Poster Paper
Malaysian Science & Technology Congress '99
Kucing, Sarawak, Malaysia 8 – 10 Nov. 1999

# GENERAL PLANT SAFETY IN A TEXTILE FACTORY

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**Key Word: Spinning accidents, carelessness, improper training, improper attire**

## ABSTRACT

The paper describes a research work to solve the safety problem in a textile factory. Accident cases were identified in all departments, which were spinning, dyeing and knitting departments, and general cases within the factory. From the analysis, it was observed that for the past 5 years, 31 – 42 % of the accidents came from the spinning department with the highest is spinning accidents. Spinning accidents came from two particular machines; spinning section and roving machines. The general cause of the accidents was due to carelessness, improper training, and improper attire during work.

Based on the finding, suggestions were made, especially for the spinning department workers. Among them were some basic training and also proper attire during work. These suggestions at least to prevent repetitive accidents from occurring.

## BACKGROUND

Committed to pursuit of excellence in a global textile business, a textile factory will continue to strive towards maintaining the best allocation of its superior financial returns to benefit shareholders, not forgetting the allocation fund towards creating a safer working environment for their employees. It greatly values the integrity, their people, environment, health and safety measures and business relationships. Most of all, the factory would like to fulfil its

commitment to the community, by means of being a socially responsible and accountable corporate citizen.

Just like any other factories, the textile factory is prone to have accidents in its respective areas. One of the major problems the textile factory is facing now is the occurrence of accidents frequently. Accidents mainly occur in the spinning department, dyeing department and the factory surroundings. All these areas have their own respective cases, which contributes to the accident statistics. Therefore the study task will be to identify the particular area which has the most cases as well as proposing a proper safety management procedure and the best recommendation for that respective area.

Safety is regarded as one of the most essential element in any plant. Workers usually refusing to wear safety equipment and protective clothing due to the discomfort leads to accidents in factory because they took their safety for granted. There is need to establish a vision of the desired safety culture and communicate it throughout the organisation. The Safety Committee or the respective management team usually does this to instil the safety culture in the working environment. There is a culture at every site that a person must work within. This culture has more of an impact on safety than the physical problems that exist. In order to win the hearts of the people, a culture change must take place. The workers must learn to value of following safety procedures[1,2,3]. Therefore the objective of the study are to reduce accidents in the coming years by enforcing safety management and to build up sense of safety awareness among workers and staffs in the textile factory.

Since the accidents cases are not tabulated and do not have a proper recording or filing system, there is much effort in the early stages of the study. The scope of study include analysing the accident cases in all departments through the records for the past five years and doing a statistical study through data gathering and questionnaires to implement safety management in a respective area which has the most severe cases such as hand and finger injury, as well as fractures.

## RESEARCH METHODOLOGY

Since the data, which was available is at random and scattered condition, necessary steps were taken into account in organising the data. A lot of analysis was carried out which, particularly involved statistical analysis in organising the data, which has been gathered. Questionnaires were distributed in order to study and have a clear understanding on the workers point of view. The final part of the partial research was much involved in suggestion and recommendation. Figure 1 shows the flow chart of the methodology process. Accident analysis started from SOCSO reports, from which data were gathered for the past five years. All cases were listed according to the respective areas, such as spinning, knitting, dyeing and factory surrounding, and their relationship to the department as well as the years. From this analysis, the department, which is contributing the most cases, is identifiable. The analysis was further extended to the specific department to identify the particular machine that contributed to the accident cases in the factory and degree on the seriousness of the injury. The final part of the analysis was distributing the questionnaires to the workers involved in those particular machines in that specific department. The study also involves safety measures, workers condition in handling the machine, implementing and assessing the risk in management point of view.

