follows:

4.1.5.1 Implementation of training activities.

Implementation of training activities to see whether the training is organized according to schedule, means of infrastructure used in training whether it is complete and as desired, and efficiency use of training costs.

4.1.5.2 Results of KY Ability Assessment

From KY Ability Assessment can be known ability of guessing the dangers for each worker and the answers wrote down in the KY Ability Assessment were analyzed. So that can be known what points cannot be fulfilled by the participants. These unfulfilled points will then be made into material in the next training.

Evaluations are not only done by the organizers. Organizer also ask participants for feedback on evaluation, suggestions and criticism.

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4.1.6 Monitoring of KY implementation

During the training, workers are taught the techniques and measures implementing KY in the right way. In principle, the method carried out round 4 KY. The steps are as follows:

4.1.6.1 Round 1: Understand the hazard situation.

Workers need to understand situations hazard and lists all hazard found. Hazard is made up of either Unsafe Action (USA) or Unsafe Condition (USC).

4.1.6.2 Round 2: Risk assessment.

Risk assessment of risks arising from the hazard section are listed. Injuries that would occur as a result of the identified hazard.

4.1.6.3 Round 3: Preventive action.

Specifies the immediate action to be taken to prevent accidents from happening.

4.1.6.4 Round 4: Set the target do a target.

The next such action verified by finger pointing and say it clearly.

To ensure the effectiveness of the methods that has been taught, workers are required to perform KY in shop respectively. This KY activity is done individually and group. Each group KY had a leader and 5 members. Each group needs to make one KY cards a month. KY card is then sent to the SHE department for the evaluation and records keeping. Figure 4.4 showing generally Kiken Yochi implementation flow chart in the Company A.

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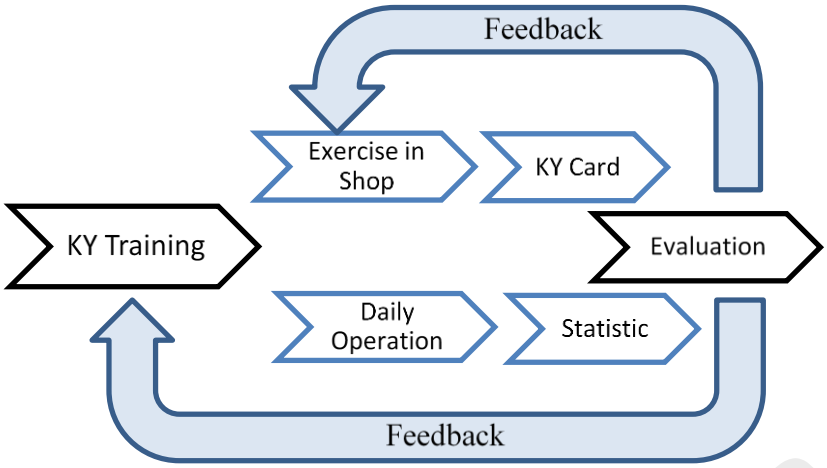

Figure 4.4: Kiken Yochi Implementation Flow Chart

4.2 DISCUSSION

Implementation of KY Training in Company A Serendah Plant in its application has been in line with several theories and meet the existing regulations in Malaysia, between other:

4.2.1 Identification of Training Needs

The Company has implemented the identification of training needs accordingly with the opinions expressed by Arthur Jr, Bennett Jr, Edens, and Bell (2003) that the initial training program should developed through the process of identifying needs.

The implementation of KY Training is influenced by a few factors that are internal factors and external factors. Internal factors which affect the holding of KY Training program is the presence of hazard sources in the workplace and the lack of workers' skills to recognize potential hazards. While the external factors to the KY Training is the requirement from OSHA 1994 on the training provision and development of skills and abilities.

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This is in line with the opinion of Baird (2005) which states " general factors that affect the needs of OSH training include internal factors and external factors of the organization ".

4.2.2 Training program planning

4.2.2.1 Objectives and goals of the training program

In the KY Training program, clearly defined goals and objectives. This is in accordance with the opinion of Brett and VandeWalle (1999) which states "In the planning of training programs should be made a list of what it wants to achieve or a goal setting and goals ".

4.2.2.2 Time of Training Program Achievement

The training organizer has created a training schedule and create a target for the implementation of KY Training will be finished in July for total of 2566 participants. This is in line with the opinion of Brown (2002) which states "Training program planning should be included in the schedule training (timetable) complete, including the determination of priority scale based on its urgency ".

KY Training is held simultaneously throughout the shop starting at 17.00 -20.00. This is so that all participants can attend the training because it is done outside working hours. This is in line with the opinion of McMenamin (2007) which states "It's important to take into account the on-site work schedule work on each work unit. It is very ineffective, when the training is held but the work schedule is very busy / busy, so as not to allow participants to attend the training that has been scheduled.

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4.2.2.3 Responsible Training Program

The person in charge of the training program is the SHE Department as the whole party training in the company. To ensure all training materials according to the identification then the trainer is appointed by SHE Department accordingly with material to be trained. This is in line with opinion of Brett and VandeWalle (1999) stating "In program planning training should be determined by the person responsible each type of training. If the company has training officer, then the concerned shall be given a general responsibility to ensure that all OSH training materials comply with identification of training needs.

