# ANALYSIS OF HEALTH AND SAFETY PRACTICES AFFECTING THE PRODUCTIVITY OF HUMAN RESOURCES IN THE APPAREL INDUSTRY IN SRI LANKA

DT Mahanama[1] and DR Ratnajeewa[2]

[1]Department of Management and Finance, General Sir John Kotelawala Defence University, Sri Lanka
[2]Department of Management and Finance, General Sir John Kotelawala Defence University, Sri Lanka
*#dilanirr@gmail.com*

**Abstract** - The apparel industry contributes a significant amount to Sri Lanka's economy and GDP. It is one of the fastest growing industries in Sri Lanka and it is a major employment generator. As it is relying highly on human capital, the productivity of employees is vital. For higher human resource productivity, there has to be a safe and healthy environment where hazards and accidents are eliminated or minimized. Therefore it is important to identify the health and safety practices which affect the productivity of the human resources. Thus, the objective of this study was to identify the significant health and safety practices which affect the productivity of employees. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling which is a non-probability sampling technique and large scale manufactures were selected. The respondents were team leaders, executives and managers of apparel manufacturers. The sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable. Cronbach's alpha value of 0.818 was obtained. Factor analysis (Rotated Component Matrix) was carried out using SPSS. Three factors were identified and these three factors explained 78% of the variance of the dependent variable. The research identified three main health and safety practices which affect the productivity of employees; investments on health and safety practices, personal health and protective measurements and action for breach of regulations.

**Keywords** - Health and Safety Practices, Productivity, Investments, Training workshops and drills, Awareness

## I. INTRODUCTION

The apparel sector is one of the fastest growing industries in Sri Lanka. It can be known as a major contributor to the export revenues in Sri Lanka since 1986. Further, the apparel manufacturing and exporting industry also contributes a major portion to the GDP in Sri Lanka (Perera, 2013). As there is a huge competition for the apparel companies in Sri Lanka which exports the apparel products. The quality of the apparels which are manufactured, and the quality of the raw materials should be maintained throughout the process of manufacturing. Else there can be serious issues which will affect the company in a negative manner. To gain the competitive advantages, it is very important to manage the resources well. In that case, utilization of human resources while ensuring their safety is highly considered.

Due to the open economy policy in the 1980's the apparel industry grew as an alternative to the Indian garment manufacturers. Sri Lanka also became an attractive venue for businesses as Sri Lanka had a trade and investment friendly environment during the 1980's. In the recent times most of the exports to United States is largely from MAS and Brandix with a smaller percentage from Hirdaramani Group. Apparel industry is the major contributor to the Sri Lankan economy. MAS, Brandix and Hirdaramani Group

are the three main companies in the apparel industry that majorly contribute to the economy of Sri Lanka. The United States is the major importer of textiles from Sri Lanka.

The apparel industry in Sri Lanka is considered ethical due to the opposition of child labor. Apparel manufacturing is largely based on human labor and women are highly involved in the apparel manufacturing process. According to the Sri Lankan statutory laws all the employees in every organization should be paid with EPF and ETF which is similar to a retirement plan. This is a mandatory requirement for the employees to be provided by the employer. These funds are a proportion of the employee's salary.

The employees of the apparel companies play a significant role in the process of maintaining the quality of the apparels which are produced by the company. The impact of health and safety practices for the employees affect the entire manufacturing process which will result in the productivity of the organization. Apparel manufacturing companies therefore should implement better health and safety practices to enhance the productivity of the entire organization. According to the previous researches the productivity depends on the working conditions, investments made for the safety measures, training and development programs given to the employees, the number of accidents, the days missed from work and the contracts entered with the insurance companies.

In the global context the health and safety measures are identified as a significant measure that affects the productivity of the employees in any industry. As Sri Lanka is a developing country and the textile industry is largely contributing to the economy, the implementation of health and safety measures must be prioritized. Therefore, this study analyses the health and safety practices affecting the productivity of human resources in the apparel industry in Sri Lanka.