## RESULTS AND DISCUSSION

### Overall and Yearly Accident Cases

As shown in Fig. 2, year 1995 has the highest number of accident cases followed by 1994. For the past five years, 25 % of the accidents have accounted from 1995. And, from Fig. 3, it can be seen that in 1993, spinning and knitting departments have the highest number of recorded cases quoting 35 % and 20 %, respectively, with the spinning has the highest rate of accident cases. This is due to that within those period, the factory employed extra number of foreign workers at those department and language was a problem. Furthermore, there was no co-operation and feedback from the workers themself. In 1994, the spinning and knitting

departments still have the highest cases, 38 % and 23 %, respectively, as shown in Fig. 4. In addition, the dyeing department has accounted quite high cases due to workers carelessness. Workers hardly wear shirt when they are in those departments. In spite of giving personnel protective equipment, they still do not follow instruction. That is why they are prone to chemical injuries, such as chemical splash and inhalation.

In 1995, once again the most cases occurred is in the spinning department, accounting 42 %, as shown in Fig. 5. This percentage is higher compared to the previous year. One of the reasons for a high percentage was that, at this peak time, economic was booming for the factory, therefore there are extra foreign workers without much emphasising on safety training. There was also no proper guidance for those workers and most of them did not understand what safety was all about. Fig. 6 shows the accident cases for the year 1996 at the respective area. It clearly seen that spinning department has the highest cases. In this particular year, management of the factory was doing a good job in emphasising safety but the workers were very careless in handling their job. One of the reasons is that they neglected working procedures, which was leading to severe hand and finger injuries. In 1997, the same phenomena as previous year have occurred. As shown in Fig. 7, the spinning department contribute the highest cases.

**Accident in Spinning Department**

For the past five years, it could be observed that within the factory, spinning department contributed to highest cases and most cases occurred in the year of 1994 and 1995. In this department, the machines involved were roving, spinning, winding, doffing, carding, UnilapE-5 and combing. Fig. 8 shows the accident cases for every section or machine within the spinning department. From this figure, it can be seen that spinning and roving sections have the most cases, comprising of 39 % and 23 %, respectively, with the most common injuries are hand and finger injuries. Finger injuries normally occurred when the workers clean or remove unwanted thread from the spindle hole. There are also cases where sleeves are pulled into the roving section due to improper dressing by the workers themselves.

In general, the cases can be divided into three major categories; severe, major and minor. Severe cases in the factory usually involves fractures and major cases are those which has stitches or

finger snapped. Minor cases is generally categorised as deep cut on finger or prolonged bleeding. Fig. 9 shows the degree of accident cases within the spinning department. It is observed that 55 % of the cases are minor and major cases comprise of 32 %.

## CONCLUSION AND RECOMMENDATIONS

1. Most of the injuries come from the spinning section and roving machine which led the spinning department covers 55 % of the accidents recorded with the common injuries are hand and finger injury as well as fracture due to carelessness of workers, improper safety training and lack of proper attire
2. Accidents can be reduced if every company sets up its own occupational safety and health committee with the objective of creating safety awareness among workers. There is a misconception that safety and health at work is the responsibility of the government alone. It is not so because ensuring the safety and health of workers is a collective responsibility of everyone including employers and employees.
3. It is important for the workers to follow the operating and safety procedures, wearing the personal protective equipment such as appropriate uniform, gloves and ear plug
4. Safety features can be designed and engineered into the physical structure of the plant but human error is one of the most common causes of accidents is unpredictable and therefore problematic in terms of design. There is no tangible reward for working safely and it is difficult to appreciate accident that has been avoided. There should be improvement of safety record by reducing the potential for accident and investigation must be always focused on the final error, which led to the accident.
5. Main attribute of effective safety management is effective leadership. Employees need motivation and encouragement in the respective job or machine they are handling. There should be display of management's own direction and visible commitment to safety, some fundamental principles of total safety performance and investment in the prevention of accidents, which will protect employees. The policies must not totally depend on inspection and initiative always comes from the management, which can set example, guide the actions that follow, and commitment to accident prevention through

implementation of safe working procedures. The whole idea has to move from talking shop to being action based.