4.2.2.4 Documentation and Monitoring Training Program

Documenting is done by presenting attendance to all participants, then the presences collected to the secretariat section to be documented and conducted data collection of participants who have attended training. This matter in line with the opinion of Brett and VandeWalle (1999) which states "Documentation includes data about people who are have been trained and the type of training that has been followed, so that future training needs and disparities which is still occurring can be identified "

4.2.3 Development of Training Program

For KY Training, the development is done by internal company due to objectives and materials related to the program training is a specific problem in the company. There are so many types training that can be developed and organized by internal company, especially for the purpose and the matter concerned specific issues at work.

4.2.4 Organizing Training

4.2.4.1 Establishment of an organizing team

The person responsible is SHE Department to form a team training organizer, with its duty of doing organizing and monitoring the course of the training. Monitoring of the training is conducted by the secretariat which covers the suitability of the schedule, the

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delivery of the material by trainers, and the readiness of training infrastructure facilities. This is in line with the opinion of Tolentino (1998) stating "Duty organizers in the implementation of training include: monitoring of the implementation of appropriate training process program schedules prepared, whether related to trainers, participants, learning media, facilities and infrastructure.

4.2.4.2 Determination and selection of Trainers

In the implementation of KY Training, the selected trainers namely Safety Officer from each shop, because Safety Officer more knowing what to tell or what potential danger which is often in the workplace (every shop).

Before the training is held, organizers prepare all facilities and infrastructure needed for training i.e. set the training ground, prepare the video for implementation training, and prepare training equipment such as computers, focus, pointers and snacks. In order for the training can run in accordance with what is expected, then the administration or the person in charge of the activity should make good preparations about various matters relating to the organization of training.

4.2.4.3 Preparation of materials for participants

The organizer has prepared training materials for the participants In KY Training, the materials contain ways to identify hazards that is in the workplace. This is in line with Saks and Belcourt (2006) opinion, stating "In order for training can be walking in accordance with what is expected, the person in charge of the activity should make well preparation about various matters relating to the implementation training such as training materials for participants ".

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4.2.5 Evaluation of Training Program

After the training is held, an evaluation is conducted to its implementation and the achievement of KY participants. This is for measuring the effectiveness and efficiency of a training program held. This is in line with Phillips and Phillips (2016) opinion states "Evaluation activities are a way of measuring efficiency and effectiveness of the newly completed training held " and also in accordance with Government guidelines that program training is regularly reviewed to ensure that it remains relevant and effective.

Evaluations are done by the organizers. The organizer also does request feedback from trainees on evaluation, suggestions and critics. This is in line with Tarwaka's (2008) opinion states "To know the efficiency and effectiveness of the implementation training programs, can also be obtained from the feedback participants, through evaluation, suggestions or criticisms requested from the participants another concern:

4.2.5.1 What hope is desired by the participants before coming and follow the training.

4.2.5.2 How much hope they can be fulfilled upon completion follow the training.

4.2.5.3 Participants' suggestions and criticisms fulfilled their least expectations.

4.2.5.4 The participants' opinions about the trainer (regarding the mastery of the material, methods and delivery techniques).

4.2.5.5 Opinions about training facilities and infrastructure, etc. ".

4.2.6 Monitoring of KY implementation

With KY card, KY implementation been evaluated and monitored. This is important to ensure that the employee has totally dominated the KY techniques. By evaluating the KY card, weaknesses and errors can be identified. By doing this KY training minimum once a month it is hoped that the safety skills of the workers will be enhanced. Actually, this is not simply KY done because the company's instructions, but to become good habits of workers themselves. To produce this good habit, it should start from know and

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understand by learning through training held, then do with training in shop respectively. Exercise repeatedly will produce a habit of safe conduct and thus build a safe worker.

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CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

The study of concept and philosophy of KY has been successfully been done in this research. It has also been successful in reviewing and exposing company A's efforts to implement Kiken Yochi as one of the ways to reduce industry accidents. Based on the results of the analysis and discussion of the implementation OSH Training especially KY Training in Company A Serendah Plant, the authors can conclude that the implementation of Kiken Yochi Training is good and successfully because in line with the existing theory and in accordance with the laws and regulations. Also, in the implementation there are several processes, namely: identification of training needs, training program planning, development training programs, training and evaluation of training programs.

The successful implementation of the KY activity can be seen from the available statistic data at the factory as well as from the actual observation of the safe conduct of workers. Comparing with condition before the KY training implementation, industrial incident rate has shown decreasing pattern and for specific example, a shop in the Company A has achieving records of 3 years without industrial accident.

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5.2 RECOMMENDATION

Although the implementation of KY is considered to be successful in achieving its objectives, there is still the cases of industrial accident occurring within the company A. To that end, the continuous improvement of the program need to be done in achieving better results. Based on the research conducted, the implementation of KY is not comprehensive to all staff in Company A. Staff at the office is not involved with the implementation with the KY Training. Therefore, it is recommended that the training and exercise be carried out too to the office staff.

Also, to better enhance KY skill among workers, the practical training frequency at the production site is proposed to be increased, for example twice a month or once a week. In addition, in terms of visualization, the result of exercise material e.g. KY cards should be displayed in the Gemba and office space. With the display in each place, workers will be more vulnerable and always reminded about the KY. The best KY card can also be proclaimed as examples and references to all of the workers.

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