

**A Study of the
Fabric and Panel Inspection Process
with reference to
Sri Lankan Garment Industry**

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Abstract

Fabric manufacturing consists of dozens of complex interdependent processes. These processes need to be controlled under specific conditions to achieve the quality expectations of the customers. However the present technique of the fabric manufacturing is not adequate enough to produce perfect fabrics. Thus chemical and physical tests are performed to evaluate the properties and characteristics of fabrics, which are not apparent to naked eye and to maintain the required quality levels. Fabric inspection is a tool used by fabric manufacturers to evaluate the visible material defects, which also contribute to maintain the quality levels of the products.

Fabric inspection plays a vital part in the garment quality assurance. However the attention paid by the Sri Lanka garment industry to fabric inspection is inadequate. Though most large-scale garment factories in Sri Lanka practise fabric inspection the same attention is not seen in medium scale and small-scale garment factories. Majority of the employees in fabric inspection departments are trained in-house and have not obtained any professional training.

According to the available evidence there are six different types of fabric grading methods. Garment industry in Sri Lanka uses three of these fabric grading methods; namely American Society for Quality Control's (ASQC) Four Point System, Marks & Spencer Six Point System and Dallas System. Acceptable point level of a fabric consignment varies depending on the standard set up by garment buyer and the grading methods employed. Results

obtained by using standard fabric inspection and grading methods can be used to resolve any quality issue prior to cutting of the fabric.

Panel inspection process is more remote in factories in Sri Lanka. Lack of understanding of the nature and special characteristics of the fabrics by the panel inspector's would lead in to unnecessary rejection of cut panels. However, if proper panel inspection is done, fabric wastage caused by visible fabric defects could be substantially reduced.

Previous research works mainly concentrate on improvement and automation of fabric inspection. However there are no evidences of theoretical models to estimate the fabric losses caused by material defects based on the data obtained during fabric inspection. The need of the development of an empirical relationship to estimate the fabric wastage an early stage of apparel production was identified.

The mathematical model derived by the researcher in 2001 for estimating fabric wastage was tested with a computer-based simulation. A new model was developed to obtain reliable estimate of fabric wastage due to material defects.

Based on the computer simulation the new model proved to be very suitable for estimating fabric wastage caused by defect sizes that are less than three inches. The model needs to be improved further to estimate fabric wastage caused by larger defects and multiple defects on the same panel.