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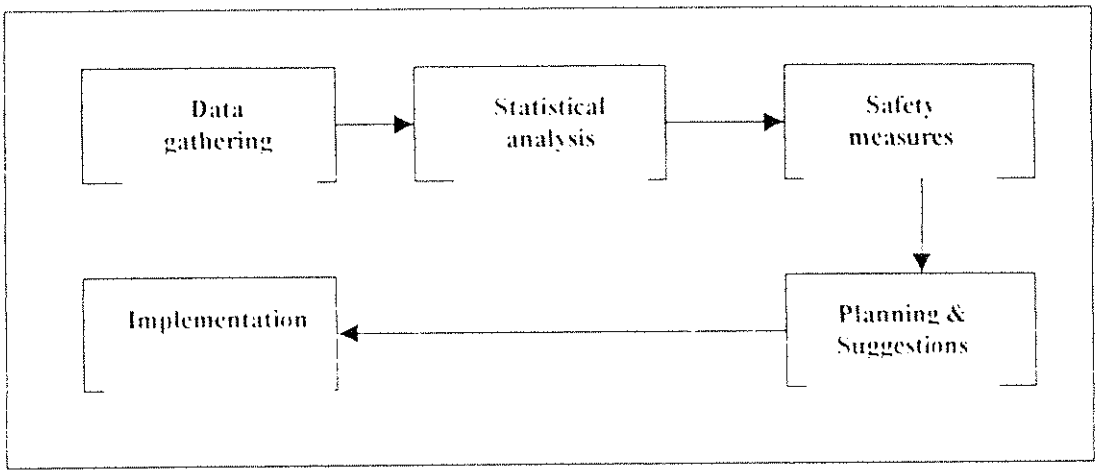