## II. LITERATURE REVIEW

The apparel industry is one of the largest growing industries in Sri Lanka and plays a key role as an industry which generates high revenue to the country. Health and safety affects the effectiveness and efficiency in any industry. As the apparel industry is highly based on human resources and their capabilities, maintaining and improving the health conditions and assuring the safety of the employees will lead to higher performances and productivity levels of the individuals and in the company.

Not only the investments made in the organizational infrastructure, but the firms also invest in the health of the employees. Therefore, labor market institutions have been designed to protect the health and safety of employees through financial and monetary mechanisms (Tompa, 2002). "The main policy levers for providing such incentives are occupational health and safety regulation and experience-rated workers' compensation insurance" (Tompa, 2002).

The direct cost of an organization with respect to health and safety issues such as accidents include indemnity payments, insurance administration expenses and medical services which are directly paid by the employers to the employees. But this direct cost does not include the productivity losses due to injuries and illnesses of the employees of the organization. High absenteeism could also result from poor health and safety practices. Therefore the total cost of such incidents is much more.

When considering health and safety practices the working environment around should not be unpleasant to the workers as it can affect the mentality of the workers. Therefore, proper investments need to be made on the infrastructure as it affects the health and the safety of the employees of the organization. The working environment should ensure the safety of the employees working in the organization. The working environment has a significant effect on the employees of the organization as they are the ones who always interact with the environment of the organization. Improper workplace environment may lead to physical and emotional stress, low productivity and poor quality of work. There are many issues that are related to the workplace environment which are crucial to determine the productivity level of employees. Proper workplace environment will lead to cost reductions related to health risks, accidents that can happen at the workplace and also illnesses due to poor working conditions. In order to create a better workplace environment, factors such as noise, heavy lifting burden, availability of resources and facilities and internal climate conditions should be considered. Further by focusing more on the machines and tools, job designs and design of the facilities the organizations can provide a better workplace to the employees (Shikdar and Sawaqed, 2003).

Not only the physical assurance of a better workplace but also having rules for the employees and effective

utilization of resources will ensure the safety of the employees. A satisfied, motivated and healthy workforce contributes more towards the success of any organization (Jilcha, 2016).

An organization should pay proper attention to the equipment that are not guarded and should take proper measures to guard this equipment well. There can be overloading and unsafe storage which will make the working environment unsafe for the employees. To ensure the safety of the human resources of the organization, there needs to be adequate safety devices such as, clothing, helmets and goggles. Based on the type of the risks in the organization personal protection equipment (PPE) should be given. The employees should be provided with fall protection, nail gum protection, eye protection and skin protection equipment accordingly (Vinotha, 2015).

Shikdar and Sawaqed (2003), discusses that improper workplace designs, ill-structured jobs, adverse environment, poor worker health and workplace hazards have been identified as the factors which affect the productivity of the company. These factors not only affect the productivity but also the quality and this leads to an increase in the cost of the company.

Another significant aspect of industry health and safety is the Occupational Health and Safety Act (OSHA) which came into action in 1970. With the introduction of the OSHA the injury rates reduced. The introduction of OSHA standards were to assure the safety of the employees in any organization. Whereas companies should abide by the OSHA standards, the companies where the employees work in unsafe working conditions will be charged with penalties. The injury rates have reduced significantly with the introduction of Occupational Safety and Health Act which came into context in 1970 and OSHA standards have a higher impact on the productivity of the employees (Viscusi, 2006).

Therefore by taking all these factors discussed in previous literature the conceptual framework of this study was developed.

## III. METHODOLOGY

The research has a deductive approach as it is conducted to explain the relationship between the dependent and independent variables. Primary data was collected to conduct the study. The data to conduct the above study were collected through survey methods where questionnaires were provided to the sample population of the study. In this study qualitative data was quantified using a scale. The time horizon of the study is cross sectional as data is collected from the sample population at the same time.
In order to collect primary data to perform the analysis 5-point Likert scale was used. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling which is a non-probability sampling technique and large scale apparel manufactures in the Western province were selected. The respondents were team leaders, executives and managers of apparel manufacturers. The sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable as depicted in Figure 1.


