

# Recent Trends and Techniques in Textile Industry Mining - A Study in Karur District

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## ABSTRACT

The Indian textile industry is structurally flawed and its efficiency and growth depends upon the corrective measures and their effectiveness. This process of improving the structural aspects of the industry was initiated in the 1985 Textile Policy, which for the first time took a sectoral view of the industry. The government is spelling out the need for an integrated approach whereby all sectors will be modernized synchronously. This integrated approach is felt to help the textile industry to achieve a reasonable level of upgraded production technology and make it strong enough to face the changed competitive global scenario from the year 2005. In order to meet the changed competitive conditions due to globalization and liberalization of the economy, there is an urgent need for upgrading the technology levels currently prevailing in the weaving segment, particularly the power loom sector. All these call for the preparation and implementation of proper action plan in which all the stakeholders i.e., the government, the weavers and the other interest groups get fully involved. In order to prepare an effective perspective plan spread over 3-5 years of modernization for this important sector, this study on the status of the power loom sector in Tamil Nadu with focus on modernization has been carried out during August- December 2011.

Index Terms: Globalization, Liberalization, Power loom, Rapier looms, Stakeholders



## 1. SCOPE OF THE STUDY

The study has aimed at finding out the current status of the power loom sector in Tamil Nadu in relation to its production efficiency and capabilities with a view to speed up modernization of the power looms. In order to get primary information on the raw material supply as to its quality and availability, technology level as evidenced from the age/type of power looms, their production capacity, technology category, adaptability to the changing market requirements, this study has covered full-fledged power loom manufacturers as well as job work units. As the power loom industry has got a wider dispersal in

Tamil Nadu, such primary data collection had representation from most of the cluster centers in the state. In addition to the data at the level of primary power loom units, a representative sample of power loom fabric manufacturers with operational power loom units and also without looms located in major manufacturing centers like Coimbatore, Salem, Erode, Tiruppur, Madurai and Chennai have been covered in order to get the required information on the industry's perspective and problems inhibiting modernization. In addition to the above two segments, additional inputs have been gathered from local governmental and non-governmental institutions on the issues relating to the modernization aspect.

## 2. OBJECTIVE

This study has focused on the issues of modernization, quality improvement and market adaptability of the power loom sector in Tamilnadu, which will be useful in preparation of the short term/long term perspective plan. The broader objectives of the study are:

1. Analyzing the present status and functioning of the power loom units and assessing their operational/business capabilities according to the household and industrial types.
2. Assessing the existing pre-weaving, level of technology in weaving and machinery set-up with a view to identify the area-wise up gradation needs.
3. Gathering relevant information on the quality and supply of grey and dyed yarns and assess the supply chain efficiency.
4. Assessing the flexibility and adaptability regarding quick responses to market changes in products; and the ways and means of increasing such capability.
5. An appraisal of the existing man-power skill-level resources and identification of training/HRD requirements.
6. Suggestions for modernization measures In relation to technology up gradation, quality improvement and competitive marketing.

## 3. INTRODUCTION

India has been one of the leaders in Textile Manufacturing. In export of textile from India has been growing fast and continues to grow. Power loom products forms a major part in it. In Karur District, the power loom occupies a significant size of the business which gives commendable employment opportunities to the innumerable families. The opportunity for this industry to produce fashionable and quality product is bright. The aim of this study is already experienced in the field for the past four decades and is having a sound capacity to develop it in a appreciable manner and it is quite confident of successfully and profitably implementing.

## 4. MARKETING POTENTIAL

The various Textile Companies in Karur are exporting goods to the countries VIZ. New York, Sweden, U.K., Belgium, Poland, Germany, Canada, Austria, etc., The Bleaching, Dyeing & Weaving processes are done by the firm itself having Weaving Unit & Dyeing Unit in different places.

## 5. MODERN INDUSTRIAL WEAVING

### 5.1 RAPIER LOOMS

The rapier feeds the filling yarn half way through the shed of warp yarns to the arm on the other

side, which reaches in and takes it across the rest of the way. These rapier looms are efficient. They operate at speeds ranging from about 200 to 600 rpm., at about the noise level of missile looms. They can produce a wide variety of fabrics ranging from muslin to drapery and upholstery materials.

## 5.2 Construction of cloth designs

A textile designer prepares a pattern of the weave which is put into cross-sanctioned paper called point paper in order to indicate the required positions of the yarns of the yarns for the construction of the fabric. This weave pattern may also be done by computer. A draft of the design is indispensable when setting up a loom for a particular weave or color effect, as it indicates the particular heddle through which each warp yarn is to be drawn. The horizontal squares represent the filling yarns; the vertical squares represent the warp.

## 6. THREAD COUNT

The durability of a fabric depends on

- The kind and quality of the fiber,
- The tensile strength of the yarn,
- The amount of Twist in the yarn,
- The use of ply yarns as compared with singles,
- The use of uniform yarns rather than novelty yarns, and

- Compactness of Construction.

