ABSTRACT

This research study was carried out to develop a supplier selection model using AHP for large-scale apparel industry in Sri Lanka. The conceptual framework was structured based on analytic hierarchical process (AHP) and 6 supplier selection criteria and 25 sub-criteria were identified. 15 companies were identified as large-scale apparel manufactures. Primary data was collected through questionnaire survey for 15 companies. 30 responds from questionnaire 01 and 17 responds from questionnaire 02 were collected. All the criteria were validated by industry experts and statistically tested by measuring spearman correlation coefficient. Pairwise comparison carried out to calculate weight for every criterion and consistency ratio calculated to check the validity of the responses.

According to the descriptive analysis all the companies maintain pool of supplies and consider supplier selection as a critical activity in the business process. Most of the companies select suppliers based on the performance. All the sub-criteria are positively corelated with the main criteria and p-value is less than 0.05 according to the spearman correlation coefficient. Geometric mean was used to build pairwise comparison matrices and consistency ratio was calculated for every level of the criteria hierarchy. Consistency ratio is less than 0.1 for all the comparison matrices which mean the responses were acceptable. According to the weights quality, financial consideration, and delivery are the top most important criteria influencing for select suppliers. After that supplier selection model was developed.

Lack of studies regarding to the supplier selection criteria and models in Sri Lankan context is the main limitation of this research study. So, the model was developed specifically to the Sri Lankan context to select the best supplier form a pool of suppliers. The proposed model will help to procurement professional to make decision in large scale-apparel industry in Sri Lanka.

Keywords: Analytic hierarchy process, consistency ration, large-scale apparel industry, pairwise comparison, spearman correlation coefficient, supplier selection, supplier selection criteria.