***Figure 1: Conceptual Framework***

After the completion of data collection process, SPSS software was used to analyze the data obtained from the questionnaires. Factor analysis method was the main analysis method used. The factors which have a significant effect on the productivity of employees was identified through this study.

## IV. DATA ANALYSIS

The data obtained was analyzed using the SPSS software. In order to accomplish the objectives of the research reliability analysis, KMO test, and factor analysis have been performed.

Cronbach Alpha value is taken as a measure the internal consistency of the data set. The Cronbach Alpha value of 0.818 was obtained which represents that the obtained data set is consistent to continue with the analysis process.

**Table 1: KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .838 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2492.315 |
| | df | 136 |
| | Sig. | .000 |

Kaiser-Meyer-Olkin test is a measure to value how suitable the data is to perform the factor analysis. The test measures sampling adequacy. When interpreting the statistics KMO values between 0.8 and 1 is stated as adequate, less than 0.6 states that the sampling is inadequate and values closer to 0 shows that there are large partial correlations. The obtained data set of the study can be interpreted as adequate according to the KMO test as the value is 0.838.

### *A. Factor Analysis*

According to the Eigenvalue rule, four factors have been identified as factors that affect the productivity of the employees in the apparel industry in Sri Lanka. Table 2 depicts the Initial Eigenvalues and the Rotation Sums of Squared Loadings. Three factors have been obtained (the factors which have eigenvalues above 1). These three variables identified explain 79% of the total variance of the dependent variable of productivity. The first factor explains 57.52 percent of the variance, the second factor describes 13.74 percent of the variance while the third factor explains 7 percent variance of the independent variable.

Components are not defined at this stage of the analysis as it is only done in the next stage, using Table 3. Rotation Sums of Squared Loadings represent the distribution of the variance after the varimax rotation. Varimax rotation tries to maximize the variance of each of the factors extracted, so the total amount of variance accounted for is redistributed over the five extracted factors. Table 3 shows the variables which come under each component. Table 3 contains the rotated factor loadings, which represent both how the variables are weighted for each factor and also the correlation between the variables and the factor. Each variable of the study is assigned to the component with which it has the highest correlation as marked in bold in Table 3 (Eg: Improved working conditions has a correlation of 0.819, 0.011 and 0.228 respectively with the three extracted components respectively. Therefore the highest correlation is with the first component. Hence improved working conditions is assigned to the first component). Therefore assigning of variables to components is based on this correlation values. Table 3 interprets the factors which were obtained through the analysis by taking into consideration the variables assigned to each factor.

The following functions can be defined with these factors according to Table 3:

Component 01- Improved working conditions, Regular workplace inspections, Pleasant working environment, Employee insurance schemes, Application of international safety standards, conducting high quality workshops, Training programs related to the jobs, Conducting training programs for specific needs, Ergonomics assessment
Component 02- Health state, Occupational health and safety tools, Provision of sufficient PPE to the employees, Awareness of employees on reporting hazards and accidents Component 03- Penalties on violation of regulations, Efficient usage of PPE, Attitude of employees towards safety practices

These three components can be named as following: Component 01 as Investments on health and safety practices, Component 02 as Personal health and protective measurements and Component 03 as Action for breach of regulations.

## V. CONCLUSION

The apparel industry contributes a significant amount to Sri Lanka's economy and GDP and is a major employment generator. As it is relying highly on human capital, the productivity of employees is vital. For higher human resource productivity, there has to be a safe and healthy environment where hazards and accidents are eliminated or minimized. Therefore this study has researched on the health and safety practices which affect the productivity of the human resources. Thus, the objective of this study was to identify the significant health and safety practices which affect the productivity of employees. Primary data was obtained through questionnaires. The sample of the study was selected based on judgmental sampling

which is a non-probability sampling technique and large scale manufactures were selected and the sample size was 100. Four independent variables; investments on safety measures, personal protective equipment usage, training workshops and drills and the awareness of the employees were used and employee productivity was the dependent variable. Through factor analysis three factors were identified. These three factors can be named as Investments on health and safety practices, Personal health and protective measurements and Action for breach of regulations. This is related to the findings of previous studies which state that by investing more on the machines and tools safety, job designs and design of the facilities the organizations can provide a better workplace to the employees (Shikdar and Sawaqed, 2003). Further previous studies also discuss that the employees should be provided with fall protection, nail gum protection, eye protection and skin protection equipment accordingly which come under personal health and protective measurements (Vinotha, 2015).