Compactness is one of the most significant factors when considering the durability of the fabric. It is determined by the closeness of the yarns after the fabric is woven. A closely woven fabric has a larger quantity of yarns than a loosely woven one and is therefore more serviceable. A garment made from such a fabric shrinks less in washing, slips less at the seams, and keeps its shape. A fabric of compact construction has a high thread count, also known as cloth count, is determined by counting the number of warp yarns and filling yarns in a square inch of fabric. These yarns are commonly referred to as ends and picks, terms that are synonymous with warp and filling, respectively.

### 6.1 Warp and filling

The direction of the warp determines the way in which the fabric should be cut when a garment made from it. In a new piece of cloth, the direction of the warp is easily distinguished. The length of the fabric indicates the warp yarn. Also, if a piece of the fabric shows part of the selvage, which is the firm edge of the cloth, then the yarns parallel to the selvage are warp yarns. The opposite yarns are the filling yarns. When a sample of fabric contains no selvage, the warp and filling may be identified by observation of the weave.

1. In plain weaves, a greater number of yarns running in one direction indicate the warp.
2. In satin weaves, the floating yarns are more likely to be the warp yarns. When one runs a finger over the fabric in both directions, the finger will slide more easily in the direction of the floats. Usually the floats will be in the warp, unless the fabric is cotton. Cotton is more likely to have the floats in the filling.
3. In twill weaves, the filling yarns run in the direction of the diagonal, which may be toward the right or toward the left.

## 6.2 Warping

The chief function of warping is to provide a sufficient number of parallel threads for a web all of equal length and to retain their parallelism. The number of longitudinal threads in a web varies according to closeness and breadth. Warping is extensively used in cotton trade and section warping employed for colored threads.

In Beam warping the creels have a capacity of nearly 600 bobbins and are V shaped in plane. On this V the bobbins are arranged in rows or tiers of nearly 20 in row behind row. The threads are drawn separately on a series of rollers and then to warp beams, which rest on the surface of a drum. As the drum rotates, the threads are drawn from

bobbins and wrapped in even coils upon the beam. Chiefly employed for colored threads, the peculiarity being in contracting the threads to form a ribbon.

## 6.3 Weavers

The manner in which groups of warp yarns are raised by the harnesses to permit the insertion of the filling yarn determine the pattern of the weave and in the large measure the kind of fabric produced. Weave patterns can create varying degrees of durability in fabrics, adding to their appearance. In a simple weave construction, consisting of the filling going under one warp and over the next, two harnesses are needed; one to lift the even numbered warp yarns. More than two harnesses are required or advanced weaves, and as many as forty for fingered weaves.

The three basic weaves in common use for the majority of fabrics are plain, twill and satin, with some variations. Important constructions are also obtained from the following weaves; double cloth, gauze, swivel, lappet, dobby and Jacquard.

## 7. ESSENTIAL WEAVING OPERATIONS

On the loom, the warp beam is mounted at the back and the warp yarns are conveyed to a cylinder called the cloth roll, which is at the front of the loom and on which the fabric is rolled as it is

constructed. Supported on the loom frame between these two cylinders (the warp beam and the cloth beam), the warp yarns are ready to be interlaced by the filling yarns that run in the width of the cloth, thus producing the woven fabric. In any type of weaving, four operations are fundamental. They are performed in sequence and are constantly repeated: Shedding: raising specific warp yarns by means of the harness or heddle frame Picking: inserting filling yarns through the shed. Taking up and letting off: winding the finished fabric on the cloth beam and releasing more of the warp from the warp beam. Beating up (Battening): pushing filling yarns firmly in place by means of the read.

## 8. CONCLUSIONS

The Indian textile industry is one of the largest in the world with a massive raw material and textiles manufacturing base. Our economy is largely dependent on the textile manufacturing and trade in addition to other major industries. About 27% of the foreign exchange earnings are on account of export of textiles and clothing alone. The textiles and clothing sector contributes about 14% to the industrial production and 3% to the gross domestic product of the country. Around 8% of the total excise revenue collection is contributed by the textile industry. So much so, the textile

industry accounts for as large as 21% of the total employment generated in the economy. Around 35 million people are directly employed in the textile manufacturing activities. Indirect employment including the manpower engaged in agricultural based raw-material production like cotton and related trade and handling could be stated to be around another 60 million.

This industry is' poised to meet the increased global competition in the post 2005 trade regime under WTO. The consequent effects of unleashing a flood of imported textiles into India and also making the export markets far more competitive are being felt from now onwards. The textile industry in India has a strong multi-fiber raw material production base, vast pool of skilled personnel, entrepreneurial talent, good export potential and low import content. Production systems are flexible, dynamic and vibrant. However, the industries above strengths get substantially diluted on account of production process disadvantages in certain areas in terms of technology and supply-chain management deficiencies. It is high time that adequate corrective measures were taken to prepare a technology savvy industry to meet the challenges ahead.

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