Figure 1 Research Methodology Flowchart

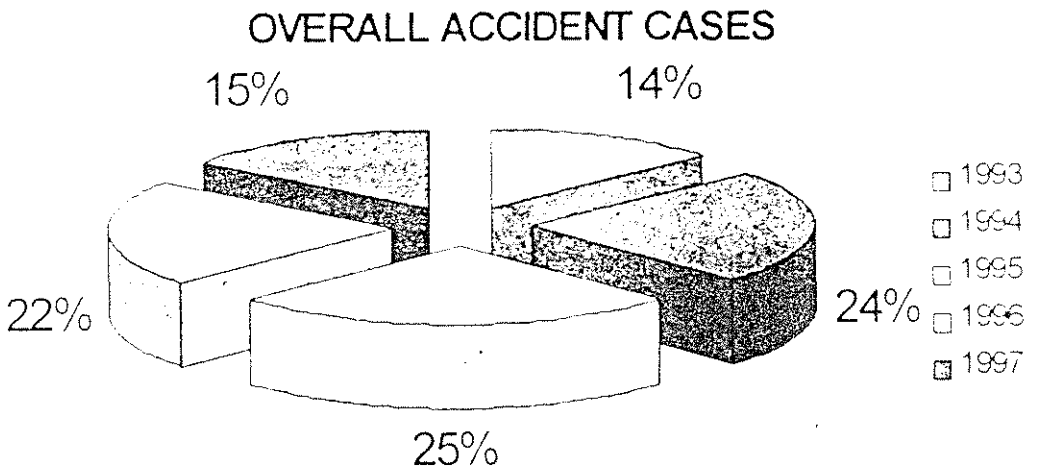


Figure 2 Overall Accident Cases

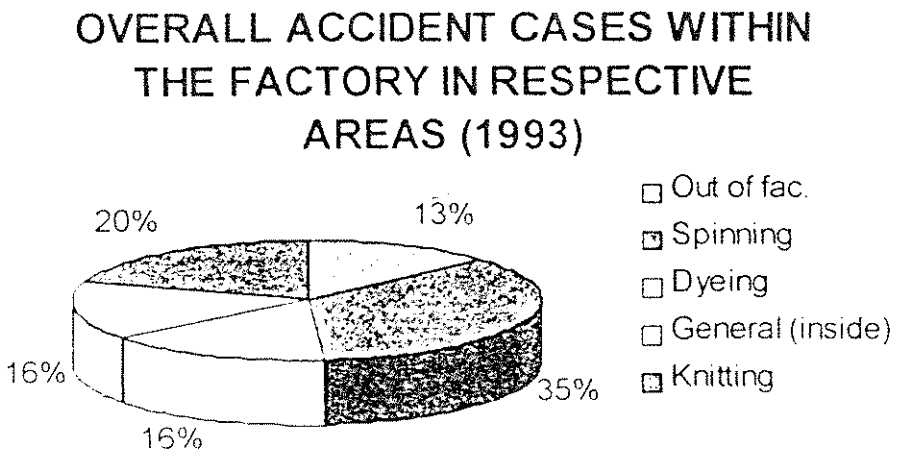


Figure 3 Overall Accident Cases in 1993

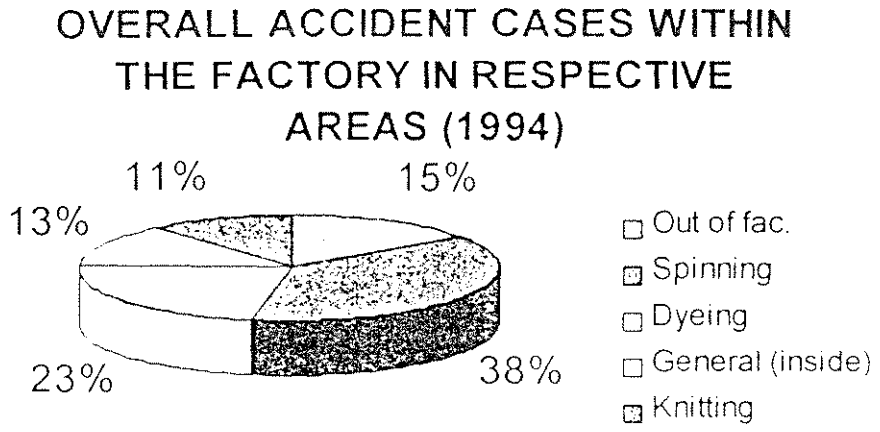


Figure 4 Overall Accident Cases in 1994

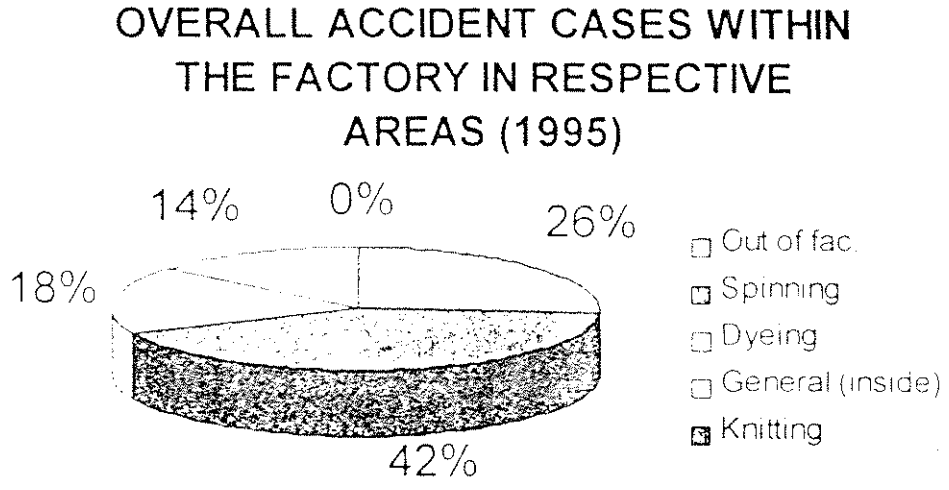


Figure 5 Overall Accident Cases in 1995