Therefore organizations in the apparel industry should focus on these factors in order to improve on health and safety which will affect their human resources' productivity.

Further research can be suggested to be done for the small and middle-scale apparel manufacturing organizations on the level of implementation of health and safety practices in the middle and small scale apparel manufacturers in Sri Lanka and how these practices affect the human resource productivity of the organizations.

## REFERENCES

Jilcha, D. K. (2016). 'A literature review on global occupational safety and health practise and accidents severity', *International Journal for Quality Research*, 10(2), p279-310.

Perera, M. (2013). 'Textile and Apparel Industry of Sri Lanka - An Overview Contents'.

Shikdar, A. A. & Sawaqed, N. M. (2003). 'Worker Productivity, and Occupational Health and Safety issues in selected industries', Elsevier,45(4).

Tompa, E. (2002). 'The impact of health on productivity', *The review of ecomonic performance and social progress*.

Viscusi, W. K. (1979). 'The Impact of Occupational Safety and Health Regulations', *The Bell Journal of Economics*, 10, p117-140.

**Table 2: Total Variance Explained**

| Component | Initial Eigenvalues | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 9.204 | 57.524 | 57.524 | 6.453 | 40.334 | 40.334 |
| 2 | 2.198 | 13.738 | 71.263 | 3.546 | 22.166 | 62.500 |
| 3 | 1.120 | 7.002 | 78.265 | 2.522 | 15.765 | 78.265 |
| 4 | .799 | 4.991 | 83.256 | | | |
| 5 | .640 | 3.998 | 87.254 | | | |
| 6 | .516 | 3.224 | 90.478 | | | |
| 7 | .319 | 1.996 | 92.474 | | | |
| 8 | .299 | 1.870 | 94.344 | | | |
| 9 | .284 | 1.772 | 96.116 | | | |
| 10 | .206 | 1.286 | 97.402 | | | |
| 11 | .128 | .799 | 98.201 | | | |
| 12 | .095 | .594 | 98.795 | | | |
| 13 | .069 | .432 | 99.227 | | | |
| 14 | .053 | .331 | 99.558 | | | |
| 15 | .041 | .258 | 99.816 | | | |
| 16 | .029 | .184 | 100.000 | | | |

***Extraction Method: Principal Component Analysis.***

**Table 3: Rotated Component Matrixa**

| | Component | | |
|---|---|---|---|
| | 1 | 2 | 3 |
| improved working conditions | .819 | -.011 | .228 |
| regular workplace inspections | .770 | .319 | .157 |
| penalties on violations of regulations | .402 | -.412 | .605 |
| health state | .091 | .946 | .031 |
| occupational health and safety tools | .460 | .823 | .152 |
| pleasant working environment | .721 | .389 | .311 |
| employee insurance scheme | .615 | .115 | .541 |
| application of international safety standards | .828 | .321 | .361 |
| provision of sufficient PPE to the employees | .478 | .785 | .095 |
| efficient usage of PPE | -.043 | -.258 | -.913 |
| conducting high quality workshops | .660 | .232 | .211 |
| training programs related to the jobs | .772 | .274 | .185 |
| conducting training programs for specific needs | .850 | .307 | .268 |
| ergonomics assessment | .857 | .286 | .098 |
| awareness of employees on reporting hazards and accidents | .575 | .666 | .111 |
| attitude of employees towards safety practices | -.418 | -.064 | -.722 |

***Extraction Method: Principal Component Analysis.***
***Rotation Method: Varimax with Kaiser Normalization.***
***a. Rotation converged in 6 iterations.***