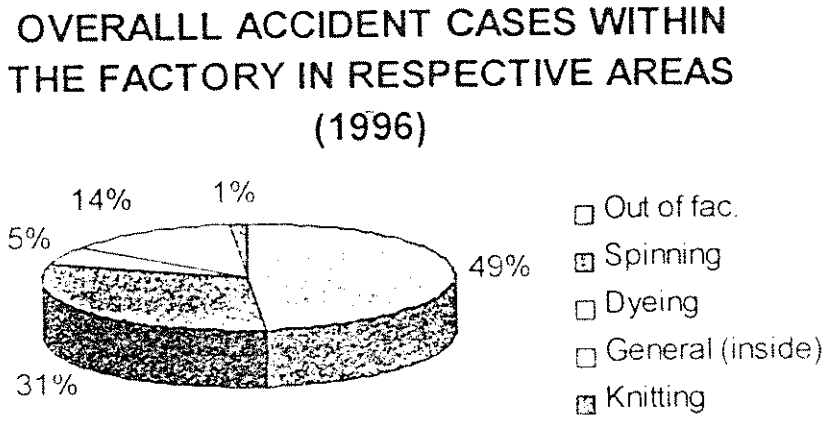


Figure 6 Overall Accident Cases in 1996

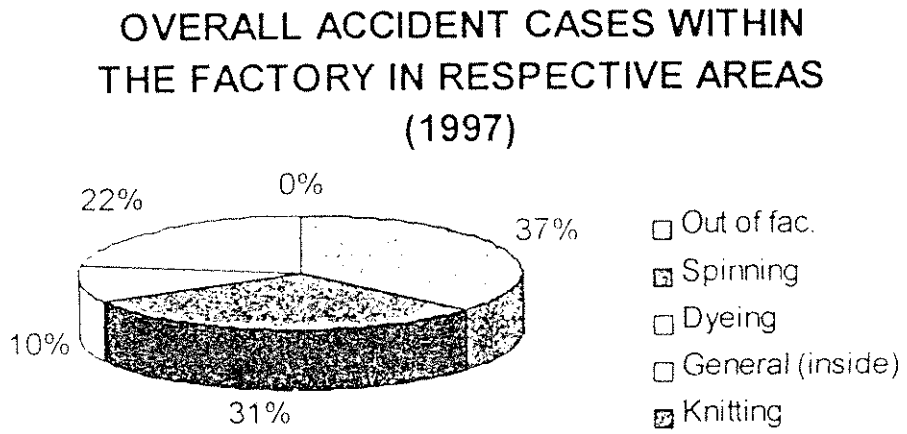


Figure 7 Overall Accident Cases in 1997

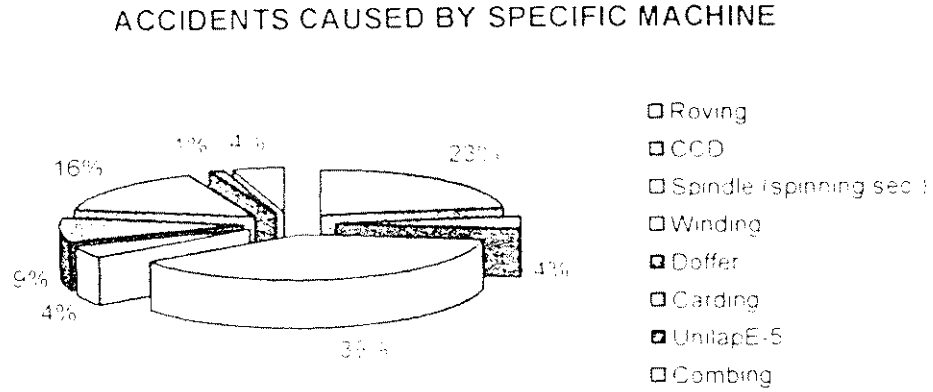


Figure 8 Accidents in Spinning Department within 1993 – 1997

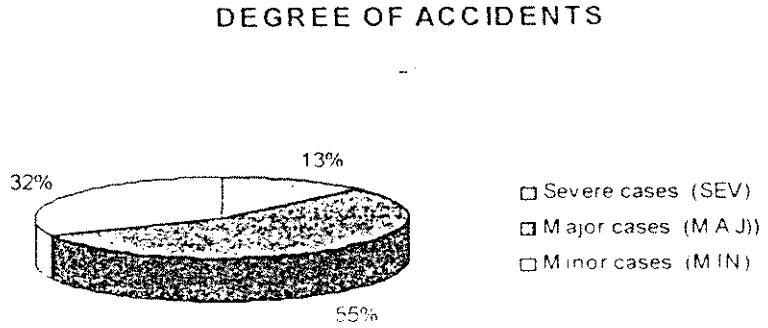


Figure 9 Degree of Accidents in Spinning Department (1993-97)